Call to Order/Roll Call. .................................................... Adrianne Collins, Chair

Greeting ................................................................. Adrianne Collins

Action Items:
1. Request to Offer a New Degree Program: Bachelor of Science in Instructional Design and Technology
2. Request to Offer a New Degree Program: Master of Science in Cybersecurity
3. Request to Offer a New Degree Program: Master of Science in Engineering

Information Items:

Other Committee Business:

Adjournment
Action Item

UWF Board of Trustees Meeting
Academic Affairs Committee
February 14, 2019

Issue/Agenda Item: Request to Offer a New Degree Program – Bachelor of Science in Instructional Design and Technology (BS in IDT)

Proposed Action: Approve Request

Background Information:

The University of West Florida (UWF) proposes to offer the Bachelor of Science in Instructional Design and Technology (BS in IDT) degree program in CIP Code 13.0501, a STEM discipline, effective Fall 2019.

The BS in IDT is an undergraduate degree program consisting of 120 semester credit hours that will be housed in the Department of Instructional Design and Technology within the College of Education and Professional Studies (CEPS). The proposed BS in IDT program is currently operating as a specialization in the BS in Career and Technical Education (CIP Code 13.1320) degree program. Repositioning this degree program from a specialization to a stand-alone BS in IDT will make the program more visible to students seeking this degree and more effectively communicate the education and training graduates of the program will receive to potential employers. The BS in IDT will be offered in a fully online format.

UWF’s proposed BS in IDT program will prepare graduates for positions in training and development across a variety of sectors including education, industry, government and military, and healthcare. In addition, the proposed BS in IDT will address a gap identified by the IDT faculty through industry research. IDT has traditionally been taught at the graduate level however in recent years there has been a significant increase in the number of entry level job openings in the field that require Bachelor’s degrees. Institutions of higher education have not yet responded effectively to this shift in market demand. Very few institutions offer BS degrees in the field and even fewer offer this degree program online. UWF will be the first SUS institution in the state of Florida to offer a BS in IDT.

The U.S. Bureau of Labor Statistics predicts over 20% growth in jobs related to instructional design through 2026. In addition, the Florida Department of Economic Opportunity projects 27% growth in jobs related to instructional design in the state of Florida through 2025 with an average annual salary ranging from $55,800-$58,610 depending upon the classification. A recent search of job sites yielded active postings in the state of Florida for instructional designers with a BS degree with numerous employers including Humana, Spirit Airlines, Oracle, General Dynamics IT, Cox Communications, Florida International University, and Ellucian.

The addition of the BS in IDT degree program at UWF will provide clear benefits to the university and the local community:

- Offer entry into an educational pathway that prepares students for long-term career growth.
- Allow the university to respond to local, regional, and state workforce needs.
- Increase enrollment and degree production in a STEM field with strong growth.

Implementation Plan:

- The CAVP approved the BS in Instructional Design and Technology on September 28, 2018.
- The UWF Faculty Senate approved the curriculum on November 9, 2018.
- The UWF Board of Trustees Academic Affairs Committee considers the Request to Offer New Degree Program February 14, 2019.
- The UWF Board of Trustees considers the Request to Offer New Degree Program March 20, 2019.
- Notification to Florida Board of Governors March 2019.
- Notification to SACSCOC of Substantive Change March 2019.
- New degree program implemented Fall 2019.

Fiscal Implications: Fiscal implications are reflected in the Request to Offer.

Supporting documents:

Request to Offer a New Degree Program – BS in Instructional Design and Technology
http://pages.uwf.edu/aadocs/bot/RTO_BS_IDT.pdf

Prepared by: Kimberly D. McCorkle, Vice Provost
(850) 857-6198, KMcCorkle@uwf.edu

Presenter: Kimberly D. McCorkle, Vice Provost
Board of Governors, State University System of Florida

Request to Offer a New Degree Program
(Please do not revise this proposal format without prior approval from Board staff)

University of West Florida
University Submitting Proposal

Fall 2019
Proposed Implementation Term

College of Education and Professional Studies
Name of College(s) or School(s)

Instructional Design and Technology
Name of Department(s)/Division(s)
Bachelor of Science in Instructional Design and Technology

Education
Academic Specialty or Field

13.0501
Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees

President

Signature of Chair, Board of Trustees

Date

Vice President for Academic Affairs

Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Enrollment (From Table 1)</th>
<th>Projected Program Costs (From Table 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>30</td>
<td>19.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td>60</td>
<td>38.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td>90</td>
<td>58.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td>120</td>
<td>77.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 5</td>
<td>120</td>
<td>77.50</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.
INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including majors, concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

II. Bachelor of Science

III. Instructional Design and Technology

IV. 120 Semester Credit Hours

V. The University of West Florida (UWF) seeks to offer a stand-alone Bachelor of Science (B.S.) degree program in Instructional Design and Technology (IDT), CIP Code 13.0501, beginning fall 2019. The B.S. in IDT program will be housed in the Department of Instructional Design and Technology in UWF’s College of Education and Professional Studies. The proposed B.S. in IDT program is currently operating as a specialization in the B.S. in Career and Technical Education (CIP Code 13.1320) degree program. The proposed stand-alone B.S. in IDT program will be delivered in an online format from the UWF Pensacola Campus and made available to a wide audience through the Complete Florida program. Delivering the B.S. in IDT degree program fully online enables UWF faculty to market the program broadly, to a wide variety of students, in geographically diverse areas.

The proposed B.S. in IDT program will prepare graduates for positions in training and development across a variety of sectors including K-12, academia, industry, military, government, and healthcare. Repositioning the specialization to a stand-alone B.S. in IDT degree program will result in greater visibility and marketability for students and for employers. The proposed B.S. in IDT degree program will address a new and growing demand in the industry. Essentially every organization has a need for training and development. IDT has traditionally been taught at the graduate level; however, in recent years there has been a significant increase in the number of entry level job openings in the field that identify “minimum Bachelor’s degree” among their qualifications (more information about this in Section II.A. and Appendix F). Institutions of higher education have not yet responded effectively to this shift in market demand, with very few offering B.S. degrees in the field, and even fewer offering them online.

B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide a brief narrative explaining how each of these concerns has been or is being addressed.

UWF presented the B.S. in IDT to CAVP on September 28, 2018. There were no concerns raised.

C. If this is a doctoral level program please include the external consultant’s report at the end of the proposal as Appendix D. Please provide a few highlights from the report and describe ways in which the report affected the approval process at the university.

Not applicable. This is a not a doctoral degree program.
D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on the resource page for new program proposal).

The proposed B.S. in IDT degree program will provide students an opportunity to earn a bachelor’s degree in a program identified as one of strategic emphasis by the Florida Board of Governors for the State University System. The proposed program will be offered fully online and is designed to be fully accessible to all learners using current and emerging technologies.

The proposed program aligns with the State University System 2025 Teaching and Learning goals for Excellence (Strengthen Quality and Reputation of Academic Programs and Universities), Productivity (Increase Degree Productivity and Efficiency), and Strategic Priorities for a Knowledge Economy (Increase the Number of Degrees Awarded in STEM and Other Areas of Strategic Emphasis).

Strengthen Quality & Reputation of Academic Programs and Universities

All of the courses in the B.S. in IDT degree program have been designed to meet college, university, and state expectations for quality online instruction. The courses designated for the proposed degree program have gone through or will undergo internal certification for quality and Americans with Disabilities Act conformance through the UWF College of Education and Professional Studies Office of Academic Excellence in Instructional Strategies (AXIS). Additionally, all courses will be submitted to Quality Matters for external certification (https://www.qualitymatters.org/). A Quality Matters Implementation Plan will be in place in advance of the program start date, and the department will seek program-level Quality Matters certification for the full B.S. in IDT program after it has been in place the required amount of time. These certifications will ensure program quality and enhance the reputation of the degree programs offered by UWF and the State University System of Florida.

Increase Degree Productivity and Program Efficiency

One of the greatest struggles working adults face when considering returning to school to pursue an undergraduate degree is finding the time to do so. To address this challenge and make the degree more accessible to a wider audience, the proposed B.S. in IDT degree program will be offered fully online. Courses will be asynchronous, allowing students to manage the integration of their coursework with their existing work and personal responsibilities. Any synchronous activities will be recorded to insure that students who are unable to attend at the designated time can view the session later and contact the instructor with questions or concerns they were unable to ask during the live meeting, ensuring that they are not academically disadvantaged due to their inability to attend.

Increase the Number of Degrees Awarded in STEM and Other Areas of Strategic Emphasis

The proposed B.S. in IDT degree program in CIP Code 13.0501 has been identified by the Florida Board of Governors as an academic discipline of strategic emphasis in the STEM category. The proposed program provides the state with a degree that will: be attractive to students seeking employment in both educational and non-educational organizational settings; will expand enrollment in a program of strategic emphasis; and will increase degree productivity.
E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

The Programs of Strategic Emphasis Categories:
1. Critical Workforce:
   • Education
   • Health
   • Gap Analysis
2. Economic Development:
   • Global Competitiveness
3. Science, Technology, Engineering, and Math (STEM)

Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations on program inclusion criteria at the resource page for new program proposal.

Program of Strategic Emphasis Category: Science, Technology, Engineering, and Math (STEM)

Instructional Design and Technology, which falls under CIP Code 13.0501 (Education/Instructional Technology), is identified in the State University System Strategic Plan as a Program of Strategic Emphasis in the Science, Technology, Engineering, and Math (STEM) category. The proposed program will prepare students to evaluate and effectively integrate existing and emerging technologies to facilitate learning and performance improvement in organizational settings.

F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The proposed B.S. in IDT degree program will be delivered in a fully online format from UWF’s Pensacola campus.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

Instructional design and technology is applicable in a wide range of organizational settings, and taught under a variety of names. The required knowledge, skills, and abilities are taught in programs identified as Instructional Systems Design, Learning Systems Design, Instructional Technology, Educational Technology, Training and Development, and Organizational Learning. UWF refers to this program as Instructional Design and Technology as this name best describes the intended learning outcomes of the program and resonates well with the prospective employers of our graduates.

In the past, most entry level job opportunities in IDT required a master’s degree as the minimum qualification. This is no longer true. A steadily increasing number of employment opportunities locally, throughout the state, and nationally list a bachelor’s degree as the minimum
qualification. Demand for professionals holding a B.S. in IDT has increased and yet very few universities nationally and no universities in Florida offer an undergraduate level degree program in IDT.

Instructional design and technology is relevant across sectors, in all organizations tasked with integrating new and emerging technologies; designing, developing, implementing, and evaluating workplace training and development initiatives; and improving individual and organizational performance. Graduates may be employed in K-12, higher education, military, healthcare, business, and industry. Instructional design and technology professionals are needed in virtually every arena that endorses and implements education, training, and professional development.

Table 1 illustrates the growing trend of companies searching for instructional designers with an undergraduate degree. The table displays the unduplicated results of a job search conducted in November 2018. The search used the following sites Monster Jobs, Indeed, and Glassdoor and included the parameters of position title “instructional designer,” location “Florida,” and posted within the last 30 days.

<table>
<thead>
<tr>
<th>Job Site</th>
<th>Educ. Level</th>
<th># of Active Posts</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monster Jobs</td>
<td>BS</td>
<td>38</td>
<td><a href="https://www.monster.com/jobs/search/?q=Instructional-Designer&amp;where=florida&amp;jobid=71c48b71-e885-443e-b463-0397202fcf2f">https://www.monster.com/jobs/search/?q=Instructional-Designer&amp;where=florida&amp;jobid=71c48b71-e885-443e-b463-0397202fcf2f</a></td>
</tr>
<tr>
<td>Indeed</td>
<td>BS</td>
<td>&gt;32*</td>
<td><a href="https://www.indeed.com/jobs?q=instructional%20designer&amp;l=florida&amp;explvl=mid_level&amp;start=30&amp;vjk=ce3c2d8f7fcb6b7">https://www.indeed.com/jobs?q=instructional%20designer&amp;l=florida&amp;explvl=mid_level&amp;start=30&amp;vjk=ce3c2d8f7fcb6b7</a></td>
</tr>
<tr>
<td>Glassdoor</td>
<td>BS</td>
<td>&gt;30*</td>
<td><a href="https://www.glassdoor.com/Job/florida-instructional-designer-jobs-SRCH_IL.0,7_IS3318_KO8,30_IP4.htm?fromAge=30&amp;jobType=fulltime">https://www.glassdoor.com/Job/florida-instructional-designer-jobs-SRCH_IL.0,7_IS3318_KO8,30_IP4.htm?fromAge=30&amp;jobType=fulltime</a></td>
</tr>
</tbody>
</table>

Retrieved: November 30, 2018
*Job postings unduplicated from other searches

Businesses linked to the job postings in Table 1 covered a variety of sectors to include healthcare, education, manufacturing, military and government contractors, communications, and education. Some of the specific employers found to be actively searching for instructional designers with a B.S. degree included Huntington Ingalls Industries, Humana, Spirit Airlines, Oracle, ISC², General Dynamics IT, TechUSA, Broward Community College, Florida International University, ProEdit, Collabera, Cox Communications, and Ellucian. More information about job opportunity research for IDT professionals with bachelor’s degrees is in Appendix F, Industry Demand Research.
National

According to the U.S. Bureau of Labor Statistics, instructional design and technology related jobs will experience faster than average growth nationally between 2016 and 2026. Job titles for entry-level instructional design and technology professionals include Training and Development Specialists (SOC Code 13-1151), and Instructional Coordinators (SOC Code 25-9031). Mean annual wages for both professional categories are over 28 percent higher than the national mean annual wage of $50,620. Mean annual wages for Training and Development Specialists is $64,700 and for Instructional Coordinators it is $66,680. Table 2 below shows the national growth rates for these positions.

Table 2: National job growth for instructional design and technology workers

<table>
<thead>
<tr>
<th>National</th>
<th>2016-2026 expected growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-1151 Training and Development Specialists</td>
<td>11.5%</td>
</tr>
<tr>
<td>25-9031 Instructional Coordinators</td>
<td>10.5%</td>
</tr>
</tbody>
</table>


Additionally, the U.S. Bureau of Labor Statistics ranks Florida among the top five states in the nation with the highest employment level for these occupations.

State


According to the Florida Department of Economic Opportunity, statewide projections for instructional design related positions show positive increases for 2017-2025. Table 3 below shows the positions and associated growth rates for the state.

Table 3: Florida job growth for instructional design and technology workers

<table>
<thead>
<tr>
<th>Florida</th>
<th>2017-2025 expected growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-1151 Training and Development Specialists</td>
<td>15.5%</td>
</tr>
<tr>
<td>25-9031 Instructional Coordinators</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

Florida Department of Economic Opportunity (http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections)
Local

The recent growth of industries in Northwest Florida and the burgeoning of distance education in all arenas, has led to an increased local demand for IDT professionals. Local demand is demonstrated in the relatively high wages for these occupations compared to the mean annual wage for all occupations in Northwest Florida. Specific employers seeking IDT professionals include Navy Federal Credit Union, Ascension Healthcare, Covenant Healthcare, Eglin Air Force Base, Hurlburt Field, and Naval Air Station Pensacola, as well as the many consulting firms that do contract work for the military and other clients. The UWF Pensacola Campus serves students in Escambia, Santa Rosa, Okaloosa, and Walton Counties. Table 4 below, shows wages and growth rates for occupations related to instructional design and technology in the immediate region surrounding UWF.

Table 4: *Northwest Florida job growth and mean wages for IDT related occupations*

<table>
<thead>
<tr>
<th>Northwest Florida</th>
<th>2017-2025 expected growth rate</th>
<th>2017 Annual Mean Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escambia and Santa Rosa Counties</td>
<td></td>
<td>$41,200</td>
</tr>
<tr>
<td>13-1151 Training and Development Specialists</td>
<td>17.2%</td>
<td>$51,350</td>
</tr>
<tr>
<td>25-9031 Instructional Coordinators</td>
<td>11.5%</td>
<td>$62,350</td>
</tr>
<tr>
<td>Okaloosa and Walton Counties</td>
<td></td>
<td>$43,130</td>
</tr>
<tr>
<td>13-1151 Training and Development Specialists</td>
<td>12.3%</td>
<td>$52,790</td>
</tr>
<tr>
<td>25-9031 Instructional Coordinators</td>
<td>8.1%</td>
<td>$74,420</td>
</tr>
</tbody>
</table>

Figure 1 below provides a graphic representation of state and regional projected employment data for instructional design and technology professionals.

**Figure 1. Projected job growth rate for IDT professionals 2017-2025**

![Graph showing projected employment growth for IDT professionals in Florida and specific counties.](http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections)

**B. Demand:** Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.

The proposed B.S. in IDT degree program addresses a need by preparing graduates for positions in training and development across a variety of sectors including K-12, academia, industry, military, government, and healthcare.

The Department Chair expects 30 students to enroll in the stand-alone degree program in Year 1. The department anticipates the program’s headcount to continue to increase each year, reaching 120 students by Year 5. Based on feedback and strong support from local school districts and professional organizations, including the Gulf Coast Chapter of the International Society for Performance Improvement, the Department Chair expects enrollment demand for this program to continue for the foreseeable future.

Students are expected to enroll as they become aware of the rapidly growing demand for professionals in the field of instructional design and technology where job openings outpace individuals educated to fill them locally, statewide, and nationally.

Demand for a bachelor’s level program in IDT at UWF is supported by the fact that 23 percent of the students enrolled in UWF’s Career and Technical Education Workforce and Professional Development specialization (10 of 44) opted to change majors and move to the IDT specialization when it began in fall 2018. Also, as the program will be the only bachelor’s level IDT program in Florida and will be offered fully online, it will attract a wide range of students outside of the local area.
C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.

There are no substantially similar programs at the bachelor’s degree level offered by other public or private institutions in Florida. Florida Atlantic University and the University of Central Florida both offer Master’s degree in CIP code 13.0501, and Florida State University offers Master’s, Specialist, and Doctoral degrees in CIP code 13.0501. Additionally, no concerns were voiced at the CAVP meeting when this program was initially proposed.

D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 30 credit hours per year and graduate FTE will be calculated as 24 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.

Students for the proposed degree program will come from the current audience of candidates who apply to the Instructional Design and Technology specialization of the B.S. in Career and Technical Education degree program that this program will replace, as well as undecided UWF undergraduate students. Additionally, the fully online degree program will attract students from outside of the region and state.

As is shown in Appendix A Table 1, the College of Education and Professional Studies expects the new stand-alone degree program to begin with 30 students (19.37 FTE) in fall 2019. Student headcount for Year 5 is anticipated to reach 120 (77.5 FTE) and remain consistent at that number. E&G cost per FTE for Year 1 is $7,835, all reallocated funds. The E&G cost per FTE for Year 5 will decrease to $2,536.

E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in consultation with the affected university), an analysis of how the program might have an impact upon that university’s ability to attract students of races different from that which is predominant on their campus in the subject program. The university’s Equal Opportunity Officer shall review this section of the proposal and then sign and date Appendix B to indicate that the analysis required by this subsection has been completed.

Consistent with its mission, UWF has admissions policies that balance attention to access, inclusiveness, and quality. In addition, UWF encourages applications from qualified persons and does not discriminate on the basis of age, color, disability, gender (including gender identity and sex), marital status, national origin, race, religion, sexual orientation, or veteran status. Also, UWF's New Academic Program Approval Policy requires that programs appropriately address diversity. All courses in the proposed degree program have already gone through or will undergo internal certification for quality and Americans with Disabilities Act conformance through the UWF College of Education and Professional Studies Office of Academic Excellence in Instructional Strategies (AXIS). Therefore, the university and its degree programs take proactive measures to achieve a diverse student body.
To ensure the desired outcome for student diversity, recruiting efforts initially focus on the university's eight-county service area: Escambia, Santa Rosa, Okaloosa, Walton, Holmes, Washington, Bay, and Gulf. Recruitment efforts also extend to other geographic regions having larger underrepresented populations of prospective students. Operating as an online program allows for the inclusion of a wider range of students from more diverse populations.

The proposed B.S. in IDT degree program will be marketed to a diverse body of individuals from a wide range of disciplines as IDT is applicable in numerous arenas. Those in education, business, industry, military, and healthcare are potential students with diverse backgrounds and experiences. As shown in Figure 2, the IDT specialization has supported a diverse student population and is positioned to continue this support and diversity.

Figure 2. Five-year comparison of increasing diversity in the undergraduate Career and Technical Education program in the College of Education and Professional Studies

III. Budget

A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

Total Year 1 costs equal $151,795, all funds to be reallocated from the existing specialization. The following is a breakdown of the projected Year 1 costs as shown in Appendix A Table 2, all from E&G funds:

- Current full-time faculty salaries and fringe apportioned to the stand alone degree program at $118,255 (reallocated).
- One fifth of the Department Administrator salary and fringe at $10,500 (reallocated).
- Adjunct expense of $15,000 (reallocated).
- There will be no additional library expenses for the program as the department will use the materials already in place for the undergraduate specialization, and the graduate level M.Ed. and Ed.D. programs.
- One fifth of the department office supply and sundry expenses at $8,040 (reallocated).

Total Year 5 costs equal $196,502. The following is a breakdown of the projected Year 5 costs as shown in Appendix A Table 2, all continuing base E&G funds:
- Full-time faculty salaries and fringe along with an additional new hire in year two increased at five per cent per annum at a total of $143,739
- One fifth of the Department Administrator salary and fringe increased at five percent per annum at $12,763
- Adjunct expense increased to $30,000 ($15,000 continuing base and $15,000 new enrollment growth)
- One fifth of the department office supply and sundry expenses at $10,000

The E&G cost per FTE for the program is $7,835 for Year 1 and $2,536 for Year 5, well below the SUS average E&G cost per FTE for CIP Code 13 of $8,022.

B. Please explain whether the university intends to operate the program through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors’ approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.

UWF does not intend to operate the program through continuing education on a cost-recovery basis, seek approval for market tuition rate, or establish differentiated graduate-level tuition.

C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

As this program is currently being offered as a specialization in the B.S. in Career and Technical Education (CIP Code 13.1320) degree program, converting the program into a stand-alone degree program will not negatively impact existing UWF programs. Faculty and resources currently allocated in the specialization will be reallocated to the stand-alone degree program. General Education and other lower level electives are already in place and capable of accommodating the increase in enrollment in the stand-alone B.S. in IDT degree program.

D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

There are no common prerequisites associated with the proposed B.S. in IDT program. Students will be required to complete general education courses and will take two major
related courses offered by the College of Business. The Department Chair has articulated the proposed program with the affected departments and they welcome accommodating these students.

E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.

The faculty of the IDT specialization have developed solid relationships with local organizations which employ IDT specialization students and graduates some of which are shown in Table 5.

Table 5: Sample of local organizations that employ students in the IDT specialization network

<table>
<thead>
<tr>
<th>Businesses</th>
<th>Military Installations</th>
<th>Healthcare Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligent Decision Systems, Inc.</td>
<td>Naval Air Station Pensacola</td>
<td>Sacred Heart Hospital</td>
</tr>
<tr>
<td>General Dynamics</td>
<td>Hurlburt Field</td>
<td>Covenant Hospice</td>
</tr>
<tr>
<td>Navy Federal Credit Union</td>
<td>Eglin Air Force Base</td>
<td>Ascension Healthcare</td>
</tr>
</tbody>
</table>

Program faculty are actively involved in professional organizations, including the Association for Educational Communications and Technology, the International Society for Performance Improvement, and the Association for the Advancement of Computing in Education. These relationships have provided students in the current IDT specialization connections with networks of mentors from across the country and world. We anticipate similar support for students in the proposed stand-alone B.S. in IDT program.

IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

University of West Florida

The proposed Bachelor of Science in Instructional Design and Technology will enhance the current offerings of the University of West Florida as it serves the northwest region of Florida by offering an entry-level degree in a STEM field that is high paying, in high demand, and projected to grow over the next five years.

The creation of the stand-alone B.S. in IDT will have clear benefits to the university as described below:

- Offer entry into an educational pathway that can be supported through attainment of related graduate degrees offered by UWF, preparing students for long term career growth.
• Increase enrollment and degree production in a STEM field. UWF anticipates strong enrollment in the B.S. in IDT degree program based on student enrollment in the current specialization and increasing workforce demand.
• Make the university more responsive to the regional workforce needs by offering educational opportunities in a STEM field with a flexible, online class schedule that serves diverse student populations.

Northwest Florida

The proposed program will have clear benefits to the local community and state and impact local workforce needs as follows:
• Enhance the local economy by preparing local citizens for STEM-related jobs in a rapidly growing field.
• Provide students with the knowledge, skills, and abilities in instructional design and technology to fill entry level positions in education and training related fields, supporting industries with a strong presence in the region such as education, healthcare, banking and finance, and the military.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)

The proposed Bachelor of Science in Instructional Design and Technology degree program totals 120 credit hours.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the Common Prerequisite Manual on the resource page for new program proposal). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

There are no common prerequisites required for the B.S. in IDT degree program. On December 3, 2018, University of West Florida’s Common Prerequisite Liaison submitted this information to the state on behalf of the proposed degree program in CIP code 13.0501.
C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

The university does not intend to seek formal limited access status for the proposed program.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see link to the Statewide Articulation Manual on the resource page for new program proposal). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

The proposed program is not an AS-to-BS capstone.

INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on the resource page for new program proposal).

The mission of the University of West Florida is to:
- Provide high-quality undergraduate and graduate education,
- Conduct teaching and research that services the body of knowledge, and
- Contribute to the needs of professions and society.

The proposed B.S. in IDT degree program will provide students with high-quality undergraduate education, focused on current research and best practices in the field. All courses in the program will be designed to align with the Quality Matters standards. Program faculty have strong research agendas and are committed to integrating emerging technologies and best practices in their teaching, contributing to the body of knowledge.

The proposed B.S. in IDT degree program will focus on the application of best practices and fundamental knowledge and skills and will graduate students who are prepared to fill entry-level roles in a wide range of organizations. Graduates will be prepared for positions in military, healthcare, business and industry, education, and not-for-profit organizations, contributing to the needs of the profession and society.

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

The IDT specialization of the B.S. in Career and Technical Education (CTE) degree program was developed during the 2016-2017 academic year and launched in Fall 2018. The Department of Instructional Design and Technology conducted a seven-year program review during the 2017-2018 academic year, after the IDT specialization was developed but before it was launched. The review team, comprised of internal and external constituents, recommended that the planned specialization in IDT be elevated to a stand-alone B.S. degree program. Their
rationale was that there is strong demand for graduates with IDT degrees. Retaining the program as a specialization would make it harder for potential students to find and therefore limit enrollment. Additionally, elevating the specialization to a stand-alone degree program would communicate the education and training students receive in the degree program more effectively to potential employers, thereby making students more marketable in their field.

Instructional Design and Technology faculty and students are uniquely positioned to support college, state, and university efforts to expand quality online education. This is evidenced through their involvement in the College of Education and Professional Studies Office of Academic Excellence in Instructional Strategies (AXIS), which was launched in 2017 to support faculty efforts to design, develop, and implement high-quality, Americans with Disabilities Act conformant, online courses, and to aid in the university’s transition to the Canvas Learning Management System. AXIS is directly linked to the Department of Instructional Design and Technology. The Department Chair serves as the Assistant Dean and AXIS Director, and the staff consists of students enrolled in UWF’s undergraduate and graduate IDT degree programs. The development of the stand-alone degree program will allow for increased opportunities for IDT students to participate in AXIS, strengthening both the degree program and the value of AXIS, and providing students with meaningful, authentic, high-impact learning experiences.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

Over the last five years there has been a dramatic shift in the educational preparation expected of persons seeking IDT-related jobs. In the past, IDT was taught exclusively at the graduate level and employers sought candidates with a minimum of a master’s degree in the field. Now it is much more common for employers to seek candidates with a minimum of a bachelor’s degree. Academia has been slow to respond to this shift, with most institutions continuing to offer only graduate level degree programs in IDT. Currently, no SUS institution offers a bachelor’s level degree program in IDT. To certify this mismatch between academic programs and industry demand, in spring 2016 the UWF faculty analyzed job postings to verify demand for undergraduate programs and to identify the specific knowledge, skills, and abilities employers were looking for. They then researched peer and aspirant institutions to determine how many programs were attempting to meet this demand. This research provided overwhelming support for the proposed program, demonstrating a high demand while also noting that very few institutions nationwide are offering programs to prepare students to fill these jobs. As this program will be offered online, there is significant potential to attract students from out of state. A summary of these research findings may be found in Appendix F, Industry Demand Research.

A program review conducted in 2017 recommended the addition of a stand-alone degree program in IDT. Following the program review, the B.S. in IDT was added to the UWF Work Plan, faculty completed pre-proposals, obtained approval from the UWF Provost and CAVP, and developed the curriculum required to support the transition from an IDT specialization to a stand-alone B.S. in IDT degree program.
# Planning Process

Table 6: Planning process

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2017</td>
<td>Graduate Assistants; Todd Adrian, Megan Podsiad,</td>
<td>Researched need and demand for undergraduate degree program</td>
</tr>
<tr>
<td></td>
<td>Courtney Hyland</td>
<td></td>
</tr>
<tr>
<td>Spring 2017</td>
<td>Graduate Assistants; Todd Adrian, Megan Podsiad,</td>
<td>Analyzed job postings to identify knowledge, skills, and abilities required for entry-level jobs</td>
</tr>
<tr>
<td></td>
<td>Courtney Hyland</td>
<td></td>
</tr>
<tr>
<td>Summer 2017</td>
<td>Nancy Hastings, Byron Havard, Holly Ellis</td>
<td>Talked with employers to confirm local demand</td>
</tr>
<tr>
<td>Summer 2017</td>
<td>Graduate Assistants; Todd Adrian, Megan Podsiad,</td>
<td>Researched programs at peer and aspirant institutions</td>
</tr>
<tr>
<td></td>
<td>Courtney Hyland</td>
<td></td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Nancy Hastings</td>
<td>Academic Program Review, Workforce and Program Development</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Nancy Hastings</td>
<td>Pre Proposal submitted. Proposed program added to work plan</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Nancy Hastings, Dean William Crawley</td>
<td>Reviewed plan to move towards a Fall 2019 start date with Provost. Received verbal support.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Nancy Hastings, Byron Havard, Holly Ellis</td>
<td>Drafted curriculum for proposed program. Developed first round of new course requests.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Nancy Hastings, Byron Havard, Holly Ellis</td>
<td>Developed internal pre proposal and CAVP New Program Request</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Nancy Hastings, Byron Havard, Holly Ellis</td>
<td>Developed Academic Learning Compact and Curriculum Map</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Nancy Hastings, Byron Havard, Holly Ellis</td>
<td>Developed remaining courses and obtain Faculty Senate approval.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Institutional Effectiveness</td>
<td>Conducted search for job openings for graduates of this program in Florida.</td>
</tr>
</tbody>
</table>
## Events Leading to Implementation

### Table 7: Events leading to implementation

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2018</td>
<td>Begin obtaining approvals for new stand-alone degree program.</td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Added to university work plan.</td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Developed curriculum for proposed program, including Academic Learning Compact, Curriculum Map, and new courses.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Completed Internal Pre Proposal and CAVP New Program Request.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Met with representatives from IE to review timeline and remaining requirements. Submitted requested data.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Obtained Faculty Senate Approval for program and courses.</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Completed first draft of Board of Governors Request to Offer and submitted to IE for review.</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Submission of Request to Offer a New Degree Program to the UWF BOT.</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Submission of Request to Offer a New Degree Program to the Florida Board of Governors.</td>
</tr>
</tbody>
</table>

### VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

Pursuant to BOG Regulation 8.015, all academic departments at UWF conduct program reviews every seven years. The Department of Instructional, Workforce, and Applied Technology (now the Department of Instructional Design and Technology) conducted a program review of the Career and Technical Education degree program in 2017. The overarching recommendation of the program review team was to focus energies on building a robust, stand-alone B.S. in IDT degree program, enhanced to meet the needs of students and employers. The department has addressed these findings by submitting the documents necessary with plans to elevate the IDT specialization to a stand-alone B.S. degree program.
VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

The Academic Learning Compact (ALC) and Curriculum Map for the proposed program are provided in Appendix C. Below is a description of the Student Learning Outcomes for the proposed B.S. in IDT.

**Student Learning Outcomes**

Graduates of the proposed B.S. in Instructional Design and Technology (IDT) degree program should be able to do the following:

**Content**
- Develop performance improvement goals based on analysis of data and desired education and performance outcome.
- Design and develop instructional and performance solutions to address organizational goals.
- Develop strategies for implementation and evaluation of instructional and performance solutions.

**Critical Thinking**

**Communication**
- Communicate effectively with diverse stakeholders.

**Integrity/Values**
- Apply appropriate code of ethics.

B. Describe the admission standards and graduation requirements for the program.

Admission and graduation requirements are available from the University of West Florida Catalog (Appendix E; University of West Florida. (2018). 2018-2019 University Catalog. Retrieved from [http://catalog.uwf.edu](http://catalog.uwf.edu)).

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The B.S. in IDT degree program requires 120 semester credit hours (SCH). Students complete 60 SCH at the lower level comprised of 36 SCH of General Education coursework and 24 SCH of lower-level electives. At the upper-level, students complete 36 SCH of major core coursework (12 courses at 3 SCH each) and 9 SCH of major related coursework (3 courses at 3 SCH each) for a total of 45 SCH. Each student is responsible for completing the senior capstone, a 3 SCH course designed to be taken during the final semester of the student’s degree program.
Students will take 15 SCH of department approved upper-level electives to complete the 120 SCH bachelor’s degree program.

Table 8: B.S. in IDT general curriculum plan 120 semester credit hours total

<table>
<thead>
<tr>
<th>B.S. in IDT Degree Program</th>
<th>Total 120 SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>36 SCH</td>
</tr>
<tr>
<td>Lower-Level Electives</td>
<td>24 SCH</td>
</tr>
<tr>
<td><strong>Lower-Level Coursework</strong></td>
<td><strong>60 Total SCH</strong></td>
</tr>
<tr>
<td>Major Courses</td>
<td>36 SCH</td>
</tr>
<tr>
<td>Major Related Courses</td>
<td>9 SCH</td>
</tr>
<tr>
<td>Upper-Level Electives</td>
<td>15 SCH</td>
</tr>
<tr>
<td><strong>Upper-Level Coursework</strong></td>
<td><strong>60 Total SCH</strong></td>
</tr>
</tbody>
</table>

D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.

Table 9: Four-year degree plan for the B.S. in DT degree program

<table>
<thead>
<tr>
<th>B.S. in IDT 8 Semester Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>English Composition I</td>
</tr>
<tr>
<td>General Education Mathematics</td>
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<tr>
<td>General Education Social Science</td>
</tr>
<tr>
<td>Lower-Level Elective</td>
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<tr>
<td>Lower-Level Elective</td>
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<tr>
<td><strong>Semester 1 Total</strong></td>
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<tr>
<td>Semester 3</td>
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<tr>
<td>General Education Social Science</td>
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<tr>
<td>General Education Mathematics</td>
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<tr>
<td>UWF Multicultural Requirement</td>
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<tr>
<td>Lower-Level Elective</td>
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<td>Lower-Level Elective</td>
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<tr>
<td><strong>Semester 3 Total</strong></td>
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<td>Semester 5</td>
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<tr>
<td>EME 3624 Training Needs Assessment</td>
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<tr>
<td>EME 4043 Instructional Technology Leadership</td>
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<tr>
<td>EME 3351 Introduction to Instructional and Performance Technology</td>
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<tr>
<td>EME 4083 Program Evaluation in Instructional Design and Technology</td>
</tr>
<tr>
<td>Upper-Level Elective</td>
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<tr>
<td>ducible Elective</td>
</tr>
<tr>
<td>Semester 5 Total</td>
</tr>
<tr>
<td>Semester 7</td>
</tr>
<tr>
<td>MAN 4280 Business Leadership and Change Management</td>
</tr>
<tr>
<td>EME 4674 Development of Instructional Materials</td>
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<tr>
<td>EME4352 HPT Intervention</td>
</tr>
<tr>
<td>Selection and Design</td>
</tr>
<tr>
<td>EME 4343 Multimedia Des &amp; Dev Upper-Level Elective</td>
</tr>
<tr>
<td>Semester 7 Total</td>
</tr>
<tr>
<td>B.S. in IDT Program Total 120</td>
</tr>
</tbody>
</table>

*Students take either AMH 2020 or POS 2041 to satisfy Section 7(d), Art. IX, Florida. Constitution, and section 1007.25, Florida Statutes.

**Students who enter UWF with less than 60 semester credit hours must complete nine hours of summer semester enrollment at an SUS institution.

E. Provide a one- or two-sentence description of each required or elective course.

**Major Courses**

**EDG 3661  Adult Learning Theory and Curriculum Development** - Examines the unique characteristics of adult learners and their impact on the design and development of education and training programs. Addresses adult learning theories and the role of motivation, relevance and autonomy in adult learning.

**EME 3312  Technology Supported Learning** - Examines the use of current and emerging technologies to facilitate learning. Topics covered will include distance learning, formal and informal technology based learning and mobile learning. Strategies for integrating technology in educational settings will be explored.
EME 3351  Introduction to Instructional and Performance Technology - The distinct purposes of instructional technology and human performance technology are explored in depth in this course. The foundations and evolution of each discipline serve to establish distinct definitions that will be investigated. The similarities and differences will be compared to include the historical basis, models, major tasks, and desired outcomes.

EME 3624  Training Needs Assessment - Examines the role of training needs assessment in instructional design. Students will be introduced to techniques used to collect and analyze data to identify and clarify training needs. Prepares students to employ needs assessment techniques to determine who needs to learn what and why prior to engaging in the design and development of instructional materials.

EME 4043  Instructional Technology Leadership - Students will examine the role of the technology leader in effective integration, management and use of technology in a variety of settings, including education, training, military, public sector and non-profits. The course focuses on technology, information, and information literacy. Special attention is paid to the role of systems thinking in effective technology leadership. Offered concurrently with EME 5316, graduate students will have additional work.

EME 4083  Program Evaluation in Instructional Design and Technology - Students will develop skills used in selecting the appropriate model for conducting various types of evaluations. A series of models will be reviewed and aligned with evaluation purposes and questions. Applying the appropriate evaluation model is critical to ensuring that interventions, programs, and projects are successful. Development of a comprehensive evaluation plan will provide students with the opportunity to align an evaluation model with data collection strategies and techniques for a specific evaluation purpose.

EME 4343  Multimedia Design and Development - The basic visual and typographical elements and technical aspects of multimedia design and development to support learning are the focus of this course. Students will apply instructional design strategies and principles of multimedia learning to the design and development of multimedia. Included are a selection of software applications and services, design principles, hands-on production, and discussion of issues and useful resources.

EME 4350  Human Performance Technology - Introduce students to the field of Human Performance Technology (HPT). Students will be introduced to research, theories and models associated with HPT, preparing them to conduct comprehensive performance, gap and cause analyses in organizations to identify and provide both training and non-training based solutions to address organizational performance concerns.

EME 4352  HPT Intervention Selection and Design - Human Performance Technology (HPT) interventions are selected to resolve gaps in desired performance. The skills required to align interventions with the cause(s) of the problem are the focus of this course. Students will classify interventions using various models of Human Performance Technology and select potential interventions to resolve identified problems in human performance scenarios. Students will also develop a formal proposal to communicate recommendations to stakeholders.
EME 4673  Foundations of Instructional Design - Introduces students to the field of instructional design, a systemic and systematic, research-based means of designing effective, efficient, learner focused instruction. Students will use the ADDIE process to design a lesson.

EME 4674  Development of Instructional Materials - The pedagogical, technical, and logistical aspects of instructional messages will provide the foundation for students to learn the fundamentals of instructional development in this course. Message design principles and individual preferences are considered as they relate to the development of instructional materials. Media and technology aspects relating to effective message delivery will be addressed and related to the logistical constraints of time and cost.

Major Related Courses

EME 3XX1-1 Technology Integration Planning - Provides students with the knowledge, skills, abilities, and attitudes necessary to actively participate in the implementation of instructional technology. Students will describe the constraints and risks associated with instructional technology planning and implementation and identify ways to manage these factors. Students will apply software tools to manage the implementation of an instructional technology project.

MAN 4102  Management of Diversity - Roles, behaviors, career paths, motivational strategies, obstacles, and collegial reaction to managing diversity within the labor force are an integral aspect of the course. Personal assessment of communication styles and diversity in management styles. Discussions focus on diversity awareness and strategies to enhance productivity through team effort. Emphasis on proactive steps to integrate a diverse workforce toward a more productive unit. Offered concurrently with MAN 5116; graduate students will be assigned additional work. Meets Multicultural Requirement.

MAN 4280  Business Leadership and Change Management - A course on Leadership and Change Management to prepare students to respond to the needs of a dynamic global business climate. Prepares students to take responsibility to work collaboratively with others in developing change management strategies in bringing about change and overcoming resistance.

Capstone

EME 4684  Instructional Design and Technology Capstone - The capstone is designed to enable students to demonstrate mastery of the Instructional Design and Technology knowledge, skills, and abilities developed during the academic program. Students will identify, propose, and complete a capstone project and develop an electronic portfolio highlighting their attainment of the program level learning outcomes.

F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

The International Board of Standards for Training, Performance and Instruction (IBSTPI) is an international non-profit organization that develops, validates, publishes and disseminates
standards and competencies for professional roles related to instructional design and technology. Since 1977, IBSTPI has been recognized as an industry leader in defining the proficiencies of IDT professionals. While IBSTPI is not an accrediting body, the Instructional Design Competencies (IBSTPI, 2012, http://ibstpi.org/instructional-design-competencies/) have been used by numerous institutions, including UWF, as a guide for developing student learning outcomes.

G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

Currently no specialized accreditation agencies exist for IDT. However, all courses in the B.S. in IDT degree program will meet Quality Matters Standards and Americans with Disabilities Act (ADA) accessibility requirements. The Department Chair has developed a plan with program faculty to seek external Quality Matters Certification for all courses in the stand-alone IDT degree program. As an additional program quality indicator, program faculty will engage with students in relevant experiences and mentorship through affiliation with the Association of Educational Communications and Technology (AECT) and the International Society for Performance Improvement (ISPI), the premiere professional organizations in the field.

H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?

Not applicable, this is a not a doctoral degree program.

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

All courses for the proposed B.S. in IDT degree program will be offered online through the Canvas Learning Management System. This system of course delivery does not require any specialized services or additional financial support. At the present time there are no plans to collaborate with other universities, however the department is open to such opportunities in the future.

IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising,
supervising internships and practica, and supervising thesis or dissertation hours).

The following full-time UWF faculty are listed in Appendix A Table 4:

Nancy Hastings
Byron Havard
Holly Ellis
Fred Baker
Minkyoung Kim

B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated full-time faculty (as identified in Table 4 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

The B.S. in IDT is a current specialization in the Career and Technical Education degree program. As such the stand-alone program will benefit from a group of experienced faculty and adjuncts. As shown in Appendix A Table 2, full-time faculty salary and fringe as well as OPS expense for adjuncts will come from E&G funds reallocated from the specialization to the new stand-alone degree program:

Year 1
- Reallocated Base for Faculty = $118,255
- Adjuncts = $15,000

Year 5
- Continuing Base for Faculty adjusted at a rate of 5% per year = $143,739
- Adjuncts = $30,000 due to anticipated student enrollment increase

C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

The following faculty vitae are included in Appendix D:

Nancy Hastings
Byron Havard
Holly Ellis
Fred Baker
Minkyoung Kim

D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

The proposed B.S. in IDT degree program will be housed in the Department of Instructional Design and Technology in the College of Education and Professional Studies. The program will be supported by experienced full-time faculty and a pool of qualified adjuncts. Figures 3, 4, and 5 illustrate department faculty productivity over the last three years in regards to the B.S. in Career and Technical Education degree program, which currently houses the IDT specialization.
Figure 3. *Student headcount in the B.S. in Career and Technical Education degree program*

![Headcount](image)

Figure 4. *Faculty FTE productivity for the B.S. in Career and Technical Education degree program*

![FTE](image)
Table 10, below showing manuscript publication for 2016-2018 demonstrates the robust publication activity of the faculty who will be teaching in the stand-alone B.S. in IDT degree program.

Table 10: Recent publications by B.S. in IDT program faculty

<table>
<thead>
<tr>
<th>Year</th>
<th>Manuscript</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ellis, H. H. (2018). Participation in online discussions: Traditional vs. nontraditional students. Accepted for publication.</td>
</tr>
</tbody>
</table>
Past, present, and future possibilities. In M. Simonson (Ed.), *40th Annual Proceedings of Selected Research and Development Papers Presented at The Annual Convention of the Association for Educational Communications and Technology* (pp. 172-177). Bloomington, IN: AECT.


Kim, M., & Jung, E. (in review). Student characteristics and meaningful interaction in an online class, *Online Learning.*


<table>
<thead>
<tr>
<th>Year</th>
<th>Author(s)</th>
<th>Title and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>McArthur, A., Ellis, H., &amp; Havard, B.</td>
<td>Perceptions of technology integration and creative curricula in child education. In M. Simonson (Ed.), <em>39th Annual Proceedings of Selected Research and Development Papers Presented at The Annual Convention of the Association for Educational Communications and Technology</em> (pp. 77-85). Bloomington, IN: AECT.</td>
</tr>
</tbody>
</table>
2016


Program faculty excel in the area of service supporting the department, college, and university as well as the local and professional community. A particularly notable contribution to the university is the department’s long-standing relationship with the UWF Academic Technology Center, and more recently, the relationship with the College of Education and Professional Studies Office of Academic Excellence in Instructional Strategies (AXIS). These two entities are responsible for supporting UWF faculty in the design, development, and implementation of quality online courses. In this role, the department has prepared and facilitated faculty
workshops, assisted with the development of a rubric to assess Americans with Disabilities Act conformance, and worked with faculty to prepare courses for Quality Matters Certification.

Faculty engagement with the local community has included working with the First Judicial Circuit Court of Escambia County to develop a fully online Guardianship course, required for all newly appointed guardians. The program faculty have also developed strong ties with Intelligent Decision Systems, Inc., a national firm with a local office in Pensacola that hires many of UWF’s IDT graduates. Service to the profession includes multiple faculty serving in leadership roles in professional organizations and serving as reviewers for journals and conference presentations.

X. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.

The University of West Florida’s library is currently equipped with sufficient resources and services to support a B.S. in Instructional Design and Technology degree program.

The UWF libraries shelve more than 800,000 print volumes and house an extensive microforms collection. Electronic resources include more than 160,000 e-books and access to approximately 80,000 journals and other serial titles through a discovery system. An analysis of holdings in relevant Library of Congress classifications for education indicate that UWF has approximately 20,000+ books and e-books related to education. Additionally, the library has access to 1,770 peer reviewed academic e-journals related to education.

Indexing, abstracting, and full text databases relevant to instructional design and technology include Education Journals, Education Source, ERIC and PsycINFO. General library resources supporting education are Project Muse, ProQuest Central, and Web of Science. Full-text dissertations and theses are available through ProQuest Dissertations and Theses. Using their Argonet accounts, students and faculty may access electronic resources anytime from any place.

Current library resources available to support the B.S. in IDT as it moves to a stand-alone program through Year 5 include:

**Databases**
- Education Journals (Proquest)
- Education Source
- ERIC
- PsychARTICLES
- PsycINFO
- Psychology Journals (Proquest)
- Dissertations and Theses Full Text (ProQuest)
- Teacher Reference Center
- Academic Search Complete
- Project Muse
- Children’s Literature Comprehensive Database
- Demographics Now Business and People
Each academic discipline is assigned a librarian to serve as a department liaison, providing library instruction, collection development, and reference assistance for the students and faculty in that discipline. To support the needs of online learners, students may also schedule a research consultation with their liaison via in-person, LibChat, or telephone.

The library provides an Online Learners Library Guide (http://libguides.uwf.edu/online) outlining services and resources that support the increasing number of online learners. The library has also been responsive to the needs of clients who prefer to work from home. In addition to being able to access databases and materials in full-text online, UWF students and faculty may also take advantage of these online library services:

- Read course-required readings on electronic reserves
- Request books and articles from Interlibrary Loan
- Request Intercampus Loan (to/from the Fort Walton Beach Instructional Site library)
- Renew books
- Submit a reference question via text, email, or chat
- Request priority cataloging of an item that is on order
- Suggest the purchase of a particular book or journal
- Request an item to be recalled for use
- Have UWF and Interlibrary Loan books delivered to your home address if you live over 50 miles from campus

B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 2 in Appendix A. Please include the signature of the Library Director in Appendix B.

No new library resources will be needed to implement the stand-alone degree program nor does the Interim Dean of Libraries expect the need for more resources through Year 5. Additionally, the program will be able to utilize the already requisitioned complementary databases ordered for the university’s current specialization and master’s degree program in Instructional Design and Technology.
C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.

The B.S. in IDT degree program will be offered online through the Canvas Learning Management System. No classroom, teaching laboratory, research laboratory, or other types of spaces will be needed to implement the program.

Building 85 on the Pensacola campus currently provides office space for the B.S. in IDT degree program faculty and the College of Education and Professional Studies Dean.

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

No additional classroom, teaching laboratory, research laboratory, or office space will be necessary to implement or maintain the proposed B.S. in IDT degree program through Year 5.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

No new capital expenditure for instructional or research space is required to implement or sustain the proposed B.S. in IDT through Year 5.

F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

Other than offices, computers, and the Canvas Learning Management System, all of which are in place, no specialized equipment is needed to implement or sustain the proposed B.S. in IDT through Year 5.

G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

No specialized equipment is needed to implement or sustain the proposed B.S. in IDT through Year 5. The university has the infrastructure in place to support this fully online degree program.

H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

No additional special categories of resources are needed to implement or sustain the new capital expenditure proposed B.S. in IDT through Year 5.

I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.
The proposed B.S. in IDT is an undergraduate degree program and therefore does not include graduate assistantships.

J. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

The proposed B.S. in IDT degree program does not include internships or practicums.
Appendix A

Table 1a Projected Headcount from Potential Sources (Baccalaureate Degree Program)

Table 2 Projected Costs and Funding Sources

Table 3 Anticipated Reallocation of E&G Funds

Table 4 Anticipated Faculty Participation
**APPENDIX A**

**TABLE 1-A**
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES  
(B.S. IDT)

<table>
<thead>
<tr>
<th>Source of Students</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
</tr>
<tr>
<td>Upper-level students who are transferring from other majors within the university**</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***</td>
<td>15.00</td>
<td>9.69</td>
<td>30.00</td>
<td>19.37</td>
<td>45.00</td>
</tr>
<tr>
<td>Florida College System transfers to the upper level***</td>
<td>10.00</td>
<td>6.46</td>
<td>20.00</td>
<td>12.92</td>
<td>30.00</td>
</tr>
<tr>
<td>Transfers to the upper level from other Florida colleges and universities***</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Transfers from out of state colleges and universities***</td>
<td>5.00</td>
<td>3.23</td>
<td>10.00</td>
<td>6.46</td>
<td>15.00</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>30.00</td>
<td>19.37</td>
<td>60.00</td>
<td>38.75</td>
<td>90.00</td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.
APPENDIX A

TABLE 2

PROJECTED COSTS AND FUNDING SOURCES

<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal columns 1+…+7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal columns 9+…+14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Columns 1-15

| Faculty Salaries and Benefits             | 118,255 | 0 | 0 | 0 | 0 | 0 | 0 | $118,255 | 143,739 | 0 | 0 | 0 | 0 | 0 | 0 | $143,739 |
| A & P Salaries and Benefits               | 10,500  | 0 | 0 | 0 | 0 | 0 | 0 | $10,500 | 12,763  | 0 | 0 | 0 | 0 | 0 | 0 | $12,763  |
| USPS Salaries and Benefits                | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      |
| Other Personal Services                   | 15,000  | 0 | 0 | 0 | 0 | 0 | 0 | $15,000 | 15,000  | 15,000 | 0 | 0 | 0 | 0 | 0 | 0 | $30,000  |
| Assistantships & Fellowships              | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      |
| Library                                    | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      |
| Expenses                                   | 8,040   | 0 | 0 | 0 | 0 | 0 | 0 | $8,040  | 10,000  | 0 | 0 | 0 | 0 | 0 | 0 | $10,000  |
| Operating Capital Outlay                   | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      |
| Special Categories                         | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      | 0       | 0 | 0 | 0 | 0 | 0 | 0 | $0      |
| Total Costs                                | $151,795| $0 | $0 | $0 | $0 | $0 | $0 | $151,795| $181,502| $15,000| $0 | $0 | $0 | $0 | $196,502|

*Identify reallocation sources in Table 3.
**Includes recurring E&G funded costs (‘reallocated base,’ "enrollment growth," and ‘new recurring’) from Years 1-4 that continue into Year 5.
***Identify if non-recurring.

Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Total Positions</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>1.19</td>
<td>1.19</td>
</tr>
<tr>
<td>A &amp; P (FTE)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>USPS (FTE)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$151,795</td>
<td>$196,502</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>19.37</td>
<td>77.50</td>
</tr>
<tr>
<td>E&amp;G Cost per FTE</td>
<td>$7,835</td>
<td>$2,536</td>
</tr>
</tbody>
</table>

Table 2 Column Explanations

Reallocated Base* (E&G) | 1 | E&G funds that are already available in the university's budget and will be reallocated to support the new program. Please include these funds in the Table 3 – Anticipated reallocation of E&G funds and indicate their source.
<table>
<thead>
<tr>
<th>Description</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional E&amp;G funds allocated from the tuition and fees trust fund contingent on enrollment increases.</td>
<td>2</td>
</tr>
<tr>
<td>Recurring funds appropriated by the Legislature to support implementation of the program.</td>
<td>3</td>
</tr>
<tr>
<td>Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section III. A.) of the proposal. These funds can include initial investments, such as infrastructure.</td>
<td>4</td>
</tr>
<tr>
<td>Contracts and grants funding available for the program.</td>
<td>5</td>
</tr>
<tr>
<td>Funds provided through the foundation or other Direct Support Organizations (DSO) to support of the program.</td>
<td>6</td>
</tr>
<tr>
<td>Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.</td>
<td>7</td>
</tr>
<tr>
<td>Subtotal of values included in columns 1 through 7.</td>
<td>8</td>
</tr>
<tr>
<td>Includes the sum of columns 1, 2, and 3 over time.</td>
<td>9</td>
</tr>
<tr>
<td>See explanation provided for column 2.</td>
<td>10</td>
</tr>
<tr>
<td>These are specific funds provided by the Legislature to support implementation of the program.</td>
<td>11</td>
</tr>
<tr>
<td>See explanation provided for column 5.</td>
<td>12</td>
</tr>
<tr>
<td>See explanation provided for column 6.</td>
<td>13</td>
</tr>
<tr>
<td>Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.</td>
<td>14</td>
</tr>
<tr>
<td>Subtotal of values included in columns 9 through 14.</td>
<td>15</td>
</tr>
</tbody>
</table>
APPENDIX A

TABLE 3
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S. in IDT funds to be reallocated from Career &amp; Technical Education specializations</td>
<td>151,795</td>
<td>151,795</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
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<tr>
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<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>$151,795</td>
<td>$151,795</td>
<td>$0</td>
</tr>
</tbody>
</table>

* If not reallocating funds, please submit a zeroed Table 3
### APPENDIX A

#### TABLE 4

**ANTICIPATED FACULTY PARTICIPATION**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Highest Degree Held</th>
<th>Academic Discipline or Speciality</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Nancy Hastings, PhD</td>
<td>Associate Prof.</td>
<td>Instructional Technology</td>
<td>Associate Prof.</td>
<td>Tenured</td>
<td>Fall 2020</td>
<td>12</td>
<td>1.00</td>
<td>0.25</td>
<td>0.25</td>
<td>12</td>
<td>1.00</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>A</td>
<td>Byron Havard, PhD</td>
<td>Professor</td>
<td>Instructional Technology</td>
<td>Professor</td>
<td>Tenured</td>
<td>Fall 2020</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
</tr>
<tr>
<td>A</td>
<td>Holly Ellis, PhD</td>
<td>Associate Prof.</td>
<td>Instructional Design &amp; Devel</td>
<td>Associate Prof.</td>
<td>Tenured</td>
<td>Fall 2020</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
</tr>
<tr>
<td>A</td>
<td>Fredrick Baker, PhD</td>
<td>Assistant Prof.</td>
<td>Instructional Design &amp; Devel</td>
<td>Assistant Prof.</td>
<td>Non-Tenure</td>
<td>Fall 2020</td>
<td>9</td>
<td>0.75</td>
<td>0.50</td>
<td>0.38</td>
<td>9</td>
<td>0.75</td>
<td>0.50</td>
<td>0.38</td>
</tr>
<tr>
<td>A</td>
<td>Minkyoung Kim, PhD</td>
<td>Assistant Prof.</td>
<td>Instructional Systems &amp; Tech</td>
<td>Assistant Prof.</td>
<td>Non-Tenure</td>
<td>Fall 2020</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
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<tr>
<td></td>
<td>Total Person-Years (PY)</td>
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<td></td>
<td>1.19</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Source of Funding</th>
<th>PY Workload by Budget Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source of Funding</td>
<td>Year 1</td>
</tr>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td>Current Education &amp; General Revenue</td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td>Current Education &amp; General Revenue</td>
</tr>
<tr>
<td>C</td>
<td>New faculty to be hired on a new line</td>
<td>New Education &amp; General Revenue</td>
</tr>
<tr>
<td>D</td>
<td>Existing faculty hired on contracts/grants</td>
<td>Contracts/Grants</td>
</tr>
<tr>
<td>E</td>
<td>New faculty to be hired on contracts/grants</td>
<td>Contracts/Grants</td>
</tr>
</tbody>
</table>

**Overall Totals for Year 1** | **1.19** | **Year 5** | **1.19**

43
Appendix B

Signatures
APPENDIX B

Please include the signature of the Equal Opportunity Officer and the Library Director.

Kim LeDuff
Name of Equal Opportunity Officer

Stephanie Clark
Name of Dean of University Libraries

Melanie Haveard
Name of Chief Technology Officer

This appendix was created to facilitate the collection of signatures in support of the proposal.
Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II.E of the proposal and the Library Director has reviewed sections X.A and X.B.

UWF also requires that a Request to Offer a New Degree program is reviewed by the Chief Technology Officer.
Appendix C

Academic Learning Compact (ALC)
And Curriculum Map
INSTRUCTIONAL DESIGN AND TECHNOLOGY

Mission Statement

The Division's mission is to ensure that its graduates, in their full diversity, achieve mastery of the skill sets that will enable them not only to perform the professional work tasks in their respective fields competently but prepare them to assume roles as strategic team members who can apply innovative planning and problem-solving to further the goals of their organizations.

Student Learning Outcomes

UWF Instructional Design and Technology graduates should be able to do the following:

Content
- Develop performance improvement goals based on analysis of data and desired education and performance outcomes.
- Design and develop instructional and performance solutions to address organizational goals.
- Develop strategies for implementation and evaluation of instructional and performance solutions.

Critical Thinking

Communication
- Communicate effectively with diverse stakeholders.

Integrity/Values
- Apply appropriate code of ethics.

Assessment of Student Learning Outcomes

Throughout their program, Instructional Design and Technology students demonstrate what they have learned through classroom assignments, hands-on activities, applied research, and creative activities. The curriculum emphasizes collaborative and individualized projects, building skills and engaging students in the application of classroom knowledge in real-world settings. All students are required to develop an electronic portfolio and complete a capstone project, demonstrating mastery of the program level learning outcomes.
Job Prospects for Graduates in Instructional Design and Technology

The degree in Instructional Design and Technology prepares students for careers related to training and performance development in corporate, military, academia, K-12, government, and healthcare environments. Some of the many related job titles include:

- Instructional designer
- Corporate Trainer
- Training manager
- Performance improvement specialist
- Organizational learning specialist
- Technical writer
- Program evaluator

Find Out More about Instructional Design and Technology at UWF:
https://uwf.edu/ceps/departments/instructional-design-and-technology/
# Curriculum Map

## Department of Instructional Design and Technology

### B.S., Instructional Design and Technology

<table>
<thead>
<tr>
<th>INSTRUCTIONAL DESIGN AND TECHNOLOGY</th>
<th>EDG 3661</th>
<th>EME 3624</th>
<th>EME 3312</th>
<th>EME 4673</th>
<th>EME 4350</th>
<th>EME 4043</th>
<th>EME 3351</th>
<th>EME 4674</th>
<th>EME 4352</th>
<th>EME 4343</th>
<th>EME 4083</th>
<th>EME 4684</th>
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<td>CONTENT</td>
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</tr>
<tr>
<td>Develop performance improvement goals based on analysis of data and desired education and performance outcomes.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>Design and develop instructional and performance solutions to address organizational goals.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Develop strategies for implementation and evaluation of instructional and performance solutions.</td>
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<td>X</td>
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<tr>
<td>CRITICAL THINKING</td>
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<tr>
<td>Analyze individual and organizational performance problems from education and human performance perspectives.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>X</td>
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<tr>
<td>COMMUNICATION</td>
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<tr>
<td>Communicate effectively with diverse stakeholders.</td>
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<td></td>
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<td>X</td>
<td>X</td>
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<tr>
<td>INTEGRITY AND VALUES</td>
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</tr>
<tr>
<td>Apply appropriate code of ethics.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Appendix D

Faculty Curriculum Vitarum
NANCY B. HASTINGS, PH.D.
Associate Professor/Assistant Dean
College of Education and Professional Studies
Dept. of Instructional, Workforce and Applied Technology
Building 85, Room 123
Email: nhastings@uwf.edu, Phone: 850-474-3013

EDUCATION
Wayne State University, Ph.D., 2005, Instructional Technology
Major Advisor: Dr. Rita C. Richey
Dissertation: The Effects of Learner Age, Gender and Visual Complexity on Visual
Learning

Oakland University, M.T.D., 2003, Training and Development
Masters Project: Transferring a required Human Resource Development
undergraduate Information Management Systems course from face-to-face to an
online environment without affecting the learning outcomes

Oakland University, B.S., 1999, Human Resources Management

PROFESSIONAL EXPERIENCE
2007-Present University of West Florida, College of Education and Professional
Studies, Department of Instructional and Performance Technology, Associate Professor and Chair

Administrative Responsibilities:
- Assistant Dean, College of Education and Professional Studies (2017-
present)
- Director, College of Education and Professional Studies AXIS
  (Academic Excellence in Instructional Strategies) office. (2017-
present)
- Chair, Dept. of Instructional, Workforce and Applied Technology
  (2015-present)
- Interim Chair, Dept. of Legal Studies, Public Administration, and Sport
  Management (2017)
- Chair, Dept. of Instructional and Performance Technology (2014-
  2015)
- Interim Chair, Dept. of Applied Science, Technology and
  Administration (2014-2015)

Courses Taught:
EDG6335: Advanced Instructional Design
EDF3234: Applied Foundations of Education
EME6054: Foundations of Instructional Technology
EME6316: Instructional Technology and Management
EME6317: Instructional Technology for Educational Leaders
EME6356: Performance Analysis
EME6357: Tools for HPT Evaluation
EME6358: Evaluation for MSA Professionals
EME6359: Performance Consulting
EME6409: Distance Learning Implementation
EME6414: Web-Based Instruction
EME6426: HPT Interventions
EME6427: Implementation of HPT Interventions
EME6428: Evaluation of HPT Interventions
EME6429: Human Performance Technology
EME6458: Distance Learning Policies and Planning
EME6607: Technology Planning and Change
EME6946: Field Experience/Internship, Instructional Technology
EME7676: Advanced Instructional Design Theory
EME8608: IDT Foundations, Issues, and Trends
EME8990/8991: Research and Scholarly Writing Seminar

Advising/Mentoring:
- Advise and mentor prospective and current Instructional Design and Technology Masters of Education, Masters of Science in Administration, Education Specialists and Doctor of Education students.
- Design, develop, and implement graduate student/professional organization mentoring project.
- Chair: Doctoral Examination and Dissertation Committees
- Committee Member: Doctoral Examination and Dissertation Committees
- Supervisor: M.Ed. and M.S.A. Capstone Projects

2010-2011  Oakland University, School of Education and Human Services, Department of Human Resources Development, Assistant Professor

Courses Taught:
HRD 310: Instructional Design
HRD 402: Program Planning and Evaluation
HRD 611: Program Administration
HRD 625: Instructional Design Theory to Practice
HRD 630: Current Trends, Social Media in Training and Development

2005-2007  Wayne State University, College of Education, Department of Administrative and Organizational Studies, Instructional Technology Program, Lecturer

Courses Taught:
IT 5110: Applications of Technology in Education
Program Development:
- Fully online M.Ed. in Instructional Technology
- Faculty training and support during transition to online teaching
- Supervision of graduate research assistants

2003-2007 Oakland University, School of Education and Human Services, Department of Human Resources Development, Special Lecturer

Courses Taught:
- HRD 309: Technology Applications in HRD (online)
- HRD 310: Instructional Design
- HRD 402: Program Planning and Evaluation
- HRD 423: Instructional Methods
- HRD 605: Program Evaluation

Courses Taught:
- EME 4810: Applied Educational Technology
- EME 6414: Educational Programming III
- EDF 5935: Diffusion of Innovations

2003-2012 Instructional and Performance Technology Solutions

Independent Consultant
- Design, develop and implement workplace education programs
- Conduct program evaluations
- Conduct needs analyses

2005-2007 EduTech, Birmingham, MI

Evaluator
- Evaluated emergency response and crisis management training in public schools
- Submitted quarterly reports to United States Department of Education, grant issuer

2003-2004 Galef Institute, Santa Monica, CA

Consultant
- Evaluated use and effectiveness of one to one laptop programs in public and private schools
1999-2002  Arrow Uniform, Taylor, MI  
*Corporate Training Manager*

- Conducted needs analyses to identify training and performance improvement opportunities
- Designed, developed, implemented and evaluated certification program
- Designed, developed, implemented and evaluated new hire orientation, service and quality training courses
- Supervised staff of classroom facilitators and on the job trainers

1988-1999  Lebow Products, Troy, MI  
*Human Resources Coordinator*

- Managed employee welfare programs
- Designed, developed, implemented and evaluated manufacturing process and quality control training
- Designed, developed, implemented and evaluated technology training

**PROFESSIONAL DEVELOPMENT**

*Completed*

Quality Matters Coach Certification. Online course required for certification as a Quality Matters Coach authorized to share the Quality Matters program with UWF students. August 2016.


Improving Your Online Course. Quality Matters workshop, facilitated by UWF Academic Technology Center staff. Includes comprehensive self-review and action plan development for improving an existing online course. May 2016.

Competency Based Education Symposium. Presented by Complete Florida in conjunction with the Innovation Institute to explore best practices and challenges related to implementing Competency Based Education in existing academic programs. January and May, 2016.


New Chair Development Program. Monthly workshops for first and second year chairs at the University of West Florida. September 2014-April 2015.
Institute for Academic Leadership, Chairs Workshop. Provides intensive academic leadership training to new chairs from universities throughout the State of Florida. September 14-17, 2014 and June 14-17, 2015


Banner Student: Introduction and Overview. Preview of Banner student records for advisors, administrators, and other employees; includes viewing student registration, general student information, searching for courses and registration overrides. February 2014.

Banner Student: Degree Works. Included an introduction to the new graduation audit system and an overview of the Re-Evaluation of Transfer Work form. February 2014.

Quality Matters, Continuing and Professional Education Peer Reviewer Certification. Online course leading to certification and authorization to serve as a peer reviewer on internal and external Quality Matters reviews or continuing and professional education courses and programs. March 2013.

Faculty Friday, Preparing for Tenure and Promotion. Workshop provided by the UWF Center for University Teaching and Learning (CUTLA) to help faculty prepare for to submit tenure and promotion portfolios. January 2013.

Quality Matters, Master Reviewer Certification. Online course leading to certification and authorization to serve as Master Reviewer and Review Team Chair for internal and external Quality Matters course reviews. October 2012.

Instructional Ideas and Technology Tools for Online Success. Massive Open Online Course (MOOC) offered by Dr. Curtis Bonk, Indiana University, and Course Sites. May 2012.

Fall Faculty Forum. Stretching the Edge of Technology-Enhanced Teaching: From Tinkering to Tottering to Totally Extreme Learning, The Rise of Shared Online Video, the Fall of Traditional Learning, and Introducing the R2-D2 and TEC-VARIETY Models for Hyper Engaging Instruction. Presented by Dr. Curtis Bonk, Indiana University. August 2012.

Quality Matters, Online Facilitator Certification. Online course leading to certification and authorization to present the Quality Matters Applying the Rubric Workshop in an online format. November 2011.

Quality Matters, Revised Rubric, Peer Reviewer Certification. Online course leading to certification and authorization to participate in internal and external Quality Matters course reviews. August 2011.
Quality Matters, Face to Face Facilitator Certification. Formerly Train the Trainer. Online course leading to certification and authorization to present the Quality Matters Applying the Rubric Workshop in face to face format. March 2010.

Quality Matters, Peer Reviewer Certification. Online course leading to certification and authorization to participate in internal and external Quality Matters course reviews. March 2009.

SCHOLARLY AND CREATIVE ACTIVITIES
Publications-Peer Reviewed


Presentations-Peer Reviewed


Hastings, N.B. (2017). *Structured mentoring-Introducing and immersing students in AECT*. Panel session (panelists include eight UWF students) presented at the 2017 Association for Educational Communications and Technology Conference; Jacksonville, FL.


panel presentation. Panel Discussion presented at the Association for Educational Communications and Technology Conference; Las Vegas, NV.


Hastings, N.B. (2014). Using Facebook to enhance communication and collaboration in graduate level asynchronous online courses. Roundtable presented at the Association for Educational Communications and Technology Conference; Jacksonville, FL.


Hastings, N.B. (2013). Repurposing training for online delivery. Roundtable presented at the Association for Educational Communications and Technology Conference; Anaheim, CA.


Bauman, J.A., & Hastings, N.B. (2012). DMAIC is just another way to spell ADDIE. Paper presented at the Association for Educational Communications and Technology International Convention; Louisville, KY.
Havard, B.C., & Hastings, N.B. (2012). *Peer assessment in group projects: the team member evaluation tool.* Paper presented at the Association for Educational Communications and Technology International Convention; Louisville, KY.


Hastings, N.B. (2009). *STEM Careers and technology, can content be exciting? YES it can!* Paper presented at the Florida Educational Technology Conference; Orlando, FL.


Publications-Other


Grants/Awards
Emerge Scholar Award
College of Education and Professional Studies competitive grant awarded to faculty to support the integration of high impact practices in teaching and learning. Summer 2016.

COPS Travel Match Award
Competitive grant awarded annually to support faculty travel. Awarded Fall 2008, Fall 2009, Spring 2012, Spring 2013, Fall 2013.

NSF Grant Writing Symposium
Provided funding for myself and one student to attend Symposium in Anaheim, CA. Fall 2007.

Other Scholarly and Creative Activities
Program Development
1. Ed.D. in Instructional Design and Technology, start date Fall 2020
2. B.S. in Instructional Design and Technology, start date Fall 2019

Guest Editor

Guardianship Course
Design and develop mandatory online guardianship training course for the First Judicial Circuit Court of Escambia County, Florida to be offered through the University of West Florida, Department of Continuing Education.

Journal/Book Reviewer
*Tech Trends Journal Reviewer, 2010-present
Performance Improvement Quarterly, 2016-present

Delphi Panel Member
*Communities of Inquiry: Job Aid and Instructional Manual*. (Junion, 2012)

Quality Online Teaching Certification Program
Design, develop and facilitate 12-week faculty professional development program leading to certification in Quality Online Teaching through the University of West Florida Academic Technology Center. Courses received National Quality Matters Certification in 2014 with a perfect score.

Creative Learning Academy Professional Development Program
Design, develop and facilitate monthly technology integration workshops for preK-8th grade teachers. Oversee partnership and assist with grant location and technology integration decisions.

M.Ed. Capstone Experience
Design, develop and facilitate required M.Ed. in Instructional Technology Capstone Experience consisting of completion of a real world project and numerous reflection activities. Related course received external Quality Matters Certification in 2016.

**SERVICE: UNIVERSITY, COLLEGE AND DEPARTMENT**

Faculty Sponsor:

Quality Matters Scholar:
Conduct Quality Matters authorized workshops, training sessions and self-review activities with faculty
Chair internal Quality Matters Review Committees
Provide one on one and group faculty professional development to facilitate course revisions and support achievement of certification

Academic Technology Center Spring Mini-Conference Presenter. Provide faculty professional development related to online course design and delivery. 2012 and 2015.

Fall Faculty Forum Small Group Facilitator. Facilitate faculty roundtable discussion on new ideas for distance learning. 2011.

Fort Walton Beach Ed.D. Cohort Co-Coordinator (with Dr. Holly Ellis)
Instructional and Performance Technology Internship Coordinator. 2009-present.

Committee Service:
- Chair, Building Construction Faculty Search Committee, 2015-2016
- Chair, Public Administration Faculty Search Committee, 2014-2015
- Member, Banner Project Academic Team: 2013-2017
- Member, Search Committee, Director of Cyber Security, 2014-2015
- Member, COPS Council, 2012-2014
- Member, Curriculum Change Request Committee: 2011-2012, 2013-2014
- Member, Ed.D. Program Policy Group, 2015-present
- Member, Instructional Technology Enhancement Project (ITEP) Committee, 2015-present
- Member, Graduate Council, 2017-2019
- Member, Library Committee: 2008-2010, 2012-2014
- Member, Emerald Coast Council: 2007-2010

SERVICE: PROFESSIONAL ORGANIZATIONS

Association for Educational Communications and Technology (AECT)
- Elected Positions
  Board of Directors: 2011-2014, 2017-2020
  Organizational Training and Performance Division Past President: 2016-2017
  Organizational Training and Performance Division President: 2015-2016
  Organizational Training and Performance Division President Elect: 2014-2015
  Organizational Training and Performance Division Past President: 2008-2009
  Organizational Training and Performance Division President: 2007-2008
  Organizational Training and Performance Division President Elect: 2006-2007

- Nominated/Appointed Positions
  Board of Directors: 2009-2011
  Definitions and Terminology Committee: Chair, 2012-present
  Definitions and Terminology Committee: member, 2009-2012
  Nominating Committee: 2014-2015
  Publications Committee: 2009-present
  Strategic Planning Committee: 2015-2017
  Tech Trends Editorial Board: 2011-present

- Volunteer Positions
  Conference discussant: 2009
  Conference reviewer and facilitator: 2005-present

International Society for Performance Improvement (ISPI)
- Founder and President, Gulf Coast ISPI Chapter 2018-present
- President, Coast to Coast ISPI Virtual Chapter 2011-2014
- Faculty Sponsor, University Case Study Competition: 2009, 2010, 2014

SERVICE: COMMUNITY
First Judicial Circuit Court of Escambia County
Design, Develop and Implement online version of mandatory guardianship training course. To be offered through UWF Continuing Education for fee.

Creative Learning Academy

Project Manager: UWF/CLA Technology Partnership
Assist in the development of technology rich learning environments
Provide monthly professional development for CLA faculty

Quality Matters External Review Committees
Recognized as a member of the Quality Matters Hall of Excellence for QM Reviewers (2015)
Master Reviewer (10)
Subject Matter Expert (5)
External Member (4)

AWARDS AND HONORS

Professional Awards and Honors

2018 Recipient, College of Education and Professional Studies Purposeful Mentor Award.
2017 Nominated, University of West Florida Distinguished Faculty Award for Service.
2016 Recipient, Association for Educational Communications and Technology Special Service Award.

Graduate Awards

2005-2006 Wayne State University, Instructional Technology Department, Outstanding Doctoral Student of the Year
2003-2005 Wayne State University, Graduate Professional Scholarship
2003-2004 Wayne State University, John Trebom Memorial Scholarship
2003 Oakland University Student Organization President of the Year
2003 President’s Student Service Leadership Award, awarded by the President of the United States of America in recognition of volunteer work teaching business and life skills to economically disadvantaged teens

Undergraduate Awards

1997 Golden Key National Honor Society
Byron Havard, PhD
Professor - Department of Instructional Design and Technology
University of West Florida - College of Education and Professional Studies
11000 University Pkwy 85/118 Pensacola, FL 32514
850-474-2952 Phone | 850-474-3205 Fax | bhavard@uwf.edu

PROFESSIONAL PREPARATION
Georgia State University - Instructional Technology, PhD, 1999
University of South Alabama - Instructional Design and Development, MS, 1994
Auburn University - Industrial Design, BS, 1991

PROFESSIONAL APPOINTMENTS
University of West Florida, 2005-present
   Professor, Instructional Design and Technology, 2018-present
   Associate Professor, Instructional, Workforce, and Applied Technology, 2011-2018
   Chair, Instructional and Performance Technology, 2012-2014
   Interim Chair, Applied Science, Technology, and Administration, 2014
   Associate Chair, Applied Science, Technology, and Administration, 2011-2012
   Assistant Professor, Instructional and Performance Technology, 2005-2011
Mississippi State University, 2002-2005 - Assistant Professor, Instructional Systems
Mitsubishi Electric, 2001-2002 - Training Manager
IBM, 2000-2001 - Lead Instructional Designer
AT&T, 1994-2000 - Lead Instructional Technologist
United States Coast Guard Aviation Training Center, 1993-1994 - Instructional Designer

PUBLICATIONS
Peer-Reviewed Publications
VA: AACE.


**Other Publications**


**Manuscripts under Review**


**Manuscripts in Preparation**


PRESENTATIONS
Peer-Reviewed Presentations


Taylor, N., Havard, B., & Ellis, H. (2016). Self-efficacy beliefs, prior deployment experience, and cognitive functioning levels of disaster response tabletop exercise participants. Paper presented at the 2016 Association for Educational Communications and Technology annual meeting; Las Vegas, NV.


Murphy, L., & Havard, B. (2015). The relationship between instructional technology self-efficacy and the integration of instructional technology into pedagogical practices. Paper presented at the Association for Educational Communications and Technology annual meeting; Indianapolis, IN.


East, M., & Havard, B. (2014). Along came a spider...and frightened health professionals away: Impelling ehealth and mhealth diffusion by evolving from the ethics fixation. Paper presented at the Medicine 2.0 World Congress on Social Media, Mobile Apps, Internet / Web 2.0; Malaga, Spain.

Paper presented at the Association for Educational Communications and Technology annual meeting; Jacksonville, FL.


Havard, B., & Atkinson, F. D. (2001). *Factors influencing computer self-efficacy in an introductory level computer course.* Paper presented at the Association for Educational Communications and Technology annual meeting; Atlanta, GA.


GRANTS AND PROPOSALS
Havard, B. A Web Application for Peer Assessment in Group Projects, (SCAC Award, funded, $1,920).
Havard, B. (PI). The Impact of Technology Access and Use on Low-Income and Minority Students’ Academic Achievement: Educational Longitudinal Study (ELS) 2002: Base Year and First Follow-up 2004, AERA Grants Program (not funded, $32,700).
Okojie, M (PI), Du, J. X., & Havard, B. (Co-PI), Mississippi State University College of Education and Department of Instructional Systems, Leadership, and Workforce Development, The Participation of African American Women in Instructional Technology Programs for Advanced Degrees (funded, $3,000).
Okojie, M (PI), Du, J. X., Havard, B., & Olinzock, A. (Co-PI), Fostering the Advancement of Women and African American Professors in Instructional and Industrial Technology in Mississippi, National Science Foundation Proposal Number: NSF 03-588, Washington D.C. (not funded, $330,000).
Thompson, C. (PI), & Havard, B. (Co-PI). Engaging Graduate Education and Professional Studies Students and UWF Faculty in Observational Research Methods within Face-to-Face and Virtual Environments via Observer©XT (2017-2018, funded, $43,979).

TEACHING AND ADVISING

Chaired Published Dissertations
Florida).
Gaffey, A. (2014). 10th grade students’ time using a computer as a predictor of the highest level of education attempted (Doctoral dissertation, University of West Florida).
Islam, M. (2016). An analysis of bandura’s theory of self-efficacy as it relates to university faculty members’ intent to use synchronous technology in online classes by using the innovation diffusion process (Doctoral dissertation, University of West Florida).
Maddox, A. (2010). Faculty perceptions of an online graduate degree in history (Doctoral dissertation, University of West Florida).
Weldon, R. (2011). The impact of audio-assisted computer assessments on student performance with emphasis on reading ability levels and socioeconomic status (Doctoral dissertation, University of West Florida).
### Courses Taught

#### Graduate Courses Taught at UWF

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Name</th>
<th>Semesters Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>EME 6357</td>
<td>HPT Tools</td>
<td>2006, 2005</td>
</tr>
<tr>
<td>EME 6408</td>
<td>Technology Integrated Learning Environments</td>
<td></td>
</tr>
<tr>
<td>EME 6415</td>
<td>Digital Video for Instruction</td>
<td>2018, 2017, 2016, 2018</td>
</tr>
<tr>
<td>EME 6429</td>
<td>Human Performance Improvement</td>
<td></td>
</tr>
<tr>
<td>EME 6607</td>
<td>Instructional Technology Planning and Change</td>
<td>2005</td>
</tr>
<tr>
<td>EME 6905</td>
<td>Directed Study</td>
<td>2008</td>
</tr>
<tr>
<td>EME 7676</td>
<td>Advanced Instructional Design</td>
<td>2017</td>
</tr>
<tr>
<td>EME 7905</td>
<td>Directed Study</td>
<td>2015, 2014</td>
</tr>
<tr>
<td>EME 7938</td>
<td>IT Research Design Seminar</td>
<td>2015, 2014</td>
</tr>
<tr>
<td>EME 8980</td>
<td>Dissertation</td>
<td>Spring 2007 - present</td>
</tr>
</tbody>
</table>

#### Undergraduate Courses Taught at UWF

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Name</th>
<th>Semesters Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>EME 2040</td>
<td>Introduction to Educational Technology</td>
<td>2015</td>
</tr>
<tr>
<td>EME 3312</td>
<td>Technology Supported Learning</td>
<td>2018</td>
</tr>
<tr>
<td>EME 6408</td>
<td>Training Needs Assessment</td>
<td>2018</td>
</tr>
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</table>

#### Graduate Courses Taught at MSU

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Name</th>
<th>Semesters Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>TKT 8733</td>
<td>Data Communications for Instructional Technology</td>
<td>2003</td>
</tr>
</tbody>
</table>

#### Undergraduate Courses Taught at MSU

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Name</th>
<th>Semesters Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>TKB 1313</td>
<td>Records Management</td>
<td>2003, 2002</td>
</tr>
<tr>
<td>TKB 2122</td>
<td>Introduction to Database Management</td>
<td>2004</td>
</tr>
<tr>
<td>TKT 3463</td>
<td>Computer Repair and Maintenance</td>
<td>2005, 2004</td>
</tr>
<tr>
<td>TKB 4563</td>
<td>Introduction to Data Networks</td>
<td>2003, 2002</td>
</tr>
</tbody>
</table>
SERVICE

Department Service

Reviewer, Applications to Instructional Design and Technology MEd and C&I EdD Specialization Programs (ongoing)
Committee Chair, Instructional Design and Technology Visiting Assistant Professor Search Committee (2017-2018)
Committee Member, Building Construction Instructor Search Committee (2015-2016)
Committee Member, Bylaws Committee (2015-2016)
Chair, Department of Instructional and Performance Technology (2012-2014)
Interim Chair, Applied Science, Technology, and Administration (2014)
Associate Chair, Department of Applied Science, Technology, and Administration (2011-2012)
Program Coordinator, EdD and EdS Instructional Technology Programs (2010-2015)
Committee Member, Engineering and Computer Technology Departmental T&P Committee (2009)
Advisor, MEd Instructional Technology and MSA Human Performance Technology (2005-2008)
Chair, ECT Departmental Search Committee for Instructional Technology Faculty Member (2007)
Committee Member, ECT Departmental Search for Engineering Technology Instructor (2006)
Committee Member, ECT Departmental Search for Instructional Technology Faculty Member (2006)
Program Coordinator, Instructional Systems, Leadership and Workforce Development (ISLWD), BS Information Technology Services (2002-2005)
Advisor, MS Instructional Technology advisor (21 students) and BS Information Technology Services advisor (41 students) (2002-2005)
Committee Member, ISLWD Departmental Search for Instructional Technology Faculty Member (2004)
Committee Member, RRTC on Blindness and Low Vision Departmental Search for Instructional Design Specialist (2004)
Committee Member, ISLWD Departmental Search for Media Specialist (2003)
Committee Member, ISLWD Departmental Search for Instructor (2003)

College Service

Committee Member, College of Education and Professional Studies Personnel Committee (2014-present)
Committee Member, Emerge Program Committee (2015-present)
Chair, College of Education and Professional Studies EdD Program Committee (2014-2015)
Committee Member, Research and Advanced Studies Chair/EdD Program Director Search Committee (2015)
Committee Member, College of Education and Professional Studies Showcase (2015)
Committee Member, Research and Advanced Studies Faculty Search Committee (2014)
Committee Member, Administrative Studies EdD Specialization Faculty Search Committee (2013)
Committee Member, College of Professional Studies EdD Program Committee (2010-2014)
Committee Member, College of Professional Studies Academic Standards and Review Committee (2009-2012)
Committee Member, College of Professional Studies Professional Education Council (2006-2008)
Committee Member, College of Education National Council for Accreditation of Teacher Education (NCATE) Committee (2003-2005)

University Service

Committee Member, Scholarly and Creative Activities Committee (2015-2017)
Committee Member, Research and Scholarship Task Force (2015)
Committee Member, Graduate Council (2013-2015)
Committee Member, UWF Open House Committee - Ad Hoc (2013)
Committee Member, UWF IT Planning and Advisory Committee (2011-2016)
Committee Member, UWF Electronic Courseware Task Force - Ad Hoc (2008-2009)
Committee Member, UWF Dean of Libraries Search (2008-2009)

74
Committee Member, UWF Emerald Coast Search for Information Technology Specialist (2007)
Committee Member, UWF Emerald Coast Search for Financial Accounts Manager (2007)
Committee Member, UWF Emerald Coast Search for Faculty Coordinator (2006)
Member, Emerald Coast Faculty Council (2006-2011)
Mentor, Mississippi State University Mentor Program (2003-2005)

Professional Service
Journal of Interactive Learning Research (JILR) - a peer-reviewed quarterly journal of the
Association for the Advancement of Computing in Education (AACE), Editorial Review Board
Member, 2003-present
Journal of Research on Technology in Education (JRTE) - a peer-reviewed quarterly research journal
of the International Society for Technology in Education (ISTE), Editorial Review Board
Member, 2003-2011
Association for Educational Communications and Technology (AECT)
President, Division of Emerging Learning Technologies (2018-present)
President Elect, Division of Emerging Learning Technologies (2017-2018)
Member at Large, Division of Emerging Learning Technologies (2016-2017)
Member (1994-present)
Conference Proposal Reviewer (2016-2018)
– Division of Emerging Learning Technologies
Conference Proposal Reviewer (2015)
– Multimedia Production
Conference Proposal Reviewer (2003-2006):
– Design and Development
– Distance Learning
American Educational Research Association (AERA)
Conference Proposal Reviewer (2003-2006):
– Division C: Learning and Instruction
– Division L: Education Policy and Politics
– SIG Instructional Technology
Society for Information Technology and Teacher Education Conference Presider (SITE 2004)

Community Service
Kairos Prison Ministry International Volunteer, 2006-present
– Served on nine Weekend Programs and nine Reunions: #6 through #13 at Northwest Florida
  Reception Center (formerly Washington Correctional Institution) and Program #1 and Reunion at
  Okaloosa Correctional Institution
– Served as Leader for Kairos #10 at Washington Correctional Institution
– Served on over 30 Follow-up sessions
– Offered over 15 formal talks regarding topics including choices, listening, and forgiveness
– Counseled (individually and small group) over 20 incarcerated men
Creative Learning Academy, Professional Development - Technology Tools for Learning 2012
CURRICULUM VITAE

Name
Dr. Holly Ellis, Associate Professor

Office Address
College of Education and Professional Studies
Department of Instructional Design and Technology
Building 85, Room 117

Educational Background
Ph.D., Instructional Design and Development, University of South Alabama, 2008
M.Ed., Educational Training and Management Subspecialty, Emphasis in Instructional Technology, University of West Florida, 1999
B.A., Elementary Education, University of West Florida, 1997

Employment History at the University of West Florida
Associate Professor, Department of Instructional Design and Technology, 2018 – present
Assistant Professor, Department Instructional, Workforce, and Applied Technology, 2012 – 2018
Visiting Assistant Professor, Department of Engineering and Computer Technology, 2010 – 2012
Assistant Director, Institute for Innovative Community Learning, 2007-2010
Instructional Designer, Institute for Innovative Community Learning, 2005-2007
Coordinator of Product Development and Support, Educator Performance Institute, 2002-2005
Organizational Liaison and Client Advocacy Coordinator, Office of Educator Performance, 2000-2002
STEPS Grant Project Manager, Panhandle Area Center for Educational Enhancement, 1999-2000

Other Professional Experiences
Instructor, TeacherReady® Alternative Certification Program

Teaching Assignments
Fall 2004
EME 2040, Introduction to Educational Technology

Fall 2010
EME 6358, Evaluation for MSA Professionals (2 sections)
EME 6409, Distance Learning Implementation
EME 6607, Instructional Technology Planning and Change

Spring 2011
EME 6358, Evaluation for MSA Professionals (2 sections)
EDG 6335, Advanced Instructional Design
EME 6054, Foundations of Instructional Technology
EME 6905, Directed Study
Summer 2011
- EME 6358, Evaluation for MSA Professionals
- EME 6316C, Instructional Management and Technology
- EME 5355, ID for HPT
- EME 6905, Directed Study

Fall 2011
- EME 6317, Instructional Technology for Educational Leaders
- EME 6314, Technology for Leaders
- EDG 5332, Principles of Instructional Design
- EME 6905, Directed Study

Spring 2012
- EME 6317, Instructional Technology for Educational Leaders
- EME 6607, Instructional Technology Planning and Change
- EME 6054, Foundations of Instructional Technology
- EME 6905, Directed Study

Summer 2012
- EME 6317, Instructional Technology for Educational Leaders (2 sections)
- EME 8990, Doctoral Seminar, APA III

Fall 2012
- EME 6317, Instructional Technology for Educational Leaders
- EDG 5332, Principles of Instructional Design
- EME 6607, Instructional Technology Planning and Change
- EME 8990, Doctoral Seminar, Scholarly Writing I

Spring 2013
- EME 6317, Instructional Technology for Educational Leaders
- EME 6054, Foundations of Instructional Technology
- EME 8990, Doctoral Seminar, Scholarly Writing II

Summer 2013
- EME 6317, Instructional Technology for Educational Leaders (2 sections)
- EME 6607, Instructional Technology Planning and Change (2 sections)
- EME 8990, Doctoral Seminar, Research and Scholarly Writing

Fall 2013
- EME 6317, Instructional Technology for Educational Leaders (2 sections)
- EME 6358, Evaluation for MSA Professionals
- EDG 5332, Principles of Instructional Design
- EME 7905, Directed Study

Spring 2014
- EME 6317, Instructional Technology for Educational Leaders
- EME 6054, Foundations of Instructional Technology
- EME 6358, Evaluation for MSA Professionals (2 sections)
Summer 2014
EME 6607, Instructional Technology Planning and Change
EME 6358, Evaluation for MSA Professionals
EME 8980, Dissertation

Fall 2014
EME 6317, Instructional Technology for Educational Leaders (Quality Matters certified)
EME 6409, Distance Learning Implementation
EDG 5332, Principles of Instructional Design
EME 7905, Directed Study
EME 8980, Dissertation

Spring 2015
EME 6316C, Instructional Management and Technology
EME 6358, Evaluation for MSA Professionals (2 sections)
EME 6054, Foundations of Instructional Technology
EME 8980, Dissertation

Summer 2015
EME 6607, Instructional Technology Planning and Change
EME 6358, Evaluation for MSA Professionals
EME 8980, Dissertation

Fall 2015
EME 6607, Instructional Technology Planning and Change (directed study)
EME 6609, Principles of Instructional Design (Quality Matters certified)
EME 6358, Evaluation for MSA Professionals (2 sections)
EME 6409, Distance Learning Implementation
EME 8980, Dissertation

Spring 2016
EME 5355, Instructional Design for Human Performance Technology
EME 6357, Performance Technology Tools
EME 6358, Evaluation for MSA Professionals (2 sections)
EME 6054, Foundations of Instructional Technology
EME 8980, Dissertation (2 students)

Summer 2016
EME 6607, Instructional Technology Planning and Change
EME 8980, Dissertation (2 students)

Fall 2016
EME 6609, Principles of Instructional Design
EME 6409, Distance Learning Implementation
EME 5316, Instructional Technology Leadership (course redesign)
EME 4043, Instructional Technology Leadership (course redesign)
EME 8980, Dissertation (2 students)
Spring 2017
EME 6054, Foundations of Instructional Technology (2 sections) (course redesign)
EME 6409, Implementation of Distance Learning (course redesign) (Quality Matters certified)
EME 6458, Distance Learning Policy and Planning
EME 8980, Dissertation (2 students)

Summer 2017
EME 6607, Implementation of Instructional Technology Projects

Fall 2017
EME 8905, Dissertation Research
EME 6609, Principles of Instructional Design
EME 5316, Instructional Technology Leadership
EME 4043, Instructional Technology Leadership
EME 6946, IPT Field Experience
EME 8980, Dissertation (1 student)

Spring 2018
EME 6609, Principles of Instructional Design
EME 6414C, Web-Based Instruction
EME 6054, Foundations of Instructional Technology (2 sections)
EME 8980, Dissertation (1 student)

Summer 2018
EME 6607, Implementation of Instructional Technology Projects (2 sections)

Fall 2018
EME 6409, Implementation of Distance Learning (2 sections)
EME 5316, Instructional Technology Leadership
EME 4043, Instructional Technology Leadership

Research/Creative Activities
Peer-Reviewed Publications


*Conference Presentations*

Ellis, H. H.

Accepted for Presentation:
Handwritten or Typewritten: Does It Really Matter? Instructor Feedback and Student Perceptions of Connectedness.

Havard, B., Podsiad, M., Ellis, H., Hyland, C., & Valaitis, K.
Association for Educational Communications and Technology, October 2018, Kansas City, Missouri.


Ellis, H. H.

Presentation: Student Participation in Online Discussions: Traditional vs. Nontraditional Students.

Association for Educational Communications and Technology, November 2017, Jacksonville, Florida.

Presentation: Preservice Teachers’ Intentions to Integrate Technology.

Evans, T. & Ellis, H. (accepted for presentation but unable to attend).
Association for Educational Communications and Technology, November 2016, Las Vegas, Nevada.

Presentation: Don’t Gamble with Technology Education and Young Children.

Johnson, D. & Ellis, H.
Association for Educational Communications and Technology, November 2016, Las Vegas, Nevada.
Presentation: A Study Carroll’s Model of School Learning and Distance Learning for Law Enforcement Officers.

McArthur, A. & Ellis, H. 
Association for Educational Communications and Technology, November 2016, Las Vegas, Nevada. 
Presentation: Creative Curriculum and Technology Integration in Child Development Centers.

Mitchell, D., Havard, B., & Ellis, H. 
Association for Educational Communications and Technology, November 2016, Las Vegas, Nevada. 
Presentation: The Effects of Educational Video Games on Secondary Students’ Nutritional Beliefs and Knowledge.

Taylor, N., Havard, B., & Ellis, H. 
Association for Educational Communications and Technology, November 2016, Las Vegas, Nevada. 
Presentation: Self-efficacy Beliefs, Prior Deployment Experience, and Cognitive Functioning Levels of Disaster Response Tabletop Exercise Participants.

Ellis, H. H., Havard, B., Hastings, N., & McArthur, A. 
Society for Information Technology and Teacher Education, March 2016, Savannah, Georgia 
Presentation: Educational Leaders as Technology Leaders: Technology Literacy Skill Development

Ellis, H. H. 
Society for Information Technology and Teacher Education, March 2014, Jacksonville, Florida 
Presentation: Modeling Effective 21st Century Teaching Strategies: Teaching with the Technology, Not Teaching the Technology

Havard, B., Ellis, H. H., & Kingry, M. 
Society for Information Technology and Teacher Education, March 2013, New Orleans, Louisiana 
Presentation: The Team Member Evaluation Tool: Assigning Individual Grades on Group Projects

Ellis, H. H., & Davidson-Shivers, G. V. 
Ed Media 2010 – World Conference on Educational Multimedia, Hypermedia, and Telecommunications, June 2010, Toronto, Canada 
Presentation: The Impact of Discussion Structure on Student Participation in Online Discussions

Ellis, H. H. 
Florida Educational Technology Conference, January 2009, Orlando, Florida 
Presentation: Using Formative Assessment and Feedback to Improve Student Performance: A Tool for New and Early Career Teachers
Ellis, H. H., & Thomas, K.  
2008 Just Read, Florida! Leadership Conference, June 2008, Orlando, Florida  
Presentation: Using Formative Assessment and Feedback to Improve Student Learning in Reading

Davidson-Shivers, G. V., Ellis, H. H., & Amarasing, K.  
Presentation: How do female students perform in online debate and discussion?

Howard, W. G., & Ellis, H. H.  
Florida DOE 2005 Post Secondary Disability Services Conference, June 2005, Orlando, Florida  
Presentation: Designing Effective Learning with Active Student Learning and Technology

Howard, M., & Howard [Ellis], H. A.  
American Society for Addiction Medicine, March 2003, Orlando, Florida  
Presentation: Using Effective Communication to Reduce Medical Errors

Howard [Ellis], H. A.  
Technology and All That Jazz, February 2002, Pensacola, Florida  
Presentation: IBINDER: Your Personal Notebook of Educational Standards

Sites, R., & Howard [Ellis], H. A.  
International Association for Management of Technology, March 2001, Lausanne, Switzerland  
Presentation: SOPALS: An Online Student Portfolio

Howard, W. G., & Howard [Ellis], H. A.  
International Conference on Technology and Education, March 1999, Edinburgh, Scotland  
Presentation: Socrates in the New Millennium

Other


Conferences Attended

Association for Educational Technology Conference, November 2017, Jacksonville, Florida
Association for Educational Technology Conference, November 2016, Las Vegas, Nevada
Society for Information Technology and Teacher Education, March 2016, Savannah, Georgia
Association for Educational Communications and Technology, November 2015, Indianapolis, Indiana
Society for Information Technology and Teacher Education, March 2014, Jacksonville, Florida
Florida Educational Technology Conference, January 2013, Orlando, Florida
Just Read, Florida Leadership Conference, June 2008, Orlando, Florida
Florida Educational Technology Conference, March 2005, Orlando, Florida
Association for Educational Communications and Technology, February 2000, Long Beach, California
Florida Educational Technology Conference, February 2000, Orlando, Florida
International Association for Management of Technology, March 1998, Gothenburg, Sweden

Peer Reviewer for Publications

SAGE Open
Contemporary Issues in Technology and Teacher Education - Current Practices
Learning, Media, and Technology
Journal of Technology and Teacher Education

Other Professional Service
Volunteer Web Designer for Educational Center
Volunteer Instructor for Technology-Related Professional Development
Presenter of Educational Resources to Local Public Schools
Instructional Technology Consultant for Peer Research
Developed and Presented Professional Development for K12 Teachers
Peer Reviewer for Professional Journal
Emerge Experience Consultant
Content Writer for College Website
Presider for Conference Session

Honors and Awards
Phi Kappa Phi
Golden Key Honor Society
Phi Eta Sigma
Who’s Who in Colleges and Universities
SITE 2016 Honorable Mention Poster Presentation Award
Faculty LEAD Member 2018-2019 class

Membership in Professional Organizations
Association for the Advancement of Computing in Education
Association for Educational Communications and Technology
Society for Information Technology and Teacher Education
American Education Research Association
Association and Training Development
International Society for Performance Improvement
International Society for Technology in Education

**Doctoral Committees Chaired**
- Eglasia Barnes
- Justin Cannady
- Eric Smith
- Karen Valaitis

**Doctoral Committees Served On**
- Edith Burkart
- Charles Charlton
- Norma Eliason
- Duane Eliason
- Joshua Fell
- Brittnee Fisher
- Adam Gaffey
- Joseph Gaston
- Erika Goines
- James Hale
- Delilah Lewis
- Faye Mays
- Debra Mitchell
- Vanessa Phillips
- Megan Podsiad
- Brandi Prather-Leming
- Christine Rogers
- Susan Spears
- Nadia Taylor
- Miguel Villanueva
- Kristen Williams

**Standing College Committees**
- Ed.D. Program Committee (2012-2014) (chair and co-chair)
- Academic Standards and Review Committee (2013-2015)
- Program Review Committee (2014-2015)
- College of Education and Professional Studies Council (2018-2019)

**Standing University Committees**
- University Library Committee (2014-2016)

**Additional Service**
- Ed.D. Program Coordinator, Instructional Design and Technology specialization (2017-present)
Fredrick W. Baker III, Ph.D.

11000 University Parkway, Bldg 85, Office 115, Pensacola, FL 32514
fredwbaker@gmail.com

PROFESSIONAL HIGHLIGHTS

LEADER/ADMINISTRATOR: 10+ Years of Leadership/Management Experience in Dynamic Team Environments, Assistant Director of an Academic Center, Functional Lead for Student Analytics System (EAB SSC), BSBA in Entrepreneurship. Designed/Led Numerous Projects, Advanced Training in Negotiation & Conflict Resolution

INSTRUCTOR/TRAINER: Course Instructor & Trainer since 2008—Taught 20 Courses & Led 25+ Workshops, Seminars, & Training Sessions

INSTRUCTIONAL: Instructional Design/Evaluation since 2010—Faculty & Staff Training/Support,

DESIGNER: LMS & Technology Services, Course Review, Performance Evaluation, etc.

ACTIVE SCHOLAR: Over 25 Research Publications, 35 Scholarly Presentations

EDUCATION

UNIVERSITY OF SOUTH ALABAMA

Ph.D. Instructional Design & Development July 2014
Doctoral Student of the Year 2014-2015

B.S. Business Administration, Entrepreneurship May 2008
MCOB Certificate of Recognition
President, Golden Key International Honour Society
Alpha Chi Honor Society

PROFESSIONAL BACKGROUND

THE UNIVERSITY OF WEST FLORIDA

Assistant Professor, Instructional Design and Technology 2018- Present
Supervisor: Dr. Nancy Hastings, Assistant Dean, CEPS
  o Teach fully online classes in undergraduate, graduate, and doctoral program
  o Serve as Coordinator for the Ed.D. Program, IDT Specialization
  o Pursue research agenda and publishing
  o Serve on Various University Committees, and Task Forces
  o Provide Professional Service to the Field Through AECT and ISPI

THE UNIVERSITY OF TAMPA

Assistant Director, Retention Initiatives 2018- 2018
Supervisor: Dr. Joe Sclafani, Interim Associate Provost
- Responsible for large scale implementation of retention related initiatives
- Functional Lead for the implementation, planning, rollout, and use of the Student Success Collaborative (SSC) analytics platform
- Facilitate/Coach Academic Improvement Initiatives (Curriculum Alignment, Instructional Design, etc.) for faculty departments across campus
- Performance Improvement for institutional Departments using SSC Resources and Data (e.g., International Programs, Academic Success Center, etc.)
- Lead the Leadership Team for Student Success Collaborative (SSC) analytics platform
- Information Technology Services Advisory Board member
- Serve on various committees as needed

**Assistant Director, Academic Success Center** 2016-2018  
Supervisor: Dr. Joe Sclafani, Interim Associate Provost

- Responsible for performance evaluation of the Academic Success Center
- Functional Lead for the implementation and use of the Student Success Collaborative analytics platform
- Lead the Strategic Planning Committee for the Academic Success Center
- Information Technology Services Advisory Board member
- Serve on various committees as needed

**Instructional Technologist** 2014-2016  
Supervisor: Dr. Joe Sclafani, Associate Dean, Center for Teaching & Learning

- Led Open Badges Initiative & OER Initiative (design, development, evaluation, implementation)
- Supervise/oversee/develop graduate assistant and an Instructional Design Intern
- Develop and provide training sessions on a variety of topics
- Provide faculty support for Blackboard LMS and other technologies
- Created 20+ articles for the Educational Technology Knowledge Base
- Served on Hybrid Learning Senate Committee, Hybrid Course Review Committee (Ex Officio), Gateways Blackboard Course Design Committee, & Instructional Technology Committee (Ex Officio)
- Established Informal Thinktank on Openness to educate faculty & Staff

**James Madison University**

**Adjunct Instructor, Learning, Technology, & Leadership Education** 2018-Present  
Supervisor: Dr. Michele Estes, Director, Educational Technology Graduate Programs

- Update and Teach Learning Theories for online delivery with synchronous component in the graduate program.

**University of South Alabama**

**Adjunct Instructor, Instructional Design & Development** 2017-2018  
Supervisor: Dr. James Van Haneghan, Director, Undergraduate Instructional Design Program

- Redesign, Update and Teach multiple instructional design undergraduate courses for online delivery.

**Boise State University**

**Adjunct Instructor, Educational Technology Program** Summer 2016  
Supervisor: Dr. Chareen Snelson, Associate Chair, Educational Technology

- Create, Design, and Teach Introduction to Openness Course for online delivery in the graduate program.

**University of Mobile**

**Consultant, Center for Adult Programs (CAP)** 2013
Supervisor: Dr. Pamela Buchanan Miller, Dean

- Needs Assessment Context Analysis
- Design & Development of Orientation Materials in Video Format
- Formative Evaluation of Product
- Instructional Materials & Project Report

**University of South Alabama**

**Graduate Assistant, Professional Studies** 2012 - 2014

Assigned Faculty: Dr. Daniel Surry, Full Professor
Dr. Joe’l Lewis, Associate Professor

- Instructor/Co-Instructor, Grading & Teaching Assistant/ Course Maintenance
- Assistant to the Editor for AECT’s TechTrends Journal
- Assistant to the Director of the Center for Design & Performance Improvement
- Research Process & Publication/Grant Research, Writing & Development
- Design & Develop Event Marketing Materials
- Design & Maintain Web Presence and Social Media Outlets for the College of Education,
- Instructional Design & Development Program, and the Center for Design & Performance Improvement (CDPI)
- Video Production/Editing

**Instructional Designer, Innovation in Learning Center (ILC)** 2010 - 2012

Supervisor: Dr. Jack Dempsey, ILC Director

- Responsible for Faculty Development & Support
- Blogging, Video Editing/Production, Document Creation/Editing
- LMS Management & Course Transfer
- Design & Develop Marketing Materials
- Web Development & Maintenance
- Equipment Inventory & Maintenance
- Develop & Teach Seminars and Workshops
- Attend, Develop, & Present Weekly Staff Development Workshop

**ITT Technical Institute**

**Adjunct Instructor** 2007 – 2008

Supervisor: John Preston, Dean

- Develop Lesson Plans
- Teach Associate Level Courses in Economics, Portfolio & Professional Development, and School Success
- Voted as “Favorite Instructor” by the Students
- Served as Advising Member of Electronics Technicians Association Student Organization
- Developed & Presented Seminars on Resume Development, the Job Search Process for Entry Level Positions (Applying, Hiring & Interviewing), Study Habits, and Student Success

**Learning Resource Center Tutor** 2007 – 2008

Supervisor: John Preston, Dean

- Tutored Students in General Education & Program Related Coursework
- Assisted in the Maintenance & Operation of Lab Technology

**NASA DEVELOP Program**

**Team Co-Lead, Intern, Mobile County Health Department (MCHD)** 2006 - 2007

Supervisor: Dr. Bernard Eichold, Director MCHD
Communications Liaison Between Science Team & Partnered Government Agencies [e.g., Mobile County Health Department (MCHD), Alabama Department of Environmental Management (ADEM), and others]
- Management Duties for Office and Professional Team
- Participation in Research Process
- Designing, Developing & Implementing Research Projects / Writing Reports
- Developing & Monitoring Reporting Procedures, Recruitment Efforts
- Designing & Developing Marketing Materials and Informational Flyers

RESEARCH

PUBLICATIONS

Refereed Journal Articles


Refereed Book Chapters


Edited Columns


**Refereed Conference Proceedings**


**Non-Published Technical Research Papers**


**Non-Published Technical Reports**


**PRESENTATIONS**

**Keynote Presentations**


Harris, J.E., & **Baker III, F.W.** (February 2016), 2016 Annual Sykes College of Business’ Teaching Effectiveness Adjunct Luncheon. The University of Tampa. Tampa, FL.


**International Conferences**


Baker III, F.W. (2016). *An Alternative Approach: Openness in Education over the last 100 Years.* Sixth Annual Conference on Teaching and Learning, University of South Alabama, Mobile, AL.


**Regional Conferences**


**State Conferences**

Baker III, F.W., Gibbons, K., & Handa, S. (2014). *Open badges from an organizational perspective.* Digital Presentation at Annual Social Media & Technology Users Conference, University of South Alabama, Baldwin County Campus, Fairhope, AL.


Baker III, F.W. (2012). Open up: Open Pedagogy, Open Classrooms, Open Minds. Presentation at Second Annual South Alabama Conference on Teaching and Learning, University of South Alabama, Mobile, AL.


**Local Conferences /Presentations**


Baker III, F.W. (2011). Instructional Design and Openness in Higher Education. Presentation of research on the relationship between openness and instructional design at a local career day event for Gautier Middle School Gifted Students.


Austin, M., Baker III, F.W., Et. Al. (2006). Turnaround Business Plan for Speech Pathology and Audiology (SPA) Department. Presentation at Mitchell College of Business to Advising members of the University of South Alabama and managers of SPA.
## Teaching Courses Taught

### University of West Florida  
**Instructor**

**EME 6414- Web-Based Instructional Tools for Educators; SP 19-Current**  
Graduate Asynchronous Online Course. Explores Design and Development of Web Based Instruction Using a Variety of Technologies. Includes Design and Development of Multiple Units of Instruction.

**EME 6415- Digital Video for Instruction; SP 19-Current**  
Graduate Asynchronous Online Course. Focuses on Creating Instructional Video that Considers Alignment, Techniques, and Purposes. Practical Applications of The Concepts Through Video Creation is Included.

**EDG 3661- Adult Learning Theory and Curriculum Development; SP 19-Current**  
Undergraduate Asynchronous Online Course. Examines Characteristics of Adult Learners and Their Impact on Design and Development of Education and Training Programs.

**EME 3351- Introduction to Instructional and Performance Technology; FA 18-Current**  

**EME 6458- Distance Learning and Policy Planning, QM Certified; SU 18-Current**  
Graduate Asynchronous Online Course. Covers Distance Learning from an Administrator’s Perspective, Includes Philosophy of Distance Learning and a Research Paper.

### James Madison University  
**Instructor**

**EDUC 641-Learning Theories; FA17-SU18**  
Graduate Synchronous Online Course. Covers Learning Throughout the Lifespan and Includes Final Theory to Practice Paper.

### University of South Alabama  
**Instructor**

**ISD410-Organization and Coordination of Training Programs; Fa18**  

**ISD320-Training Interventions; SP 17**  
Undergraduate Course Online. Covers Major Concepts in Training Interventions, Creation of Artifacts, and a Final Instructional Design Training Project.

### Boise State University  
**Instructor**

**EDTECH597-Introduction to Openness; SU 16**  
Graduate Course Online. Covers Major Areas of Openness (Open Access Research, Open Source Software, Open Teaching & Learning, Open Content, etc.) as they relate to Instructional Design.

### The University of Tampa  
**Instructor**

**ASK 100; FA 17-SP 18**  

**BAC 101/102 FA 17-FA17**
First Year Experience (FYE) Course Focused on College Success, Integration into University Culture, Campus Technologies and Partners, and Academic Development

**GTW101-Gateways; SP 18**  
Baccalaureate Experience Course, Covers Technology & Campus Systems, College Success Strategies, and Introductory College Concepts

**University of South Alabama**  
**Instructor (Non-Primary)**

**IDE 510-Educational Research & Evaluation**  
Covers Educational Research: Data Collection Methods, Research Designs, Research Proposals, Types of Research, Evaluation Methods

**EPY 502-Psychological Principles of Learning**  
Covers Basic Learning Principles: Psychological Theories of Learning, Influential Theorists, Important Models & Processes

**ISD 641-Performance Systems Technology**  
Covers the Basics of Performance Improvement: Drivers, Systems, Interventions, Relationship to Instructional Design

**ISD 621-Instructional Design**  
Covers Instructional Design Basics: ADDIE Phases, Dick, Carey & Carey Model, General Instructional Design Principles & Processes

**ISD 622- Advanced Instructional Design**  
Covers Advanced Instructional Design Concepts: In Depth ADDIE Phases, Formal Reports, Instructional Materials, Influential Research

**IDE 620- Quantitative Methods I**  
Covers Introductory Statistics for Research: Measures of Central Tendency, Significance Testing, Data Organization, Basic Statistical Analyses

**Grading Teaching Assistant**

**IDE 510-Educational Research and Evaluation**  
Covers Educational Research: Data Collection Methods, Research Designs, Research Proposals, Types of Research, Evaluation Methods

**Non-Grading Teaching Assistant**

**IDE 650-Instructional Techniques**  

**IDE 581-Hypermedia Tools**  

**ITT Technical Institute**  
**Instructor**

**GE 273-Microeconomics**  
General Concepts in Microeconomics: Supply & Demand, Equilibrium, Capital & Substitute Goods

**TB 332-Professional Procedures & Portfolio Development**


**TB 133-Strategies for the Developing Student**  
Strategies for Student Success & Development: Study Skills, Note Taking, Introspection, Developing Proactive Learning Habits
WORKSHOPS & SEMINARS

Led or Co-Led


Baker III, F.W., Innovation in Learning Center (2011) Sakai CLE early adopter training. Seminar at the University of South Alabama, Mobile, AL.


TRAINING SESSIONS

Led or Co-Led

Baker III, F.W. (2017). Faculty Advising Using the Student Success Collaborative. Training Session at The University of Tampa SSC Faculty Pilot Group, Tampa, FL.

Baker III, F.W. (2017). Orientation to the Student Success Collaborative. Training Session at The University of Tampa SSC Faculty Pilot Group, Tampa, FL.


Baker III, F.W. (2014) Best practices in course design. The University of Tampa, Tampa, FL.


PROFESSIONAL SERVICE

COORDINATOR

Doctor of Education Curriculum & Instruction, The University of West Florida
  o Instructional Design & Technology Specialization Coordinator (2018-Present)

COLUMN EDITOR

TechTrends: Linking Research and Practice to Improve Learning. A publication of the Association for Educational Communications & Technology
  o TrendSetters: Spotlighting Innovators in Learning with Technology (July 2013-Present)

COMMITTEE MEMBER

Engaging Online Students in Research Task Force, The University of West Florida
  o Member (2018-Present)

Ed.D. Chairs and Committee Members Committee, The University of West Florida
  o Member (2018-Present)

Ed.D. Working Group, The University of West Florida
  o Member (2018-Present)

Student Success Collaborative Leadership Team, The University of Tampa
  o Functional Lead (August 2016-2018)

Student Success Collaborative Campaign Committee, The University of Tampa
  o Founding Member (October 2017-2018)

Information Technology Advisory Board, The University of Tampa
  o Member (August 2016-2018)

Center for Teaching & Learning, The University of Tampa
  o Member (December 2014-August 2016)

Instructional Technology Committee, The University of Tampa
  o Member, Ex-Officio (September 2014-2016)

Gateways Blackboard Committee, The University of Tampa
  o Member (September 2014-September 2015)

Hybrid Course Review Committee, The University of Tampa
  o Member, Ex-Officio (September 2014-2016)

Hybrid Senate Committee, The University of Tampa
  o Member (August 2014-2016)

Student Recruitment Committee, University of South Alabama, College of Education
  o Member (January 2014-July 2014)
MANUSCRIPT REVIEWER

International Review of Research in Open and Distance Learning
- Manuscript Reviewer (August 2013-2018)

TechTrends: Linking Research and Practice to Improve Learning. A publication of the Association for Educational Communications & Technology
- Manuscript Reviewer (September 2012-Present)

British Journal of Educational Technology (BJET)
- Manuscript Reviewer (March 2012-2018)

CONFERENCES

University of South Alabama’s Annual Conference on Teaching and Learning
- Session Presider (COTL Mobile, AL, 2014)

Society for Information Technology & Teacher Education (SITE)
- Member (2012-Present)
- Session Presider (SITE Conference New Orleans, 2013)
- Session Presider (SITE Conference Austin, 2012)
- Session Presider (SITE Conference Austin, 2012)

BOOK REVIEWS


PROJECTS

External Reviewer/Consultant UT Public Health Program Alignment 2018
Led group through redesign and program alignment efforts to align program curriculum through revised objectives, assessments, alignment, and instruction.

Implementation of EAB Student Success Collaborative 2017
- Led or heavily involved in all elements of SSC implementation. Work with Associate Provost and Leadership Team to establish and support teams for Campaigns and Academic Interventions, Faculty Advising Flights, Success Markers, support Tutoring setup, provide technical and instructional support, determine roles and permissions, etc.

Redesign & Deliver New Teaching Institute 2016
Project Coordinator: Fredrick W. Baker III
- Led Project; Complete redesign and development of faculty hybrid teaching and course design training with 3 week turnaround time—including mapping prerequisite training elements, creating aligned and integrated instruction and assessment, and integrating training with the hybrid system at UT; Received excellent feedback from participants

Faculty Development Studio 2015
Project Coordinator: Fredrick W. Baker III
- Led Project; Developed studio in conjunction with Center for Teaching and Learning and Educational Technology Department that meets throughout the semester to focus on professional development that improves practice among faculty at UT.

Open Badges Initiative 2014
Project Coordinator: Fredrick W. Baker III
o Led Project; Designed Badges, Developed Procedures, & Implemented Open Badges Initiative for use in University of Tampa Courses & Training that supports over 700 faculty and staff.

**Blackboard LMS Training Course** 2014  
Project Coordinator: Fredrick W. Baker III  
  o Led & Oversaw the Design, Development, Evaluation & Implementation & Marketing of a Self-Paced, Open Badge Enabled, Competency Assessed, Blackboard training course for Faculty & Staff.

**Openness Initiative** 2014  
Project Coordinator: Fredrick W. Baker III  
  o Oversight and leadership of all aspects of project.  
  o Formed thinktank with interested members.  
  o Educate and advocate for openness at The University of Tampa through training, supporting implementations (OER, Badges, Linux Labs, etc.)

**P-12 Open Educational Resource for Arts and Education** 2014  
Project Coordinators: Dr. Paige Vitulli, Fredrick W. Baker III  
  o Helped design website and gather resources for creating an Open Educational Resource (OER) intended for Pre-service and In-service P-12 teachers.  
  o The resource provides integration support for implementing the four arts (visual, theater, music, and drama) into Science, Social Studies, Math, and Language Arts classes.  
  o OER will be shared with Alabama Arts and Education Grant and all Alabama Public Schools

**Community Conversations, Mobile in Black and White Documentary** 2014  
Project Coordinators: Dr. Joe’l Lewis, Dr. Rob Gray  
  o Facilitated series of USA College of Education faculty / staff community conversation sessions (2 sets of 4 meetings focused on race relations in Mobile, AL & implications for Instructional Design, classroom, & teacher education practice. Informed by survey & research.

**Instructional Design & Development (IDD) Program** 2014  
Project Coordinators: Dr. Joe’l Lewis, Fredrick W. Baker III  
  o Conceptualized, liaised for, and implemented innovative recruitment effort involving multiple colleges for:  
    o Student generated radio ads—that were subsequently aired,  
    o Student generated marketing analysis on the IDD program, and  
    o Student generated consulting analysis on the IDD program.

**Mobile African American Heritage Trail Project, IDDGA** 2011  
Project Coordinators: Dr. Joe’l Lewis  
  o Updated MAAHT Trail signs  
  o Rewrote at 4th grade level  
  o Created small quizzes

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**MEDIA PROJECTS**


Surry, D.W., **Baker III, F.W.** (2013). College of Education Faculty Video [Interview with Dr. Joe’l


PROFESSIONAL MEMBERSHIPS

Association for Educational Communications and Technology (AECT) 2014-Present
  o Member

International Society for Performance Improvement (ISPI) 2018-Present
  o Member
American Evaluation Association (AEA) 2016-2018
  o Member
Southeast Evaluation Association (SEA) 2016-2018
  o Member
AACE’s Society for Instructional Technology & Teacher Education (SITE) 2012-2014
  o Member
Center for Design & Performance Improvement, Research Studio 2010-2014
  o Research Studio Member
  o Assistant to the Director 2011-2014
USA IDD Graduate Association 2010-2014
  o Member
Mid-South Educational Research Association 2010-2011
  o Member
Golden Key International Honour Society Lifetime, 2007
  o Member 2007-2008
Alpha Chi Honor Society Lifetime, 2007
  o Member

PROFESSIONAL DEVELOPMENT

TRAINING
Quality Matters Peer Reviewer Course (PRC) 2018
Applying the Quality Matters Rubric 2018
Adobe Train the Trainer 2015
OLC: Designing with Accessibility in Mind 2015
University Teaching 101-John’s Hopkins/Coursera 2015
Atomic Learning American’s with Disability Act Compliance 2015
Quality Matters, Designing Your Blended Course 2014
Microsoft Excel, Beyond the Basics 2014
Applying the Quality Matters Rubric 2014
Sakai CLE Certified User 2012
Advanced Training in Conflict Resolution, Negotiation, Alternative Resolution 2008 / 2010
Dispute

WORKSHOPS
Communicating with Tact and Professionalism 2014
  8 hour Fred Pryor seminar on Communication Strategies.
Microsoft Excel Beyond the Basics 2014
  8 hour Fred Pryor seminar on Microsoft Excel advanced features.
Innovation & Learning Center Summer Academy  
   3 Day training, Instructors Innovation & Learning Center  

Team Based Learning Workshop  
   2 Hour, Instructor Dr. Ron Styron  

Designing Significant Learning Experiences Workshop  
   2014  
   3 Hour, Instructor Dr. L. Dee Fink  

Instructional Scaffolding for Research  
   2 Hour, Instructors Dr. Nicole Car & Dr. Anne Boettcher  

Designing Assessments for Critical Thinking  
   2 Hour, Instructor Dr. Ron Styron  

HONORS & AWARDS  

Dr. Chandru Hiremath Memorial Award for Ph.D. Student of the Year  
   2013 - 2014  

ITT-Tech Student Voted “Favorite Instructor”  
   2009  

NASA DEVELOP “Certificate of Appreciation”  
   2007  

Mitchell College of Business “Certificate of Recognition”  
   2007
CURRICULUM VITAE

Minkyoung Kim
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Pensacola, FL  32514
Phone: +1(850) 474-2529
E-mail: kim@uwf.edu

Education

2016  Doctor of Philosophy (Ph.D.)
Indiana University, Bloomington, IN, USA (Date awarded: July 29, 2016)
Major: Instructional Systems Technology
Minor: Inquiry Methodology
[Dissertation: “Formative Research on Instructional Overlay for Collaborative Project-Based Learning”]

2003  Master of Arts (M.A.)
Ewha Womans University Graduate School, Seoul, Korea
Major: Educational Technology
[Master’s Thesis: “The Effects of Metacognitive Strategy on Web Resource-Based Learning”]

2000  Bachelor of Arts (B.A.)
Ewha Womans University, Seoul, Korea
Major: Educational Technology
Minor: Business

Employment (See page 12-18 for the project details)

2018 - Present  Assistant Professor for Instructional Design and Technology, University of West Florida

2016 - 2018  Instructional Consultant, Texas Tech University
Center for Innovation in E-Learning, College of Education
- Providing consultation to help faculty members improve their teaching;
  managing online learning course development projects; mentoring to
develop staff member’s skill; conducting research projects regarding
  online learning quality improvement and personalized learning approach.

Instructor, Texas Tech University
College of Education
- Course Taught: EDIT 3318 Applications of Technology in Education

2016 - 2017  Adjunct Graduate Faculty, Boise State University
Organizational Performance and Workplace Learning (OPWL) Department, College of Engineering
- Course Taught: OPWL531 Quantitative Research in Organizations

2006 - 2010  Senior Management Consultant, IBM Korea
Human Capital Management, Global Business Service (GBS) Division
- Conducted and managed consulting projects about HR and learning issues for improving human performance of client organizations

2003 - 2006  **Instructional Designer, CyberMBA, Inc., Seoul, Korea**
A leading e-learning company providing total learning and smart learning services in Korea.
- Conducted and managed e-learning and blended learning program development projects

**Graduate Assistantships**

2014 - 2016  **Instructional Consultant**
The Office of Online Education, School of Public Health, Indiana University, Bloomington, IN
- Designed and developed MPH online learning courses; provided consultation to faculty members to design and develop online courses.

2013 - 2015  **Co-Manager & Instructional Consultant**
The Office of Instructional Consulting, Indiana University, Bloomington, IN
- Provided consultation to faculty members and assistant instructors to improve their teaching and integrate technology into their classrooms

2011 - 2013  **Instructional Systems Technology Lab Manager**
Instructional Systems Technology Department, Indiana University, Bloomington, IN
- Assisted students with projects in the Instructional Systems Technology (IST) studio program; assisted IST faculty with technology-related issues.

2011 - 2012  **Research Assistant**
World Bank Institution, World Bank Group
- Conducted research on the latest trends and formats for open educational resources (OER) and the educational partnerships model for OER

**Awards & Grants**

2015  Charles M. Reigeluth Emerging Researcher Award, Association for Educational Communications and Technology (AECT)
2014  Nova Southeastern Award for Outstanding Practice by a Graduate Student in Instructional Design, Association for Educational Communications and Technology (AECT)
2014  Jerrold E. Kemp Fellowship, Indiana University
2013  Jerrold E. Kemp Fellowship, Indiana University
2012  Instructional Systems Technology Travel Award, Indiana University
2011  Clarence Fogelstrom Fellowship, Indiana University
2009  Service Excellence Award, IBM
2008  Service Excellence Award, IBM
2007  IBM Bravo Award (The best of IBM), IBM

**Certifications**
Dec. 2015  Quality Matters Certification: The Peer Reviewer Course (PRC) by Quality Matters (QM). QM is a nationally recognized, faculty-centered, peer review process designed to certify the quality of online courses and online components. PRC is designed to prepare experienced online faculty to become QM Certified Peer Reviewers.

Nov. 2014  Quality Matters Certification: Applying the QM Rubric (APPQMR) by Quality Matters (QM). APPQMR is QM's flagship workshop on the QM Rubric and the process of using the QM Rubric to review online courses.

Aug. 2002  Ewha Broadcasting Academy Announcer Program by Ewha Womans University, Korea


Publications

Journal Publications and Book Chapters (Note: * = Refereed)


*In press* (Note: * = Refereed)


### Conference Presentations


**Kim, M.** & Reigeluth, C.M. (2018, October). *Instructional Overlay in a Learner-Centered Learning Process.* Presentation at the Association for Educational Communications and Technology, Kansas City, MO.

**Kim, M., Shin, S., Cheon, J., & Solis, A.** (2017, November). *What matters to students for quality online learning experience in higher education institutions?* Presentation at the Association for Educational Communications and Technology, Jacksonville, FL.

Reigeluth, C.M. & **Kim, M.** (2017, November). *Competency-based personalized learning: Where does it stand.* Presentation at the Association for Educational Communications and Technology, Jacksonville, FL.


Kim, M., Jung, E., & Reigeluth, C.M. (2016, October). Individualized instructional support in the collaborative project-based learning. Presentation at the Association for Educational Communications and Technology, Las Vegas, NV.

Kim, M., Jung, E., & Reigeluth, C.M. (2016, October). Learning environment to enhance the effectiveness of an individualized instructional support in the collaborative project-based learning. Presentation at the Association for Educational Communications and Technology, Las Vegas, NV.

Bonk, J. C., & Kim, M. (2016, August). Through the words of experts: Lessons learned from over two decades of synchronous conferencing. Spotlight presentation at the 32nd Annual Conference on Distance Teaching and Learning, Madison, WI.

Kim, M., Jung, E., & Reigeluth, C.M. (2015, November). The culture of learning in promotion of instructional overlay in collaborative project-based learning. Presentation at the Association for Educational Communications and Technology, Indianapolis, IL.

Kim, M., & Jung, E. (2015, November). Student characteristics and meaningful interaction in an online class. Presentation at the Association for Educational Communications and Technology, Indianapolis, IL.


Kim, M., Jung, E., Trepper, S., & Reigeluth, C.M. (2014, November). Facilitating a paradigm change initiative in Ohio: An analysis of individual sessions. Presentation at the Association for Educational Communications and Technology, Jacksonville, FL.

Trepper, S., Jung, E., Kim, M., & Reigeluth, C.M. (2014, November). A case study on
paradigm change in Ohio: Formative research for an individual session. Presentation at the Association for Educational Communications and Technology, Jacksonville, FL.


Kim, M., Jung, E., & Reigeluth, C.M. (2014, November). Formative research on instructional overlay for collaborative project-based learning. Presentation at the Association for Educational Communications and Technology, Jacksonville, FL.


Jung, E., & Kim, M. (2014, November). Instructional design project for recreational sport administration - school of public health, Indiana University, Design & Development division awardee presentation at the Association for Educational Communications and Technology, Jacksonville, FL.


Shin, S., Kim, M., Zhang, J., & Brush, T. (2012, November). The redesign of the Wise Practice Case Database. Presentation at the Association for Educational Communications and Technology, Louisville, KY.

Jung, E., Tan, V., & Kim, M. (2012, November). Open educational resources: Foundation, achievements, themes, and the future. Presentation at the Association for Educational Communications and Technology, Louisville, KY.


tools, projects, and resources. Presentation at the Society for Information Technology & Teacher Education, Austin, TX.


**Teaching Experience**

**Undergraduate & Graduate Level**

**Fall 2018**  
**EME6609:** Principles of Instructional Design, University of West Florida, Pensacola, FL (Distance course)  
**Instructor,** Teaching about instructional systems design models to create instruction that is appropriate from a pedagogical and practical viewpoint (LMS: Canvas).

**Fall 2016**  
**EDIT3318:** Applications of Technology in Education, Texas Tech University, Lubbock, TX (Hybrid course)  
**Instructor,** Teaching about various technology applications that enhance the teaching/learning process in school settings (LMS: Blackboard).

**Summer 2016**  
**OPWL531:** Quantitative Research in Organizations, Boise State University, Boise, ID (Distance course)  
**Instructor,** Distance teaching about quantitative research methods used in organizational research (LMS: Blackboard).

**Spring 2016**  
**R511:** Instructional Technology Foundations, Indiana University, Bloomington, IN (Distance course)  
**Teaching Assistant,** Facilitating weekly online meetings and student forum discussions (LMS: Canvas).

**Spring 2016**  
**R678:** Emerging Learning Technologies, Indiana University, Bloomington, IN (Face to face course)  
**Teaching Assistant,** Facilitating and supporting classroom activities and student discussions.

**Fall 2015**  
**E610:** Introduction to Epidemiology and Biostatistics, Indiana University, Bloomington, IN (Distance course)  
**Associate Instructor,** Designed and developed course content, facilitated and managed weekly forum discussions and student questions, and conducted grading (LMS: Canvas).
Fall 2014  **R546**: Instructional Strategies for Thinking, Collaboration, and Motivation  Indiana University, Bloomington, IN (Face to face course)  **Teaching Assistant**, Facilitated and supported classroom activities and student discussions.

Fall 2013  **R521**: Needs Analysis and Assessment,  Indiana University, Bloomington, IN (Distance course)  **Teaching Assistant**, Facilitated and managed weekly meetings, student forum discussions and student questions (LMS: OnCourse).

Spring 2011  **R561**: Evaluation and Change in the Instructional Development Process,  Indiana University, Bloomington, IN (Face to face course)  **Teaching Assistant**, Developed and managed Web syllabus, facilitated and managed weekly meetings, student forum discussions and student questions, and assisted grading.

**K-12 Level**

Spring 2011  **Facilitator for Project-based Learning**  Bloomington New-Tech High school, Bloomington, IN  Facilitated students for video making project-based learning project.

Spring 1999  **Student teacher** for Education course  Ewha Womans University High School, Korea  Taught “Education” and mentored high school students.

**Professional workshops**

Fall 2016  **Instructor for G SUITE (Google for Education) Workshop** led by Center for Innovation in E-Learning, Texas Tech University, TX  Participant: Instructors from Teacher Education Department (TED), College of Education at Texas Tech University

Spring 2015  **Professional workshop facilitator for Canvas Workshop** led by My Public Health Direct, Indiana University, Bloomington, IN  Participant: Faculty members, School of Public Health at Indiana University  Title: 2015 Spring Canvas Workshop

Fall 2014  **Professional workshop lecturer for Canvas Workshop** led by My Public Health Direct, Indiana University, Bloomington, IN  Participant: Faculty members, School of Public Health at Indiana University  Title: 2014 Fall Canvas Workshop

Fall 2013  **Professional workshop facilitator for iRubric workshop** led by Instructional Consulting Office, Indiana University, Bloomington, IN  Participant: Faculty members and assistant instructor, School of Education at Indiana University  Title: iRubric Workshop

Mar. 2010  **Professional workshop** on “Human development factor on New Enterprise Portal,” POSCO, Seoul, Korea  Participant: HRD executives and staff members at POSCO  Title: Importance of Enterprise Portal for Knowledge Sharing

Jan. 2010  **Professional workshop** on “Change management”  SK Group, Seoul, Korea
Participant: HRD staff members at SK  
Title: Learning Portal Contents and Change Management  
Dec. 2008 Professional workshop on “Career development and mentoring”  
POSCO, Seoul, Korea  
Participant: Information Planning division staff members at POSCO  
Title: Career Development and Mentoring  

Invited Lectures & Guest Speeches  
May. 2015 Guest speech on “Career in the field of Educational Technology”  
Department of Educational Technology, Ewha Womans University, Korea  
Target audience: Freshmen at Department of Educational Technology, Ewha Womans University, Korea  
Dec. 2014 Invited lecture on “Educational technologist’s role”  
ET21789: Educational Technology (required course for freshman of the department of educational technology), Ewha Womans University, Korea  
Fall 2013 Invited lecture on “Flipped classroom and cutting-edge technology for education”  
Q540: Teaching Environmental Education, Indiana University, Bloomington, IN  
Fall 2013 Invited lecture on “Open Educational Resources”  
W200: Using Computers in Education, Indiana University, Bloomington, IN  
Spring 2013 Invited lecture on “Trends in Educational Technology Research”  
G12781: Cognitive Science and Instructional Design, Ewha Womans University, Korea  
Spring 2013 Invited lecture on “Instructional designer’s role”  
G12781: Cognitive Science and Instructional Design, Ewha Womans University, Korea  
Spring 2013 Invited lecture on “Instructional designer’s role”  
ET21789: Educational Technology (required course for freshman of the department of educational technology), Ewha Womans University, Korea  
Fall 2012 Invited lecture on “Instructional message design” and facilitated a message design workshop  
R541: Instructional Development and Production Process I, Indiana University, Bloomington, IN  
Spring 2012 Invited lecture on “Instructional design basics”  
ET21789: Educational Technology, Ewha Womans University, Korea  
Fall 2011 Invited lecture on “Open Educational resources”  
R685: Topical Seminar in Instructional Systems Technology, Indiana University, Bloomington, IN  
Spring 2011 Invited lecture on “Cutting edge technology in education”  
G12861: New Media Based Learning, Ewha Womans University, Korea  
Spring 2011 Invited lecture on “Become an instructional designer”  
ET21789: Educational Technology, Ewha Womans University, Korea  
Oct. 2010 Guest speech on “Instructional designer and management consultant”  
Department of Educational Technology, Ewha Womans University, Korea  
Target audience: Students at Department of Educational Technology, Ewha
Womans Univ. (about 100 students and 6 faculty members attended)

Dec. 2009  
**Guest speech** on “Global sales learning strategy”  
Samsung Electronics, Korea  
Target audience: Staff members at Global Marketing Research Center of Samsung Electronics

Feb. 2009  
**Guest speech** on “Career development plan and mentoring”  
POSDATA, Seoul, Korea  
Target audience: HRD staff members at POSDATA

Dec. 2008  
**Guest speech** on “Become a great instructional designer”  
School of Education, Ewha Womans University, Korea  
Target audience: Students at School of Education, Ewha Womans University (about 300 students and 20 faculty members attended)

Sep. 2008  
**Guest speech** on “Goal-based scenario design strategy and IBM cases,”  
Samsung Electronics, Korea  
Target audience: Staffs at Global Marketing Research Center of Samsung Electronics

Spring 2006  
**Invited lecture** on “Instructional designer’s role in information age”  
ET35189: Information Age and Education, Ewha Womans University, Korea

Fall 2004  
**Invited lecture** on “Successful writing a master’s thesis”  
ET628: Learning Motivation based Instructional Design, Ewha Womans University, Korea

**Professional Service**

**Leadership & Committees**

2016 - Present  
**Systemic Change Division Board member**, Association for Educational Communications and Technology (AECT). 2016-2018.

2014 - 2015  
**Systemic Change Division Officer: Secretary/Treasurer**, Association for Educational Communications and Technology (AECT). 2014-2015.

2013 - 2014  
**Systemic Change Division Officer: Secretary/Treasurer elect**, Association for Educational Communications and Technology (AECT). Elected as a Secretary/Treasurer elect, Association for Educational Communications and Technology (AECT) of 2013-2014.

2013  
**Technical Supporter** for AECT conference 2013  
Conference Volunteer as a Technical Supporter  
Support technological service in the AECT international conference.

2012  
**Co-chair of Marketing and service** for the 12th IST annual conference  
Managed and organized marketing and communication plan for the 12th IST annual conference, communicated with internal and external participants.

2011  
**Technical Supporter** for AHRD conference 2011  
Conference volunteer as a Technical Supporter  
Supported technological service in an international conference.

2011  
**Volunteer of Marketing and service** for the 11th IST annual conference  
Conference volunteer in marketing and service  
Supported marketing and technical service in the IST conference.
Projects for Professional Experiences

Texas Tech University (2016 – Present)

Jan. 2018 - Present  Project title: Program level course consultation for STEM Program
Role: Instructional Consultant
Project details: The goals of the project are to improve the quality of the courses in STEM program, develop program identity and consistency, and create a model case for other programs.

Jan. 2018  Project title: “Coding is Fun” in Dallas ISD STEM Expo 2018
Role: Project Manager - led the Texas Tech University team to participate in the Dallas ISD STEM EXPO.
Project details: The title of exhibit is “Coding is Fun.” In this exhibit, the team presented five hands-on activities with tools, toys, and games which is controlled by block-based programming.

Dec. 2017 - Present  Project title: Texas Tech University Alt-Certification Program: Course development
Role: Instructional Consultant and Project Manager
Project details: Development of online courses for Alt-Certification Program: Learning Management System (Moodle)

Apr. 2017 - Present  Course title: EDLL3350 Children’s Literature
Role: Instructional Consultant
Project details: Course consulting with the course instructor and development adopting Project Based Learning approach: Fully Online on Learning Management System (Blackboard)

Role: Instructional Consultant
Project details: STEM program and course consulting with the course instructor and development to improve the quality of online learning: Fully Online on Learning Management System (Blackboard)
Role: **Instructional Consultant & Researcher**  
Project details: Course  
Project details: Video management tool comparison to make an informed decision to select the best video conferencing tool for the college-wide use.

Sep. 2016 - May. 2017  Course title: EDSP5303 ABA I: Applied Behavior Analysis in Special Education  
Role: **Instructional Consultant**  
Project details: Course consulting with the course instructor and development to improve the quality of online learning: Fully Online on Learning Management System (Blackboard)

Sep. 2016 - May. 2017  Course title: EDSP5346 ABA III: FBA and Function Based Interventions  
Role: **Instructional Consultant**  
Project details: Course consulting with the course instructor and development to improve the quality of online learning: Fully Online on Learning Management System (Blackboard)

Role: **Instructional Consultant**  
Project details: Course consulting with the course instructor to improve the quality of online learning: Fully Online on Learning Management System (Blackboard)

Role: **Instructional Consultant**  
Project details: Course consulting with the course instructor and development to improve the quality of online learning: Fully Online on Learning Management System (Blackboard)

Role: **Instructional Consultant & Researcher**  
Project details: Video conferencing tool comparison to make an informed decision to select the best video conferencing tool for the college-wide use.

**Indiana University (2011 – 2016)**

Course title: SPH R574 Human Resource management in Recreational Sports  
Role: **Instructional Consultant**  
Project details: Consulting with the course instructor and designing the online course SPH R574: Fully Online on Learning Management System (Canvas)

May. 2016 - Aug. 2016  Project name: MyPublicHealthDirect course consulting & development  
Course title: SPH S502 Instructional Strategies for Safety Education  
Role: **Instructional Consultant**  
Project details: Consulting with the course instructor and designing the online course SPH S502: Fully Online on Learning Management System (Canvas)

Mar. 2016 - May. 2016  Course title: SPH R544 Legal Aspects of Recreation
Role: **Instructional Consultant**
Project details: Consulting with the course instructor and designing the online course SPH R544: Fully Online on Learning Management System (Canvas)

Project name: Webinar series of School of Public Health
Role: **Project manager and Instructional Designer**
Project details: Planning and operating the entire Webinar series of the School of Public Health (Adobe connect)

Project name: MyPublicHealthDirect course consulting & development
Role: **Instructional Consultant**
Project details: Consulting with the course instructor and designing the online course SPH S515: Fully Online on Learning Management System (Canvas)

May. 2016
Course title: SPH S515 Safety Measurement and Leadership
Role: **Instructional Consultant**
Project details: Planning and operating the entire Webinar series of the School of Public Health (Adobe connect)

Client: The Office of Global and Community Health Partnerships, Indiana University
Course title: Health Insurance Essentials
Role: **Instructional Designer**
Project details: Designing and developing the course “Health Insurance Essentials” using Lectora

Apr. 2015 - Aug. 2015
Client: Indiana University Health, Olcott Center
Course title: Breast Self-Exam (BSE)/ Testicular self-exam (TSE)
Role: **Instructional Designer**
Project details: Designing and developing the course module, Self-Exam (BSE)/ Testicular self-exam (TSE), by using Adobe presenter; Designing Website for course management

Feb. 2015 - May. 2015
Project name: MyPublicHealthDirect course development
Course title: SPH X590 Introduction to Research in Health, Kinesiology, and Recreation
Role: **Instructional Designer**
Project details: Designing and developing the online course, SPH X590; Fully Online on Learning Management System (Canvas)

Jan. 2015
Project name: iBook author project
Book title: Paradigm Change in Education
Role: **Instructional Designer**
Project details: Designing and developing the book titled “Paradigm Change in Education” by using iBook author

Project name: MyPublicHealthDirect course development
Course title: SPH B589 - Social and Behavioral Determinants of Health
Role: **Instructional Designer**
Project details: Designing and developing the course SPH B589 using Articulate Storyline (3 lectures); Hybrid format on Learning Management System (Canvas)

Project name: MyPublicHealthDirect course development
Course title: SPH R571 - Recreational Sports Administration
Role: **Instructional Designer**
Project details: Designing and developing SPH R571 by using SoftChalk; Won ‘Nova Southeastern Award for Outstanding Practice’ from AECT for
the course

Project name: PBL Tech. Project
Role: **Instructional Designer**
Project details: Funded by the Fund for the Improvement of Postsecondary Education (FIPSE); Designing and developing PIHNet (The Persistent Issues in History Network)


Apr. 2010 - Client: POSCO
Sep. 2010
Project name: Master Plan for New Enterprise Portal
Role: **Senior Consultant**
Project details: Planning the master plan for new enterprise portal development for POSCO employees, including Web 2.0 communication tools such as messenger, internal Wiki, Blogs, etc.; Change management strategy

Dec. 2009 - Client: SK C&C
Mar. 2010
Project name: Enterprise & Learning Portal Design & Development
Role: **Senior Consultant**
Project details: Designing group-wide enterprise & learning portal contents and change management strategy for SK employees.

Sep. 2009 - Nov. 2009
Client: Samsung Electronics
Project name: B2B Sales Learning
Role: **Instructional Designer**
Project details: Designing B2B sales learning programs to enhance sales capability of SEC sales representatives; Curriculum design and development

Jun. 2009 - Client: LG Electronics
Sep. 2009
Project name: B2B Marketing Learning Strategy Consulting
Role: **Acting Project Manager**
Project details: Setting up learning strategies to enhance B2B marketing competence of employees and establish loyalty with channel partners, Curriculum design and development

Dec. 2008 - Client: POSCO
Apr. 2009
Project name: Workforce Enablement System Consulting for IT Division
Role: **Project Manager**
Project details: Setting-up process to improve competence of employees; designing analysis framework of competency assessment; Designing certificate program for IT organization

Sep. 2008 - Client: Ministry of National Defense
Oct. 2008
Project name: e-Military University System Establishment Project
Role: **Senior Consultant**
Project details: Setting up directions to implement ‘e-Military University’ which is an e-Learning system for Korean volunteer soldiers to earn a degree

Jun. 2008 - Client: Samsung Electronics
Aug. 2008
Project name: Printing Division B2B Learning Strategy Consulting
Role: **Senior Consultant**
Project details: Setting-up a master plan to enhance B2B training for employees and channel partners; Designing training curriculum, operational model and infrastructure
Client: Kookmin Bank  
Project name: Financial MBA Learning Program Design  
Role: Senior Consultant  
Project details: Designing a financial MBA blended-learning program for senior bank employees; Classroom management; Facilitating in-class activities

Client: IBM Korea (Internal project)  
Project name: Hi-Potential Leader Development Program  
Role: Senior Consultant  
Project details: Developing a learning program to accelerate development of band 10 (executive level) and high-potential band 9 leaders who will be IBM Global General Manager (GM) candidates within 3~5 years

Oct. 2007 - Nov. 2007  
Client: Amore Pacific Corp.  
Project name: Global Workforce Development Program  
Role: Senior Consultant  
Project details: Program evaluation, Designing and developing training program for global workforce Capability Establishment

Jul. 2007 - Sep. 2007  
Client: Megastudy  
Project name: Organization & Personnel HR System Consulting  
Role: Acting Project Manager  
Project details: Needs analysis, Program evaluation, Designing a competency development system, training system & change management plan

Client: Daegu Bank  
Project name: HR System & e-HR System Consulting  
Role: Consultant  
Project details: Designing an HR System, including competency planning, career development plan (CDP), evaluation, & education system

Sep. 2006 - Dec. 2006  
Client: STX PanOcean  
Project name: Developing Sales Competency Advanced Course  
Role: Consultant  
Project details: Designing & developing sales professional advanced courses for marine sales managers.

Jun. 2006 - Aug. 2006  
Client: Korea Labor Institute/Ministry of Labor  
Project name: Affirmative Action System Evaluation Project  
Role: Consultant  
Project details: Designing an evaluation plan for affirmative action of conglomerates & medium and small companies in Korea; Conducting evaluation; Education program development for affirmative action

Feb. 2006 - May. 2006  
Client: GS teleservice  
Project name: Build up the master plan for intensification call center capability  
Role: Consultant  
Project details: Performing organizational diagnosis; Planning organization design; designing new organization structure

*CyberMBA, Inc. (2002 – 2006)*

Client: Korea Education & Research Information Service (KERIS)  
Project name: Korea Education Standard Model Development Project
Role: Project Manager

Client: Maeil Dairies Co. Ltd
Project name: Competency-based Learning System Implementation
Role: Project Manager
Project details: Competency analysis; Job analysis; Planning of competency based learning system

Client: Daewoo Shipbuilding & Marine Engineering
Project name: Executive Educational Program (EMBA) development
Role: Instructional Designer and Project Manager
Project details: Planning, designing, and developing EMBA (Executive-MBA); Facilitating blended learning & action learning

Client: Doosan Corp.
Project name: Marketing Experts Courses (PMP) development
Role: Instructional Designer and Project Manager
Planning, designing, and developing PMP (Professional Marketing Program); Facilitating blended learning & action learning

Sep. 2004 - Nov. 2004
Client: Korea IT International Cooperation Agency (KIICA)
Project name: e-learning course development - Regional Specialist for IT Business
Role: Instructional Designer and Project Manager
Project details: Designing and development of e-learning course titled “Regional Specialist for IT Business”

May. 2004 - Jul. 2004
Client: Korea Productivity Center (KPC)
Project name: e-learning course development - Job application preparation (Part II)
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled “Job application preparation – Part II”

Mar. 2004 - May. 2004
Client: CyberMBA Inc.
Project name: e-learning course development - Change Is Everybody's Business
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled “Change Is Everybody's Business”

Client: Korea Productivity Center (KPC)
Project name: e-learning course development - Job application preparation
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled “Job Application Preparation – Part I”

Sep. 2003 - Nov. 2003
Client: Ajou University
Project name: e-learning course development - E-business marketing
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled ‘E-business Marketing” which is a graduate level course of the MBA program at
Ajou University

Client: Insurance Training Institute
Project name: e-learning course development – Plan Financial Consulting
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled “Plan Financial Consulting (PFC)”

Client: Doosan Corp.
Project name: e-learning course development - Action Learning
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled “Action Learning”

Client: CyberMBA Inc.
Project name: e-learning course development - Problem-Solving skill
Role: Instructional Designer and Project Manager
Project details: Designing and developing an e-learning course titled “Creativity, Problem-Solving, and Goal Control”

Client: Ewha Womans University & CyberMBA Ltd.
Project name: Next-Generation Learning Project
Role: Acting Project Manager
Project details: Building a model for blended learning; Development of a study method manual for blended learning; Development of ‘Learning Designer’ which is an e-learning design and development tool for generating SCORM learning objects

Professional Affiliations

Association for Educational Communications and Technology (AECT)
American Educational Research Association (AERA)
Academy of Human Resource Development (AHRD)
Korean Society for Educational Technology (KSET)
UWF Undergraduate Admission Standards
http://catalog.uwf.edu/undergraduate/admissions/
2018-19 Undergraduate Catalog – direct quoted excerpts

Freshmen Admissions
The following outlines the general processing of all First Time in College students to the University of West Florida. These procedures are encompassed in UWF Regulation 3.001, approved by the University of West Florida Board of Trustees in June 2012.

General Provisions
- Admission decisions to the University of West Florida (“UWF” or “University”) are made by the University subject to the regulations of the Florida Board of Governors (“BOG”).
- For the purposes of this regulation, “First Time In College” (“FTIC”) students are defined as students who have earned a standard high school diploma from a regionally accredited high school or its equivalent and who have earned fewer than 12 semester hours of transferable college credit, as defined in UWF/REG 3.032(12), since graduating from high school, as evaluated by UWF.
- Undergraduate admission decisions for FTIC students are determined on a selective basis within curricular, space, enrollment and fiscal limitations. Satisfaction of minimum admission requirements does not guarantee acceptance. The selection process may include, but is not limited to, such factors as grades, test scores, pattern of courses completed, class rank, educational objectives, past conduct, academic recommendations, personal recommendations and achievements. Preference for admission in any term will be given to those applicants whose credentials indicate the greatest promise of academic success while enrolled at UWF. Admission to UWF as a FTIC student affords an applicant the ability to enroll as a degree-seeking candidate in pursuit of a baccalaureate degree.
- UWF does not discriminate in the admission process based upon age, color, disability, gender (sex or gender identity), marital status, national origin, race, religion, sexual orientation, or veteran status.

First Time in College Student Admission
The minimum admission requirements expected of FTIC students are established by the Florida Board of Governors and are set forth in BOG Regulation 6.002. Satisfaction of the BOG minimum requirements does not automatically guarantee admission to the University of West Florida.

The BOG minimum admission standards require:

1. A standard diploma from a regionally accredited high school or its equivalent. Applicants with a General Educational Development (“GED”) certificate must refer to sub-paragraph (5). Applicants that are participants in a Home Education or Other Non-Traditional High School Program must refer to sub-paragraph (6). (Students admitted under the Early Admission Program are exempted from this requirement.)

2. For students who entered high school on July 7, 2007, or later, completion of 18 academic units of college-preparatory, year-long courses or equivalents (normally offered in grades nine through 12) are required as follows:
3. four (4) units of English – three of which must have included substantial writing requirements;
4. four (4) units of mathematics – at the algebra I level and above;
5. three (3) units of natural science – two of which must have included substantial laboratory requirements;
6. three (3) units of social science – history, civics, political science, economics, sociology, psychology or geography;
7. two (2) units of the same foreign language or American Sign Language demonstrating proficiency through the second level; and
8. two (2) additional academic elective units from among these five academic areas and other courses approved by the BOG.
9. For students who entered high school prior to July 7, 2007, completion of 18 academic units of college-preparatory, year-long courses or equivalents (normally offered in grades nine through 12) are required as follows:
   a. four (4) units of English– three of which must have included substantial writing requirements;
   b. three (3) units of mathematics– at the algebra I level and above;
   c. three (3) units of natural science– two of which must have included substantial laboratory requirements;
   d. three (3) units of social science – history, civics, political science, economics, sociology, psychology or geography;
   e. two (2) units of the same foreign language or American Sign Language demonstrating proficiency through the second level; and
   f. three (3) additional academic elective units from among these five academic areas and other courses approved by the BOG.
10. An official SAT Reasoning score (writing included) or ACT Plus Writing score; and
11. High school grades that meet either sub-paragraph a. or b.
   a. At least a “B” average (3.0 on a 5.0 scale) as computed by UWF in the required high school academic units in English, mathematics, natural science, social science, foreign language and electives; or
   b. At least a 2.5 grade point average (on a 5.0 scale) as computed by UWF in the required high school academic units in English, mathematics, natural science, social science and foreign language and electives and the following test scores:
      i. SAT – Critical Reading ≥ 460; or ACT – Reading ≥ 19
      ii. SAT – Mathematics ≥ 460; or ACT – Mathematics ≥ 19
      iii. SAT – Writing ≥ 440; or ACT – English/Writing ≥ 18
12. Applicants presenting a GED must present official GED results, official transcripts of any partial high school completion, and ACT Plus Writing and/or SAT Reasoning Test (all three portions). In addition to the test score requirements list above in 3. (b), GED applicants must receive a minimum composite score of 21 on the ACT Plus Writing, or an overall combined test score of 1450 on the SAT Reasoning Test (all three sections).
13. Applicants participating in a Home Education or Non-Traditional High School Program must present a transcript from the Home School Education Program (all units must be
listed in Carnegie Units) and a document from their county stating that the applicant meets high school graduation requirements. In addition to the test score requirements listed above in 3. (a) and (b), Home Education or Non-Traditional High School Program applicants must receive a minimum composite score of 21 on the ACT Plus Writing, or an overall combined test score of 1450 on the SAT Reasoning Test (all three sections).

Transfer Admissions

The following outlines the general processing of all Transfer students to the University of West Florida. These procedures are encompassed in UWF Regulation 3.032, approved by the University of West Florida Board of Trustees in June 2012. Until this approval, transfer student admission practices had been contained within the FTIC admission protocol. In June 2012, these procedures were developed into their own regulation.

General Provisions

- Admission decisions to the University of West Florida (“UWF” or “University”) are made by the University subject to the regulations of the Florida Board of Governors (“BOG”).
- “Transfer” applicants are those applicants who, prior to admission to UWF, have earned 12 or more semester hours of transferable college credit, as defined in this regulation, since graduating from high school, as evaluated by the Office of Undergraduate Admissions.
  1. Transfer applicants with fewer than 60 semester hours of transferable college credit must meet the transfer admission requirements set forth in paragraph (2) below, and these applicants must also meet the First Time In College (“FTIC”) student admission requirements located in UWF Regulation 3.001.
  2. Transfer applicants with 60 or more semester hours of transferable college credits must meet the transfer admission requirements set forth in paragraph (2) below.
- Undergraduate admission decisions for transfer students are determined on a selective basis within curricular, space, enrollment and fiscal limitations. Satisfaction of minimum admission requirements does not guarantee acceptance. The selection process may include, but is not limited to, such factors as grades, test scores, pattern of courses completed, class rank, educational objectives, past conduct, academic recommendations, personal recommendations and achievements. Preference for admission in any term will be given to those applicants whose credentials indicate the greatest promise of academic success while enrolled at UWF.
- UWF does not discriminate in the admission process based upon age, color, disability, gender (sex or gender identity), marital status, national origin, race, religion, sexual orientation nor veteran status.

Transfer Student Admission

The minimum admission requirements expected of transfer students are established by and are set forth in BOG Regulation 6.004. Satisfaction of the BOG minimum requirements does not automatically guarantee admission to the University of West Florida. The BOG regulation requires the transfer applicant to:

- Be in good standing and eligible to return to the last post-secondary institution attended as a degree-seeking student;
- Have a cumulative 2.0 Grade Point Average (“GPA”) on a 4.0 system. The GPA is calculated using all transferable post-secondary credits (see paragraph (12)b. below);
- Satisfy the minimum admission requirements for entering FTIC students (See UWF Regulation 3.001) if transferring with fewer than 60 semester hours; and
- Demonstrate proficiency to the second level of the same foreign language (or American Sign Language) taken either in high school or at the undergraduate institution(s) attended previously.
  1. Transfer students not meeting the foreign language requirement may be admitted; however, if admitted, such students are required to complete the foreign language requirement prior to UWF graduation.
  2. Transfer students who received an Associate of Arts ("AA") degree from a Florida public college or university prior to September 1, 1989 are exempt from this requirement.

International Undergraduate Admissions

Applicants to the University are considered international if they are not U.S. Citizens, hold dual citizenship between the U.S. and another country, or are permanent residents currently residing in the U.S. In addition to the policies and procedures stated for the different categories of admission, the following information pertains to international applicants. Domestic applicants should refer to the “Freshman Admissions” or "Transfer Admissions" sections.

The following outlines the general processing of all International students to the University of West Florida. These procedures are encompassed in UWF Regulation 3.042, approved by the University of West Florida Board of Trustees in March 2012.

International Student Office (ISO)

1. Admission of international students to the University of West Florida ("UWF" or "University") is governed by University of West Florida admission regulations 3.001, 3.002, 3.004, and 3.032, Florida Board of Governors (BOG) Regulations 6.001, 6.002, 6.003, 6.004, and 6.009, and the requirements herein.
2. For purposes of this regulation applicants to the University of West Florida will be considered “International” students if they are not U.S. citizens and if they require a visa to remain in the United States. Applicants who are permanent residents of the United States are not considered international students.
3. The admission requirements stated in the Board of Governors and UWF regulations are minimum requirements. Satisfaction of minimum requirements does not guarantee admission into the University. Preference for admission in any term will be given to those applicants whose credentials indicate the greatest promise of academic success.
4. Applicants must meet the following criteria and submit the required documentation to receive consideration for admission to the University:
   o A degree seeking applicant (undergraduate and graduate) whose native language is not English must provide evidence of English language proficiency. Non-degree undergraduate students are not required to provide documentation of English proficiency unless they are attending UWF under an international exchange agreement which requires the student to document English proficiency. The English requirement (proficiency in written and spoken English) may be fulfilled by establishing one of the following:
     1. That he or she is from a country where English is the official language; or
2. That his or her prior associate’s, bachelor’s, master’s, or doctoral degree was earned from a regionally accredited college or university in the United States; or
3. That his or her prior bachelor’s, master’s, or doctoral degree was earned from a country where English is the official language, or from a university at which English is the official language of instruction; or
4. That he or she completed his or her junior and senior year in a U.S. high school with a SAT Verbal score of 550 or a ACT English score of 23; or
5. That he or she achieved a qualifying score on the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) or Michigan English Language Assessment Battery (MELAB)/ Michigan English Language Institute College English Test (MELICET).

- Qualifying scores for undergraduate applicants are either a TOEFL computer-based score of 213, a TOEFL internet-based score of 78/80, a TOEFL paper-based score of 550, an IELTS score of 5.5/6, or a MELAB/MELICET score of 76/77. (Consult the Undergraduate Catalog for sub-score requirements and for specific program requirements, which may be higher.)

1. Undergraduate applicants must have a 2.5 GPA on a 4.0 scale as calculated by UWF Office of Undergraduate Admissions.
2. Applicants must submit transcripts evidencing all prior academic course work including post-secondary education. The University requires an official copy of all academic credentials. Transcripts that are not in English must be accompanied by a certified English translation. Transcripts from educational institutions outside the United States must be evaluated by a credential evaluation service, as specified on the international application. (All academic credentials become property of the University. They will not be returned or forwarded to a third party. Credentials of applicants who do not enroll within one year will be destroyed).
3. Applicants must submit a non-refundable application fee payable in U.S. dollars.
4. Applicants must complete and submit the following medical information:
   a. a Physician’s Evaluation Form and a Medical History Form completed by a physician, indicating the applicant’s fitness, mentally and physically to pursue a college level study program.
   b. Documentation of MMR (measles, mumps and rubella) immunization, and
   c. Proof of immunization for meningitis and hepatitis B, or a signed waiver indicating the applicant’s informed decision not to be vaccinated.
5. Applicants must provide proof of medical insurance that complies with the requirement of University policy, AC-6.00-08/08 “Medical Insurance Coverage for Enrolled International Students” for all applicants on F-1 or J-1 visas.
6. Applicants must provide a Certification of Finances before the Certificate of Eligibility (Form I-20 or a DS-2019) will be issued by the University. The Certificate of Finances will show specific sources of a satisfactory level of financial support and the amount expected from each source. Funding sources
must be verified by the student’s or sponsor’s bank by submitting an original bank statement from the student’s or sponsor’s financial institution. The total funds available to the student for the first academic year must at least equal the total estimates of institutional costs and living expenses. For applicants living outside the U.S., the Declaration and Certification of Finances must be received by the University no later than the application deadline each semester.

7. For transfer students: A completed transfer clearance form is required for F-1 applicants to verify their eligibility to transfer in F-1 status.

8. Undergraduate applicants who have provided all required materials and who meet all admission requirements except the English proficiency requirement may be considered for Conditional Admission to the University. Undergraduate students who receive a Conditional Admission letter who desire to attend UWF must enroll in the Intensive English Program at UWF. If such students seek to enroll in a degree program, they must meet the requirements set forth in paragraph (4) iv., above.

9. Undergraduate applicants who have provided all required materials and who meet all admission requirements except the English proficiency requirement may be considered for Conditional Admission to the University. Undergraduate students who receive a Conditional Admission letter who desire to attend UWF must enroll in the Intensive English Program at UWF. If such students seek to enroll in a degree program, they must meet the requirements set forth in paragraph (4) iv., above.

10. Applicants will not be considered for admission until the University has received all required materials. Undergraduate international student applications, along with all other records required for admission must be received by the program deadline or university international application deadline, whichever is earlier, unless the deadline is waived by the University in writing.

**General Readmission**

**Readmission to Baccalaureate Programs**

Undergraduate students not in attendance at UWF for three or more consecutive academic semesters (including summer semester) must complete the Readmission Application and provide any required documentation amassed during the absence. The Application for Readmission must be filed according to admissions deadlines. The Application for Readmission does not include an application fee. Readmitted students will have their official Catalog year automatically updated for the new term of entry. Undergraduates can use the readmission application to change their major upon readmission only if their UWF grade point average is 2.0 or above.

Degree-seeking students file the readmission application online using the Office of Undergraduate Admissions website. Official transcripts from each college or university attended during the absence to the previous enrollment at UWF must be submitted to the Office of Undergraduate Admissions before the first day of classes of the semester for which the student has been readmitted. If a student is currently enrolled at another institution, the final transcript must be submitted when the term has ended. A hold will be placed on the account preventing the student from registering for future semesters until
all transcripts are received.

Readmission is not automatic (see Academic Suspension and Reinstatement). Suspended students must be reinstated by the college of their former major before readmission can be completed. Students who subsequently earn an associate of arts degree (A.A.) at another Florida public institution should refer to the A.A. Forgiveness policy section.

General Studies

In addition to the general studies requirements students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Studies curriculum. For a complete listing of general degree requirements, refer to the "Graduation and General Degree Requirements" section of this catalog.

Common Prerequisites

State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. See the Common Prerequisite Manual for course substitutions from Florida colleges and universities.

Lower Division Electives

Students must complete sufficient 1000/2000 level electives to complete at least 60 semester hours in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

| Total Hours | 3-12 |

UWF Graduation and General Degree Requirements

http://catalog.uwf.edu/graduate/academicpolicies/graduation/

Pre-Graduation Audit

Students are required to meet with the assigned academic advisor to complete a Pre-Graduation Audit prior to completing 90 semester credit hours. This audit is intended to advise the student of all courses needed for graduation and to confirm that all remaining requirements are included in the degree plan.

Graduation Process

Students are responsible for meeting all graduation requirements. Having met all requirements for an undergraduate degree a student is expected to graduate and will not be permitted to take additional classes as an undergraduate student. Student responsibilities include:

1. Meeting with an academic advisor each semester to discuss degree progression;
2. Completing the Graduation Application online by the deadline listed in the Academic Dates and deadlines in the Catalog;
3. Meeting with the Department and completing a Graduation Action Plan when necessary; and
4. Meeting all requirements for the degree.

**Bachelor’s Degree Requirements**

Requirements for a bachelor’s degree from UWF are listed below. The colleges and departments may have requirements which exceed these minimums. Students should refer to their degree audits to review degree requirements. The degree audit must indicate all requirements have been completed. Please consult the individual departments for details. Minimum requirements are:

- 120 semester hours in an approved program
- UWF cumulative 2.00 GPA with a major GPA of 2.00 (departments may set a minimum grade requirement in each course and limited access programs may require higher minimum major GPAs)
- 48 semester hours in upper-level course work
- 25% of degree program credits must be earned at UWF
- The last 30 semester hours of credit for a degree must be earned at UWF
- 24 semester hours of upper-level work in the major field with a minimum of 18 upper-level semester hours in the major field at UWF
- Fulfillment of Gordon Rule
- Completion of all General Education requirements
- Completion of all program specific lower division common prerequisites
- Completion of admissions foreign language requirement
- Completion of multicultural requirement
- Nine hours of summer semester enrollment at an SUS institution (students who entered UWF with less than 60 semester hours)
- A degree will not be awarded for a student on academic probation or suspension
- Admitted and enrolled at UWF in a degree-seeking status for a minimum of one semester in the degree program for which a degree is awarded
- Admitted and enrolled at UWF in a degree-seeking status within the last five years of the date the degree is awarded. Students should contact their major department to determine the minimum of hours and courses in which to enroll. Students who need to be readmitted will be required to meet the degree requirements of the current catalog.

**General Degree Requirements**

In addition to the requirements for the major program of study, students must satisfy the following general University requirements:

**General Education Requirements**

All students (except for students holding an A.A. or certification of the completion of general studies requirements from a Florida public university or college) who enter UWF must complete the requirements specified as General Education. The General Education requirements are the basic studies that provide students with a broad educational foundation and are essential requirements for all A.A. and baccalaureate degree programs. Courses may not be taken on the pass/fail basis.
Gordon Rule (Writing and Mathematics) Requirements

To fulfill the writing and mathematics requirement for earning the first baccalaureate degree, students are required to satisfy the Gordon Rule, Florida Statutes by taking six semester hours of English coursework and six semester hours of additional coursework in which students are required to demonstrate college-level writing skills through multiple assignments. In addition, six semester hours of mathematics at the level of college algebra or higher are required. Students are required to take six semester hours of theoretical math or three semester hours of theoretical math and three semester hours of applied math. Students must have a grade of "C-" or better in the courses to successfully complete this requirement. Courses may not be taken on the pass/fail basis. Students must complete these requirements before advancing to upper-division status. Transfer students should refer to the Transfer Credit section of this catalog. Students should consult the Office of Undergraduate Admissions for evaluation of transfer mathematics courses for General Studies requirements, Gordon Rule, and credit for graduation.

Civic Literacy Requirement

Baccalaureate degree-seeking students initially entering a state university fall semester 2018 and thereafter must demonstrate competency in civic literacy through one of the following options prior to graduation:

1. Successfully passing either POSX041 American Government or AMHX020 Introductory Survey Since 1877. Each of the courses must include the following competencies:
   i. Understanding of the basic principles and practices of American democracy and how they are applied in our republican form of government;
   ii. An understanding of the United States Constitution and its application;
   iii. Knowledge of the founding documents and how they have shaped the nature and functions of our institutions of self-government; and
   iv. An understanding of landmark Supreme Court cases, landmark legislation and landmark executive actions and their impact on law and society.

2. Achieving the standard score on one of the following assessments:
   - U.S. Citizenship and Immigration Services Naturalization Test 60
   - Advanced Placement Government and Politics: United States 3
   - Advanced Placement United States History 4
   - CLEP American Government 50

Multicultural Requirement

An important component of a liberal education is the study of cultures other than one's own. As such, multiculturalism encompasses the appreciation of the values, expressions, and modes of organization of diverse cultural communities. To further such study, the University of West Florida requires all students pursuing a bachelor's degree to complete at least one course that explores one or more of the dimensions of another culture (language, religion, socio-economic structures, etc.). Students are exempt from this requirement if they have completed an A.A. degree, the general education program at a Florida public institution, or a baccalaureate degree.
The requirement is satisfied by the successful completion of a multicultural course designated on the following list. Several of the selections are General Education courses, and students may enroll in these to meet both the General Education and the multicultural requirements.

**Foreign Language Requirement**

Florida Statutes require that students admitted to a Florida public university meet the foreign language requirement for demonstrating competency in a foreign language. Students who have earned an A.A. from a Florida public community college may be admitted to the University, but must demonstrate competency prior to graduation with a baccalaureate degree. Students completing 8-10 semester hours of American Sign Language with passing grades will have satisfied the foreign language admission requirement. The foreign language requirement must be satisfied prior to progression to upper-division status. In addition, each academic department may determine specific language requirements for students and will recommend or require languages and proficiencies according to individual needs, career objectives, and academic programs.

Competency may be demonstrated in the following ways:

- Earning two credits of a single foreign language in high school or one credit in high school and the second semester (four semester hours) of the same foreign language at an accredited postsecondary institution demonstrating proficiency through the second level, OR
- Satisfactory completion of two semesters (8-10 semester hours) of a single foreign language at a postsecondary institution prior to admission to UWF demonstrating proficiency through the second level. Grades of P are acceptable for this requirement, OR
- Satisfactory completion of two semesters (8-10 semester hours) of a single foreign language at UWF demonstrating proficiency through the second level. Grades of P are acceptable for this requirement. Successful completion of the following tests with appropriate test scores: CLEP subject matter examinations, MAPS-Latin examination published by the College Entrance Examination Board, and proficiency examination at UWF.

Undergraduate transfer students are exempt one of the following applies: (1) they received an A.A. from a Florida public college prior to September 1, 1989; or (2) they enrolled in a program of studies leading to an associate degree from a Florida public college prior to August 1, 1989, and complete at least one academic course each twelve month period beginning with the student's first enrollment in a Florida public college and continuing until the student enrolled at UWF.

**Summer Hour Requirement**

Undergraduate students entering one of the state universities of Florida with less than 60 semester hours of credit must earn at least nine semester hours prior to graduation by attendance during one or more summer sessions at one of the state universities. Students may satisfy this requirement through online courses at UWF as well as any other UWF courses. Courses taken within the community college, state college system, or outside of the State University System of Florida cannot be used to satisfy summer hours.
Residency Requirement

Students must complete a minimum of 30 semester hours (25% of the degree program) in a planned program at UWF. In addition, the last 30 semester hours of course work for the undergraduate degree must be completed in residency at UWF. Courses taken while on University sponsored study abroad programs count as resident credit for purposes of meeting graduation requirements. Courses taken at another institution will not meet the UWF residency degree requirement.
Appendix F

Industry Demand Research
Summary of Industry Demand Research Conducted

In order to determine workforce demand for Instructional Designer applicants in the state of Florida possessing a bachelor’s degree, the Department of Instructional Design and Technology conducted research from Spring of 2016 through January 2018. Tables 2-5 display some of the research data gathered from this research project.

Additionally, the UWF office of Institutional Effectiveness conducted a search of job openings for IDT professionals with bachelor’s degrees on November 30, 2018 with the parameters of position title “instructional designer,” location “Florida,” and posted within the last 30 days. Table 1 provides the links to this research. Table 1 is also shown in Section II.A. of this Request to Offer a New Degree Program Proposal.

In reviewing the active postings: Monster Jobs yielded 106 instructional design positions with various specific job titles. Of the 106 postings, 38, or 36 percent, specifically mentioned the B.S. degree as a minimum requirement.

Indeed.com yielded 28 entry-level positions and 61 Mid-level positions. In reviewing these postings, over 32, or 36 percent, of the total 89 postings specifically mentioned the B.S. degree as a minimum requirement.

Glassdoor yielded 859 job postings. In reviewing these postings, making the effort not to duplicate postings found on the Monster and Indeed searches, Glassdoor had over 30 unique and active job postings for instructional design that specifically mentioned the B.S. degree as a minimum requirement.

Businesses linked to these job postings covered a variety of sectors to include healthcare, education, manufacturing, military and government contractors, communications, and education. Some specific employers found to be actively searching for instructional designers included Huntington Ingalls Industries, Humana, Spirit Airlines, Oracle, ISC², General Dynamics IT, TechUSA, Broward Community College, Florida International University, ProEdit, Collabera, Cox Communications, and Ellucian.

Appendix F Table 1. Selected job postings for BS in Instructional Design Technology

<table>
<thead>
<tr>
<th>Job Site</th>
<th>Educ Level</th>
<th># of Active Posts</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monster Jobs</td>
<td>BS</td>
<td>38</td>
<td><a href="https://www.monster.com/jobs/search/?q=Instructional-Designer&amp;where=florida&amp;jobid=71c48b71-e885-443e-b463-0397202cfc2f">https://www.monster.com/jobs/search/?q=Instructional-Designer&amp;where=florida&amp;jobid=71c48b71-e885-443e-b463-0397202cfc2f</a></td>
</tr>
<tr>
<td>Indeed</td>
<td>BS</td>
<td>&gt;32</td>
<td><a href="https://www.indeed.com/jobs?q=instructional%20designer&amp;l=florida&amp;explvl=mid_level&amp;start=30&amp;vjk=ce3c2d8f7fcbdb67">https://www.indeed.com/jobs?q=instructional%20designer&amp;l=florida&amp;explvl=mid_level&amp;start=30&amp;vjk=ce3c2d8f7fcbdb67</a></td>
</tr>
<tr>
<td>Glassdoor</td>
<td>BS</td>
<td>&gt;30</td>
<td><a href="https://www.glassdoor.com/Job/florida-instructional-designer-jobs-SRCH_IL.0,7_ILS3318_KO8,30_IP4.htm?fromAge=30&amp;jobType=fulltime">https://www.glassdoor.com/Job/florida-instructional-designer-jobs-SRCH_IL.0,7_ILS3318_KO8,30_IP4.htm?fromAge=30&amp;jobType=fulltime</a></td>
</tr>
</tbody>
</table>

Retrieved: November 30, 2018
Market Demand

Table 2 summarizes minimum education requirements, by sector, for entry-level instructional design and technology positions. Data were collected from multiple online job sites in January 2018 and illustrate a high demand for professionals with a bachelor’s degree in IDT across all sectors.

Appendix F Table 2: Minimum Education Requirements by Job Sector

<table>
<thead>
<tr>
<th>Job Sector</th>
<th>Bachelor’s Degree in IDT</th>
<th>Master’s Degree in IDT</th>
<th>General Bachelor’s Degree</th>
<th>Other/Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>48%</td>
<td>19%</td>
<td>13%</td>
<td>20%</td>
</tr>
<tr>
<td>Corporate</td>
<td>31%</td>
<td>5%</td>
<td>47%</td>
<td>17%</td>
</tr>
<tr>
<td>Government</td>
<td>80%</td>
<td>20%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Healthcare</td>
<td>69%</td>
<td>23%</td>
<td>8%</td>
<td>NA</td>
</tr>
</tbody>
</table>


Required Knowledge, Skills and Abilities

Table 3 summarizes the percent of instructional design and technology job postings listed above that explicitly identify technology, needs analysis, instructional design, training development, and evaluation as hiring criteria.

Appendix F Table 3: Employer required knowledge, skills, and abilities by job sector

<table>
<thead>
<tr>
<th>Job Sector</th>
<th>Technology</th>
<th>Needs Analysis</th>
<th>Instructional Design</th>
<th>Development</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>29%</td>
<td>26%</td>
<td>65%</td>
<td>23%</td>
<td>27%</td>
</tr>
<tr>
<td>Corporate</td>
<td>90%</td>
<td>16%</td>
<td>68%</td>
<td>71%</td>
<td>45%</td>
</tr>
<tr>
<td>Government</td>
<td>40%</td>
<td>20%</td>
<td>30%</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>77%</td>
<td>54%</td>
<td>54%</td>
<td>38%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Appendix F Table 4: Minimum education requirements by job sector

<table>
<thead>
<tr>
<th>Job Sector</th>
<th>Bachelor’s Degree in IDT</th>
<th>Master’s Degree in IDT</th>
<th>General Bachelor’s Degree</th>
<th>Other/Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>48%</td>
<td>19%</td>
<td>13%</td>
<td>20%</td>
</tr>
<tr>
<td>Corporate</td>
<td>31%</td>
<td>5%</td>
<td>47%</td>
<td>17%</td>
</tr>
<tr>
<td>Government</td>
<td>80%</td>
<td>20%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Healthcare</td>
<td>69%</td>
<td>23%</td>
<td>8%</td>
<td>NA</td>
</tr>
</tbody>
</table>


Peer/Aspirant Programs

Extensive Internet searches conducted in Spring 2016 identified a total of four institutions nationwide offering bachelor’s degrees in Instructional Design and Technology. Table 5 provides a summary of these institutions and their delivery format. None of these universities are located in Florida.

Appendix F Table 5: Institutions offering bachelor’s degrees in Instructional Design and Technology

<table>
<thead>
<tr>
<th>Institution</th>
<th>Program Name</th>
<th>Delivery Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashford University</td>
<td>B.A., Instructional Design</td>
<td>Online</td>
</tr>
<tr>
<td>Bowling Green State University</td>
<td>B.S., Instructional Design &amp; Technology</td>
<td>Online</td>
</tr>
<tr>
<td>Walden University</td>
<td>B.S, Instructional Design &amp; Technology</td>
<td>Online</td>
</tr>
<tr>
<td>Wayne State University</td>
<td>B. S., Learning Design and Technology</td>
<td>Face to Face</td>
</tr>
</tbody>
</table>

Data collected from [http://google.com](http://google.com), [https://elearningindustry.com/how-to-choose-the-right-instructional-design-bachelor-program](https://elearningindustry.com/how-to-choose-the-right-instructional-design-bachelor-program)
UWF Board of Trustees Meeting
Academic Affairs Committee
February 14, 2019

Issue/Agenda Item: Request to Offer a New Degree Program - Master of Science in Cybersecurity (MS in Cybersecurity)

Proposed Action: Approve Request

Background Information:

The University of West Florida (UWF) proposes to offer the Master of Science in Cybersecurity degree program in CIP Code 11.1003, a STEM discipline, effective Fall 2019.

The MS in Cybersecurity is a master’s level degree program consisting of 30 semester credit hours beyond a bachelor’s degree. The program will be housed in the Department of Computer Science within the Hal Marcus College of Science and Engineering (HMCSE). The proposed MS in Cybersecurity degree program began as a specialization in the Master of Science in Information Technology in CIP Code 11.0103. The need for the stand-alone MS in Cybersecurity is demonstrated by strong enrollment in the current specialization, student demand for graduate degrees in the field, input from the Computer Science Industrial Advisory Board as well as a critical local, regional, and statewide need for employees with a master’s degree in Cybersecurity.

UWF’s addition of the MS in Cybersecurity degree program will meet local, state, and national needs for cybersecurity personnel. The U.S. Bureau of Labor Statistics predicts a 28% growth in jobs for this field nationally through 2026. The Florida Department of Economic Opportunity projects 20% growth in jobs for this field statewide through 2025. Graduates from the degree program will work in a variety of key infrastructure industries such as banking and financial institutions, government and military information services and telecommunications, energy, transportation, and healthcare.

Cybersecurity programs, at both the undergraduate and graduate level, have experienced strong growth due to local demand for qualified employees as well as UWF’s designation as a Center for Academic Excellence in Cybersecurity by the Department of Homeland Security and the National Security Agency. Enrollment projections for the MS in Cybersecurity degree program are strong as the degree program will be offered fully online and will offer foundational coursework for students entering the program from fields other than computer science or computer engineering.

The addition of the MS in Cybersecurity degree program at UWF will provide clear benefits to the university and the local community including:

- Provide a path to a graduate degree the high-paying and high-demand field of cybersecurity.
- Allow the university to respond to local, regional, and state workforce needs.
• Provide more research and collaboration opportunities in an area of national concern.

Implementation Plan:

• The CAVP approved the MS in Cybersecurity on September 28, 2018.
• The UWF Faculty Senate approved the curriculum on December 17, 2018.
• The UWF Board of Trustees Academic Affairs Committee considers the Request to Offer New Degree Program February 14, 2019.
• The UWF Board of Trustees considers the Request to Offer New Degree Program March 20, 2019.
• Notification to Florida Board of Governors March 2019.
• Notification to SACSCOC of Substantive Change March 2019.
• New degree program implemented Fall 2019.

Fiscal Implications: Fiscal implications are reflected in the Request to Offer.

Supporting documents:

Request to Offer a New Degree Program – MS in Cybersecurity
http://pages.uwf.edu/aadocs/bot/RTO_MS_Cybersecurity.pdf

Prepared by: Kimberly D. McCorkle, Vice Provost
(850) 857-6198, KMCCorkle@uwf.edu

Presenter: Kimberly D. McCorkle, Vice Provost
Board of Governors, State University System of Florida

Request to Offer a New Degree Program

(Please do not revise this proposal format without prior approval from Board staff)

University of West Florida

University Submitting Proposal

Fall 2019

Proposed Implementation Term

Hal Marcus College of Science and Engineering

Name of College(s) or School(s)

Computer Science

Name of Department(s)/ Division(s)

Cybersecurity

Master of Science in Cybersecurity

Academic Specialty or Field

Complete Name of Degree

11.1003

Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees

President

Date

Signature of Chair, Board of Trustees

Vice President for Academic Affairs

Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Enrollment (From Table 1)</th>
<th>Projected Program Costs (From Table 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>30</td>
<td>16.5</td>
</tr>
<tr>
<td>Year 2</td>
<td>60</td>
<td>33.0</td>
</tr>
<tr>
<td>Year 3</td>
<td>90</td>
<td>49.5</td>
</tr>
<tr>
<td>Year 4</td>
<td>110</td>
<td>60.5</td>
</tr>
<tr>
<td>Year 5</td>
<td>120</td>
<td>66.0</td>
</tr>
</tbody>
</table>

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.
INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including majors, concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

(a) Masters

(b) Cybersecurity

(c) 30 Semester Credit Hours

(d) The University of West Florida (UWF) seeks to offer a Master of Science (M.S.) in Cybersecurity degree program consisting of 30 semester credit hours (SCH) beyond the bachelor's degree. The program will be housed in the Department of Computer Science in the UWF Hal Marcus College of Science and Engineering and will be delivered in a fully online format. The M.S. in Cybersecurity degree program will result by separating the current Cybersecurity specialization from the Masters of Science in Information Technology (M.S. in IT) in CIP Code 11.0103 and turning it into a stand-alone degree program in CIP Code 11.1003. The proposed stand-alone M.S. in Cybersecurity degree program has no formal tracks or options, but students will be able to tailor their work toward software development or systems administration with elective courses.

Students graduating from the M.S. in Cybersecurity degree program will have employment opportunities in securing computer systems and networks and building secure applications. There is a high demand by the public and private sector for people with cybersecurity skills. Nationwide, universities are not producing enough graduates to meet the current needs.

The Florida Board of Governors has recognized the need to expand cybersecurity education and research within the state. In 2013, the Board of Governors established the Florida Center for Cybersecurity for State University System (SUS) institutions to collaborate on cybersecurity related initiatives. UWF is an active member of Florida’s Cybersecurity Center and has engaged with other SUS institutions on research collaborations and educational programs. In 2016, UWF was designated as a National Center of Academic Excellence in Cyber Defense Education by the National Security Agency and the Department of Homeland Security.

The proposed M.S. in Cybersecurity degree program fits within the Board of Governor’s vision for Florida to become a leader in cybersecurity education and research. Opportunities for employment and demand for graduates are discussed in the need and demand sections (II.A and II.B) of this request.

B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide
a brief narrative explaining how each of these concerns has been or is being addressed.

During the September 28, 2018, CAVP conference call, no concerns were raised by the review group.

C. If this is a doctoral level program please include the external consultant’s report at the end of the proposal as Appendix D. Please provide a few highlights from the report and describe ways in which the report affected the approval process at the university.

Not applicable; this is not a doctoral degree program.

D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on the resource page for new program proposal).

Increase the Number of Degrees Awarded in STEM and Other Areas of Strategic Emphasis

UWF’s proposed M.S. in Cybersecurity degree program will contain a heavy emphasis on foundational knowledge in computing and software development as well as skills and abilities for cybersecurity, all STEM topics. It draws distinctions to existing programs at other SUS institutions by 1) offering courses that strengthen computing and software development skills in the program and 2) offering foundational coursework for students entering the program with a degree other than computer science or computer engineering. This approach will attract a wider range of students and provide professionals an opportunity to shift their career into a cybersecurity-related field.

Increase Community and Business Workforce

The Florida Board of Governors has recognized the need to expand cybersecurity education and research within the state. Strengthening cybersecurity capability benefits the community as well as business and governmental organizations. UWF is an active member of Florida’s Cybersecurity Center and has engaged with other SUS institutions on research and educational collaborations. The proposed M.S. in Cybersecurity degree program will increase the number of individuals who are prepared to enhance the state’s community and business workforce in this vitally important area.

E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

The Programs of Strategic Emphasis Categories:
1. Critical Workforce:
   • Education
   • Health
   • Gap Analysis
2. Economic Development:
   • Global Competitiveness
3. Science, Technology, Engineering, and Math (STEM)
Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations on program inclusion criteria at the resource page for new program proposal.

The proposed program fits in the current Programs of Strategic Emphasis category Science, Technology, Engineering, and Math (STEM). Within that category, CIP code 11 [Board of Governors 2012 – 2025 Strategic Plan] as follows:

11 Computer and Information Sciences and Support Services (all)

The proposed M.S. in Cybersecurity degree program's CIP code is 11.1003, Computer and Information Systems Security/Information Assurance. According to the President’s Council of Advisors on Science and Technology, if the country is to retain its historical preeminence in science and technology, economic projections point to a need for approximately one million more STEM professionals than the U.S. will produce at the current rate over the next decade. (Bureau of Labor Statistics, Monthly Labor Review, May 2015. Online, available at: http://www.bls.gov/opub/mlr/2015/article/stem-crisis-or-stem-surplus-yes-and-yes.htm). Section II. A. of this proposal demonstrates need and demand for cybersecurity education.

This program clearly fits in the STEM category, as it will have strong computer science, engineering, and information technology components. With the critical importance attached to the protection of our nation’s information technology assets, graduates will be well positioned to contribute to the security and global competitiveness of U.S. companies. While projected demand varies somewhat among various subfields of STEM, growth in demand for cybersecurity specialists is projected to be significant.

F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The M.S. in Cybersecurity degree program will be housed in the Department of Computer Science in the Hal Marcus College of Science and Engineering on the UWF Pensacola campus and will be delivered in a 100% online format. It will utilize the University of West Florida’s technical capabilities including Canvas Learning Management System, WebEX, and Panopto.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

National

According to the U.S. Bureau of Labor Statistics, career opportunities for graduates with a master’s degree in cybersecurity are projected to grow over the next ten years. The growth is projected to come from government and industries that require cybersecurity specialists due to the barrage of cybersecurity attacks on corporate and public systems and networks. The two most
closely aligned Standard Occupational Classification (SOC) Codes for cybersecurity are Computer and Information Research Scientists 15-1111 and Information Security Analyst, 15-1122.

Table 1, below, demonstrates that over the next ten years, the U.S. Bureau of Labor Statistics projects job growth for Computer and Information Research Scientists and Information Security Analysts to grow at a rate higher than the rate for other computer occupations of 13% and significantly more than the anticipated growth rate for all occupations (7%). Nationally, Computer and Information Research Scientists garner a median annual salary of $114,520 and Information Security Analysts earn a median annual salary of $95,510. These wages exceed the median annual salary for all computer occupations of $84,580 and significantly outpace the median wage for all occupations of $37,690.

Table 1. U.S. Job Projections for Computer and Information Research Scientists and Information Security Analysts.

<table>
<thead>
<tr>
<th>National Job Projections for M.S. Cybersecurity Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Title</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Computer and Information Research Scientists</td>
</tr>
<tr>
<td>Information Security Analysts Scientists</td>
</tr>
</tbody>
</table>

Table 2 shows the top industries in which graduates of UWF’s M.S. in Cybersecurity can find employment.

Table 2. Top U.S. Job Types and Salaries for Computer and Information Research Scientists and Information Security Analysts.

<table>
<thead>
<tr>
<th>Job Titles</th>
<th>Top Employment Industries</th>
<th>2017 Median Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer and Information</strong></td>
<td>Research and development in the physical, engineering, and life</td>
<td>$125,420</td>
</tr>
<tr>
<td><strong>Research Scientists</strong></td>
<td>services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Federal government, excluding postal service</td>
<td>$108,270</td>
</tr>
<tr>
<td></td>
<td>Colleges, universities, and professional schools; state, local</td>
<td>$77,240</td>
</tr>
<tr>
<td><strong>Information Security</strong></td>
<td>Computer systems design and related services</td>
<td>$98,100</td>
</tr>
<tr>
<td><strong>Analysts</strong></td>
<td>Finance and insurance</td>
<td>$97,680</td>
</tr>
<tr>
<td></td>
<td>Administrative and support services</td>
<td>$91,510</td>
</tr>
<tr>
<td></td>
<td>Management of companies and enterprises</td>
<td>$90,940</td>
</tr>
</tbody>
</table>


State

The State of Florida is projecting a growth rate of 20% over the same time period in career opportunities that require an advanced degree in a computer and information science including cybersecurity. The high growth rate of job opportunities has created shortages in skilled candidates and higher education has been unable to produce enough graduates to meet the workforce demand. The shortage of qualified cybersecurity practitioners threatens to put Florida’s cyber infrastructure at risk.

The U.S. Bureau of Labor Statistics names Florida as one of the five states with the highest employment level for Information Security Analysts (SOC Code 15-1122) with 5,240 people employed in 2017 at an annual mean wage of $86,630. [https://www.bls.gov/oes/current/oes151122.htm#st](https://www.bls.gov/oes/current/oes151122.htm#st)
The Florida Department of Economic Opportunity lists the field as number 27 out of the 100 fastest growing occupations in the state. ([http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections](http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections))

Table 3 below demonstrates Florida’s strong demand for Computer and Information Research Scientists and Information Security Analysts will continue for the next ten years. Graduates of UWF’s M.S. in Cybersecurity degree program will find employment in a high paying, high-growth occupation, benefiting the state and its industries.

Table 3. Florida Job projections for Computer and Information Research Scientists and Information Security Analysts.

<table>
<thead>
<tr>
<th>Job Title</th>
<th>SOC Code</th>
<th>Employment</th>
<th>Change 2017-2025</th>
<th>2017 Median Hourly Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Code</td>
<td>2017</td>
<td>2025</td>
<td>Percent</td>
</tr>
<tr>
<td>Computer and Information Research Scientists</td>
<td>15-1111</td>
<td>539</td>
<td>576</td>
<td>6.9%</td>
</tr>
<tr>
<td>Information Security Analysts</td>
<td>15-1122</td>
<td>4,910</td>
<td>5,987</td>
<td>20%</td>
</tr>
</tbody>
</table>

Source: [www.floridajobs.org](http://www.floridajobs.org)

**Local**

Northwest Florida is home to numerous military bases and contractors as well as a variety of companies and government agencies with high-tech needs. Hospitals and financial institutions face increasing demand for cybersecurity professionals to protect their data. Students who graduate from UWF with an M.S. in Cybersecurity will be able to contribute to the needs of those employers and provide a positive impact on the local economy.

The Department of Homeland Security and large defense contractors including Northrop Grumman, Raytheon, and Lockheed Martin have recently expanded their cybersecurity operations in the region. Northwest Florida’s military installations house Department of Defense cybersecurity commands such as:

- Center for Information Dominance (NAS Pensacola)
- Navy Information Operations Command (NAS Pensacola)
- 96th Cyberspace Test Group (Eglin AFB)
- 47th Cyberspace Test Squadron (Eglin AFB)
Impetus for the creation of this degree comes from the following:
- rapid enrollment growth of the undergraduate degree program in cybersecurity;
- student demand for graduate degrees in the field;
- input from the Computer Science Industrial Advisory Board; and
- top-level UWF administration who perceive the opportunity to fill a critical local; regional and statewide need.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.

The Department Chair anticipates a Year 1 student headcount of 30 students with an FTE of 16.5. The proposed M.S. in Cybersecurity degree program is currently a specialization in UWF’s M.S. in IT degree program with a current enrollment of 30 students. Enrollment projections are based on current enrollment in the master’s level specialization, enrollment growth in the undergraduate program, as well as demonstrated external need and demand for graduates in this high-paying, high-demand field.

Figure 1 below demonstrates the growth in UWF’s undergraduate Cybersecurity specialization to the inception of the stand-alone B.S. in Cybersecurity degree program in 2018.

![UWF Undergraduate Cybersecurity Specialization: 4-Year Enrollment Growth](image)

Figure 1. Four-year enrollment Growth in UWF’s undergraduate program in Cybersecurity.

Overall cybersecurity graduate degree programs in the SUS have experienced enrollment growth as reflected in Table 4 below. The addition of the stand-alone M.S. degree program in Cybersecurity at UWF will support growth in the field.
Table 4. *Other Cybersecurity Degree Programs in Florida.*

<table>
<thead>
<tr>
<th>Institution</th>
<th>CIP Code</th>
<th>Public/ Private</th>
<th>Enrollment fall 2017</th>
<th>Degree Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of South Florida</td>
<td>43.0303</td>
<td>public – SUS</td>
<td>245</td>
<td>M.S. Cybersecurity</td>
</tr>
<tr>
<td>Florida State University</td>
<td>43.0116</td>
<td>public – SUS</td>
<td>4</td>
<td>M.S. Cyber/Computer Forensics and Counterterrorism</td>
</tr>
<tr>
<td>Florida International University</td>
<td>11.1003</td>
<td>public – SUS</td>
<td>61</td>
<td>M.S. Cybersecurity</td>
</tr>
</tbody>
</table>

C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.

The SUS currently offers three other master’s degree programs using the term “cybersecurity” in their program name.

USF and FSU have cybersecurity programs in CIP Code 43 which is defined by IPEDS as “Instructional programs that focus on the principles and procedures for providing homeland security, police, fire, and other safety services and managing penal institutions.” (https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=88540) The University of Florida’s Florida Institute for Cybersecurity Research offers a 12 SCH master’s level certificate program in Information Security. (https://fics.institute.ufl.edu/cybersecurity-certificates-programs/) None of these programs are substantially similar to UWF’s proposed M.S. in Cybersecurity degree program.

FIU offers a master’s degree program in CIP Code 11.1003, which is more closely related to the proposed UWF M.S. in Cybersecurity. The FIU program has a very broad focus including security for physical systems. UWF’s M.S. in Cybersecurity degree program in CIP Code 11.1003 contains a heavy emphasis on foundational knowledge in computing and software development as well as skills and abilities for cybersecurity. It draws distinctions to the existing programs in the SUS by 1) offering courses that strengthen computing and software development skills in the program and 2) offering foundational coursework for students entering the program with a degree other than computer science or computer engineering to offer a wider range of students and professionals an opportunity to engage in a cyber-related education.

As was demonstrated in Section II. A. there is increasing demand for graduates with degrees in Cybersecurity, nationally, statewide, and locally, necessitating the development of more programs in the field. Dr. Sudeep Sarkar, Professor and Chair of Computer Science and Engineering at USF, wrote a letter of support stating that the proposed program, “Will offer a
diversity of options to Florida students in the field of Cybersecurity, which is in high demand among employers. There are plenty of open Cybersecurity jobs in the state and there is severe shortage of high-tech workers in the field.”

Please see Appendix F for the full text of Dr. Sarkar’s endorsement.

D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 30 credit hours per year and graduate FTE will be calculated as 24 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.

Enrollment numbers for the M.S. in Cybersecurity degree program were derived using data from the existing enrollment in the M.S. in IT Cybersecurity specialization as well as enrollment data for the new B.S. in Cybersecurity degree program that began fall 2018. As is shown in Appendix A Table 1, the Hal Marcus College of Science and Engineering expects the new stand-alone degree program to begin with 30 students (16.5 FTE) in fall 2019. Student enrollment for Year 5 is anticipated to reach 120 (66 FTE) and remain consistent at that number.

E&G cost per FTE for Year 1 is $9,307. The Year 1 FTE cost is below the SUS average of $10,793 for CIP Code 11. Year 5 E&G cost per FTE will decrease to $3,078 as enrollment increases over time.

E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in consultation with the affected university), an analysis of how the program might have an impact upon that university’s ability to attract students of races different from that which is predominant on their campus in the subject program. The university’s Equal Opportunity Officer shall review this section of the proposal and then sign and date Appendix B to indicate that the analysis required by this subsection has been completed.

Regarding UWF’s proposed M.S. in Cybersecurity degree program, no comments were expressed concerning impact on programs at FAMU or FIU during the September 28, 2018, Council of Academic Vice Presidents (CAVP) Program Coordination Work Group conference call.

Consistent with its mission, UWF has admissions policies that balance attention to access, inclusiveness, and quality. In addition, UWF encourages applications from qualified persons and does not discriminate on the basis of age, color, disability, gender (including gender identity and sex), marital status, national origin, race, religion, sexual orientation, or veteran status. Also, UWF's New Academic Program Approval Policy requires that programs appropriately address diversity. Therefore, the university and its degree programs take proactive measures to achieve a diverse student body.

To ensure the desired outcome for student diversity, recruiting efforts initially focus on the university's eight-county service area: Escambia, Santa Rosa, Okaloosa, Walton, Holmes, Washington, Bay, and Gulf. Recruitment efforts also extend to other geographic regions having larger underrepresented populations of prospective students.
Program faculty and staff will use multiple outreach methods to seek diversity in the program. The Hal Marcus College of Science and Engineering will promote the proposed M.S. in Cybersecurity degree program to the aforementioned student segments.

The university currently attracts a diverse student body; all efforts will be made to ensure that the M.S. in Cybersecurity degree program will reflect institutional diversity (Figure 2).

![Figure 2. Five-year comparison of Hal Marcus College of Science and Engineering’s diversity.](image)

### III. Budget

**A.** Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

The proposed M.S. in Cybersecurity degree program is currently being offered as a specialization in the Department of Computer Science M.S. in IT degree program. As such, faculty and resources are in place and will be reallocated to the new stand-alone degree program. The Provost has approved one additional non-tenure earning full-time faculty line to begin in Year 1 (fall 2019). The new lecturer will teach three classes per year in the master’s degree program or 37.5% of a .75 FTE. The Year 1 program E&G Cost per FTE is $9,307, which is less than the SUS E&G Cost per FTE of $10,793 for CIP Code 11.
Total Year 1 costs are $153,571. $111,011 is reallocated funds from the existing specialization and $42,560 is new E&G funding for salary and fringe for the new faculty hire. The following is a breakdown of the projected Year 1 costs as shown in Appendix A Table 2, all from E&G funds:

- Current full-time faculty salaries and fringe apportioned to the stand-alone degree program at $88,293
- $42,560 for new faculty hire (lecturer)
- 5% of the Department Administrator salary and fringe at $2,800
- Adjunct expense of $6,000
- Graduate assistantships and grants $13,120
- There will be no additional library expenses for the program as the department will use the materials already in place for the B.S in Cybersecurity and M.S. in Computer Science degree programs as well as other technical programs at the university
- 5% of the department office supply and sundry expenses at $798

Total Year 5 costs equal $203,155. The following is a breakdown of the projected Year 5 costs as shown in Appendix A Table 2 all continuing base E&G funds:

- Full-time faculty salaries and fringe increased at five per cent per annum at a total of $159,052
- 5% of the Department Administrator salary and fringe increased at five percent per annum at $3,403
- Adjunct expense of $7,000
- Graduate assistantships and grants should increase to $32,800
- 5% of the department office supply and sundry expenses at $900

B. Please explain whether the university intends to operate the program through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors’ approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.

UWF does not intend to operate the program through continuing education on a cost-recovery basis, seek approval for market tuition rate, or establish differentiated graduate-level tuition. The M.S. in Cybersecurity program will be offered as a regular program through UWF’s Department of Computer Science.

C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).
The Cybersecurity specialization within the M.S. in IT program has been growing at a rate of 10% per year since its inception in the fall of 2016. As the proposed program represents a reorganization of an existing specialization, significant resources are already in place. Due to projections for continued rapid growth of the program, additional resources including a new hire faculty member, have been approved.

Enrollment in the stand-alone M.S. in Cybersecurity degree program will continue to increase as demands for graduates from cybersecurity programs are growing regionally and nationally. The increase in enrollment will positively contribute to enrollment growth in other departments at UWF including the Department of Electrical and Computer Engineering and the Department of Management and Management Information Systems.

The new M.S. in Cybersecurity degree program will offer courses in systems and network security that may become electives in closely related graduate programs in Computer Science and Engineering (proposed to start in the fall of 2019) and a future revised M.S. in IT degree program. Giving students from related programs the option to choose electives in cybersecurity, a highly sought after discipline, adds a new marketable edge to these programs and allows UWF to attract and retain students.

D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

Since it is a graduate level program, implementation of the M.S. in Cybersecurity degree program will have no impacts on general education or common prerequisite courses. It will have no impacts on departments outside Computer Science with the exception of the shift of M.S. in IT program students from the IT department to the Computer Science Department.

E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.

The Department of Computer Science in which the M.S. in Cybersecurity will be housed has well-established relationships with local industries and employers who hire UWF graduates. These employers include the Institute for Human and Machine Cognition, Navy Federal Credit Union, Raytheon, and Northrop Grumman.

Additionally, the Department of Computer Science has an Industrial Advisory Board comprised of local and national cybersecurity experts who will be able to provide insight about potential resources to support the proposed program. For more information about the board, refer to Section VIII. F. Table 5, below provides the names of individuals outside of the institution on the Industrial Advisory Board.

Table 5. Members of the UWF Department of Computer Science Industrial Advisory Board

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Brian Clarke</td>
<td>Silver Bullet Pensacola, Florida</td>
</tr>
<tr>
<td>Ms. Terry Enos</td>
<td>Navy Federal Credit Union Pensacola, Florida</td>
</tr>
</tbody>
</table>
IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

The field of cybersecurity encompasses everything from knowledge of human factors to hard-core technical skills. While bachelor’s level graduates are ready to fill entry-level roles, many consumers of cybersecurity talent locally, regionally, and nationally seek new hires with more advanced education including the types of research skills cultivated in a master’s degree program.

Additionally, the creation of the proposed M.S. in Cybersecurity degree program will have clear benefits to the university. Specifically, it will achieve the following:

1. Provide a path to a graduate degree for graduates of the B.S. in Cybersecurity degree program.
2. Make the university more responsive to the local, regional, and statewide workforce needs.
3. Provide more research and collaboration opportunities within the university and outside the university. For example, faculty in the Computer Science Department working on Cybersecurity might collaborate with researchers in the UWF Center for Cybersecurity.

The proposed M.S. in Cybersecurity degree program will also have significant benefits for the state. Only one other master’s degree program for cybersecurity (in CIP Code 11.1003 at FIU) presently exists. Consequently, the state currently lags in its capacity to provide post-baccalaureate degrees in cybersecurity. USF Professor Sudeep Sarkar’s letter of support for the program (please see Appendix F) accentuates Florida’s need to develop statewide capacity for education in this high-demand field.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)

Not applicable; this is a Master’s degree program.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the
Common Prerequisite Manual on [the resource page for new program proposal](#). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

Not applicable; this is a Master’s degree program.

C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

Not applicable; this is a Master’s degree program.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see link to the Statewide Articulation Manual on [the resource page for new program proposal](#)). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

Not applicable; this is a Master’s degree program.

INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on [the resource page for new program proposal](#)).

The institutional mission at UWF is to:

- Provide high-quality undergraduate and graduate education,
- Conduct teaching and research that services the body of knowledge, and
- Contribute to the needs of professions and society
UWF’s proposed, stand-alone, fully online M.S. in Cybersecurity degree program will support the university’s mission by providing high-quality and accessible graduate education locally, statewide, and nationally. The proposed program is in an area of critical importance to the local community, the region, the state, and nation and it will contribute to the needs of society by producing skilled cybersecurity practitioners who can help to protect critical information technology resources.

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

UWF has attained the Center for Academic Excellence in Cybersecurity designation on the basis of a strong undergraduate curriculum that aligns with guidelines from Homeland Security and the National Security Agency. UWF has created a Center for Cybersecurity which participates in a variety of local, statewide, national, and international initiatives to promote cybersecurity education and training. The Center for Cybersecurity attracts external funding and excellent professional cybersecurity talent.

Additionally, the UWF Department of Computer Science has hired several specialists in cybersecurity in the last number of years. Specifically, professors Ezhil Kalaimannan and Amitab Mishra completed Ph.D. work in the field of cybersecurity. These and other researchers in the department have opportunities to collaborate with researchers in the Center for Cybersecurity and researchers at the Institute for Human and Machine Cognition, a not-for-profit research institute established by the Florida legislature with an increasing cohort of researchers with cybersecurity research interests.

The Computer Science Department also offers Bachelor of Science degree programs in traditional Computer Science, Software Design and Development, and a Master of Science degree program in Computer Science. Most faculty in the Computer Science Department teach courses that are taken by students in all degrees and specializations and are available as mentors for graduate research experiences in all degrees/specializations. Due to the broad background required in science, students in the proposed M.S. in Cybersecurity degree program will also interact with faculty in the Departments of Information Technology, Management and Management Information Systems, and Criminology and Criminal Justice.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

Informal planning for the M.S. in Cybersecurity degree program started in early 2018. The Computer Science Curriculum Committee laid the groundwork for the degree in the spring and summer. In mid-summer, the Interim Dean of the Hal Marcus College of Science and Engineering and the UWF Provost provided feedback on the proposal. The Computer Science Department Chair presented the curriculum draft to the faculty at the Fall Computer Science Departmental Retreat.

In Fall 2018, the College Curriculum Committee reviewed and refined the courses and student learning outcomes. The curriculum and student learning outcomes were then presented to the
Graduate Council for review. Feedback from those bodies was incorporated into the program proposal. Over the course of the fall semester, the draft of the formal Request to Offer a New Degree Program Proposal was developed and refined. The program obtained approvals from the UWF Faculty Senate and senior university administration.

Table 6. Planning Process for the M.S. in Cybersecurity degree program.

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/20/2018</td>
<td>CS Fall Faculty Retreat</td>
<td>Curriculum planning</td>
</tr>
<tr>
<td>9/18/2018</td>
<td>CS Faculty</td>
<td>Curriculum planning</td>
</tr>
<tr>
<td>9/25/2018</td>
<td>CS Faculty</td>
<td>Review and approval of new M.S. in Cybersecurity</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>College Council</td>
<td>Review and approval of M.S. in Cybersecurity curriculum</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Graduate Council</td>
<td>Review and approval of M.S. in Cybersecurity curriculum</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Academic Council of the Faculty Senate</td>
<td>Review and approval of M.S. in Cybersecurity curriculum &amp; student learning outcomes</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Faculty Senate</td>
<td>Review and approval of M.S. in Cybersecurity curriculum</td>
</tr>
</tbody>
</table>

Table 7. Events Leading to Implementation of the M.S. in Cybersecurity degree program

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer and Fall 2018</td>
<td>Preparation of course and program CCRs</td>
</tr>
<tr>
<td>9/28/2018</td>
<td>CAVP approval of the proposal</td>
</tr>
<tr>
<td>July 2018</td>
<td>Dean’s Office and Provost’s Office review</td>
</tr>
<tr>
<td>August 2018</td>
<td>UWF New Degree Program Internal Pre-Proposal approved by Provost</td>
</tr>
</tbody>
</table>

**Anticipated approvals**

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2019</td>
<td>University of West Florida, BOT Academic Subcommittee approval (prospective)</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>University of West Florida, BOT approval (prospective)</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Florida Board of Governor’s Staff approval (prospective)</td>
</tr>
<tr>
<td>August 2019</td>
<td>Start of Fall 2019 semester with new program (prospective)</td>
</tr>
</tbody>
</table>

VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.
Pursuant to BOG Regulation 8.015, all academic departments at UWF conduct program reviews every seven years. The M.S. in IT program conducted a program review in 2016-2017 and several recommendations were made including discontinuing a small enrollment specialization, hiring faculty for the program, and improving the assessment plan. Since the review, the M.S. in IT program has been assigned to a new department in Information Technology, the low enrollment specialization has been discontinued, a department chair has been appointed, and the M.S. in IT Cybersecurity specialization is being reorganized into a stand-alone M.S. in Cybersecurity degree program in the Computer Science Department.

**Center for Academic Excellence in Cybersecurity Education Review**

Due to efforts by faculty in Computer Science, UWF has been awarded the Center for Academic Excellence (CAE) in Cybersecurity Education designation by the Department of Homeland Security and the National Security Agency. Faculty developed the stand-alone M.S. in Cybersecurity degree program with consideration of the guidelines for Cyber Defense Education (CDE) as defined by the National Security Agency and the Department of Homeland Security. Employers value students that graduate from a university with a CAE-CDE designation. The department is planning on having the approved M.S. in Cybersecurity degree program evaluated for CAE-CDE designation.

**ABET Accreditation Review**

ABET’s Computer Accreditation Commission (CAC) accredits computing programs at the bachelor level and has only recently added cybersecurity as a new area of accreditation. At this time, ABET’s CAC does not accredit master’s level programs in computer science or cybersecurity. Therefore, the department will continue to focus efforts on the CAE-CDE designation offered by the Department of Homeland Security and the National Security Agency.

**VIII. Curriculum**

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

See Appendix C for the full M.S. in Cybersecurity degree program’s Academic Learning Compact and Curriculum Map.

**Master of Science in Cybersecurity**

**Student Learning Outcomes**

UWF M.S. in Cybersecurity graduates should be able to do the following:

**Content**

Analyze concepts, principles, and theories in computing technology for use in the cybersecurity field.

**Critical Thinking**

Analyze cybersecurity problems and formulate and evaluate solutions.
Communication
Deliver effective oral and written artifacts to document professional communications.

Integrity/Values
Articulate professional, legal, and ethical issues in the discipline.

B. Describe the admission standards and graduation requirements for the program.

Admission Standards

In addition to the university graduate admission requirements described in the Admissions section of the catalog, the department bases decisions for regular admission on a holistic review of credentials in which the following criteria are used to assess the potential success of each applicant:

- Submission of one of the following graduate admission tests:
  - Graduate Record Examination (GRE): successful applicants typically have verbal scores of 140 or higher and quantitative scores of 145 or higher
  - Miller Analogies Test (MAT): successful applicants typically have a score of 370 or higher
- Minimum undergraduate cumulative GPA of 3.0
- Undergraduate degree major
- The applicant’s motivation for pursuit of a Master of Science in Cybersecurity degree, extent of related work experience in the field, and future goals related to the attainment of a Master of Science in Cybersecurity degree described in a letter of intent written by the applicant
- Submission of a resume
- Indication of the applicant’s ability to succeed in our graduate program as reflected in three signed letters of recommendation

Students entering the program with a degree other than Computer Science or Information Technology may be required to complete prerequisite courses in computing and programming. The department offers the following foundational courses to complete the prerequisite coursework:

- COP5518: Foundations: Computing Essentials
- COP5007: Foundations: Programming Essentials

Graduation Requirements

In order to graduate, students must complete 30 semester hours of credit as described in the curriculum section. A minimum grade of "C" is required for all courses with a cumulative major GPA of 3.0 or higher.

Both the graduate admissions and graduation requirements are found in Appendix E.

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives,
thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The M.S. in Cybersecurity degree program is comprised of 30 semester credit hours (SCH). Table 8 below shows that students will take:

- four 3 SCH courses in the core (12 SCH),
- two courses from a slate of four that allow them to tailor their studies toward software development or systems administration (6 SCH),
- three courses from an option of seven elective courses (9 SCH), and
- one culminating seminar course (3 SCH).

Table 8. Proposed M.S. in Cybersecurity Degree Program Curriculum.

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>12 SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 6394 Digital Forensics</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CIS 6XX1-1 Data Security</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CNT 5XX1-1 System and Network Security</td>
<td>3 SCH</td>
</tr>
<tr>
<td>COP 5725 Database Systems</td>
<td>3 SCH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Choose two courses from the following</th>
<th>6 SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEN 5079 Secure Software Development</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CEN 6074 Software Assurance and Security</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CET 6882C Network Performance Monitoring and Security</td>
<td>3 SCH</td>
</tr>
<tr>
<td>COP 5775 Database Administration</td>
<td>3 SCH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
<th>9 SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 5771 Data Mining</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CAP 5XX1-1 Big Data Analytics</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CAP 6772 Data Warehousing</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CNT 6519 Wireless Network Security</td>
<td>3 SCH</td>
</tr>
<tr>
<td>CTS 5XX1-1 Data Visualization</td>
<td>3 SCH</td>
</tr>
</tbody>
</table>
D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.

Table 9 displays a typical four-semester course of study for a student who can take a full-time, 9 SCH load during fall and spring. The Chair of Computer Science anticipates that some of the students in the program will be working adults and will attend part-time. These students will take the same courses over a different period of time. Students must be enrolled in at least six SCH in a term to be eligible for an assistantship.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>SCH</th>
<th>Semester</th>
<th>Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td></td>
<td></td>
<td>Summer and Year 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall Term, Year 1</td>
<td>CNT 5XX1-1 System and Network Security</td>
<td>3 SCH</td>
<td>Spring Term, Year 1</td>
<td>CIS 6XX1-1 Data Security</td>
<td>3 SCH</td>
</tr>
<tr>
<td></td>
<td>COP 5725 Database Systems</td>
<td>3 SCH</td>
<td></td>
<td>CIS 6394 Digital Forensics</td>
<td>3 SCH</td>
</tr>
<tr>
<td></td>
<td>CEN 5079 Secure Software Development*</td>
<td>3 SCH</td>
<td></td>
<td>CEN 6074 Software Assurance and Security*</td>
<td>3 SCH</td>
</tr>
<tr>
<td>Semester Total 9 SCH</td>
<td></td>
<td></td>
<td>Semester Total 9 SCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer Term, Year 1</td>
<td>Elective (3sh)</td>
<td>3 SCH</td>
<td>Fall Term, Year 2</td>
<td>2 Electives (3 SCH each)</td>
<td>6 SCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>COT 6XX1-1, Seminar in Cybersecurity</td>
<td>3 SCH</td>
</tr>
<tr>
<td>Semester Total 3 SCH</td>
<td></td>
<td></td>
<td>Semester Total 9 SCH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Program Total 30 SCH

*Note: CET 6882C, Network Performance Monitoring and Security and COP 5775 Database Administration may be substituted for these courses.

E. Provide a one- or two-sentence description of each required or elective course.

Core Courses

CIS 6394 Digital Forensics
Provides a solid foundation for performing a digital forensic examination; introduces tools and techniques required for conducting a forensic analysis on systems and data pertaining to evidences in civil, criminal or administrative cases. Introduces systematic problem-solving techniques and applies them to digital investigations. Theories directly correlate to methods used to recover/restore data, ranging from litigation to fraud based investigations.

CIS 6XX1 Data Security
This course covers concepts of Data Security from a data centric perspective. Challenges faced by today’s systems will be studied and the future of data security will be discussed.

CNT 5XX1 System and Network Security
This course covers the basic strategies and tools that prepare students to engage in proactive and aggressive cybersecurity activities, with an increased focus on computer, network and system security. Students will learn about protection strategies which are most effective when dealing with cyber attacks, especially in an age of increased reliance on distributed devices.

COP 5725 Database Systems
Introduction to database systems and database management system architectures. Various database models are discussed with emphasis on the relational model and relational database design. Case applications using fourth-generation languages, such as SQL are included.

CEN 5079 Secure Software Development
Examines the importance of building security into the design, implementation and testing phases of software development. Covers coding techniques that avoid known vulnerabilities and test strategies that can uncover previously unknown weaknesses. Includes discussion of security policies and design principles.

CEN 6074 Software Assurance and Security
Concepts and principles related to developing and maintaining secure software systems with no exploitable vulnerabilities with high levels of integrity and reliability.

CET 6882C Network Performance Monitoring and Security
Examines network performance, strategies to optimize network performance and protocols related to network security. Students should have a basic understanding of computer networks.
COP 5775 Database Administration
Database administration skills covering installation, configuration and tuning a database, administering servers and server groups, managing and optimizing schemas, tables, indexes, and views, creating logins, configuring permissions, assigning roles and performing other essential security tasks, backup and recovery strategies, automation and maintenance.

Elective Courses

CAP 5771 Data Mining
Exposes students to data mining concepts and techniques and different data mining software. Covers data pre-processing and cleaning, concept hierarchy generation, attribute relevance analysis, association rule mining, classification algorithms, and cluster analysis.

CAP 5XX1-1 Big Data Analytics
Introduces students to the handling of Big Data on Hadoop's MapReduce environment. Students also learn Spark architecture and programming with the aim of doing big data analytics with machine learning algorithms in Spark. In addition, concepts of Spark streaming are covered.

CAP 6772 Data Warehousing
Data Warehousing and its applications to business intelligence. Areas of concentration are: requirements gathering for data warehousing; data warehouse architecture; dimensional model design for data warehousing; physical database design for data warehousing; extracting, transforming, and loading strategies; introduction to business intelligence; design and development of business intelligence applications; expansion and support of a data warehouse.

CNT 6519 Wireless Network Security
Study and understand the security and research challenges of existing and emerging wireless networks. Students will learn about various security issues such as key management, privacy, authentication and secure data aggregation and the algorithms used to resolve these issues.

CTS 5XX1-1 Data Visualization
Skills to describe theory and concepts related to efficient and effective display of data. Use a variety of tools necessary to prepare and present the factual data in a visually compelling manner. Data Visualization tools have a wide applicability. Tools and technologies allow students, researchers and other users of data leverage on these tools.

ISM 5327 Legal, Ethical, and Human Aspects of Cybersecurity
Human facets of cybersecurity. Includes ethics, legal and regulatory environment, psychology, and hacker culture. Focus on human element, motivation, and deterrence of cyber-crimes.

ISM 5328 Cybersecurity Risk Management
Focus on risk management theory and principles to information security policy. An additional major area of focus is incident response and contingency planning consisting of incident response planning, disaster recovery planning, and business continuity planning.
**Required Seminar**

**COT 6XX1-1 Seminar in Cybersecurity**
This graduate research seminar will provide cybersecurity graduate students with the opportunity to identify, research, report and discuss contemporary issues in cybersecurity. Students are expected to have completed the foundational courses in the curriculum and to work independently on a relevant topic approved by the instructor.

**Prerequisite Courses**
_for Students Without a Degree in Computer Science or Information Technology_

**COP 5518 Foundations: Computing Essentials**
This course reviews fundamental principles of modern operating systems and computer networks and relates them to computer programming. The course covers topics such as the design of various components of operating systems and services they provide to users and application developers, network structures & devices, network protocol stacks, network performance metrics, network routing algorithms, and network traffic analysis.

**COP 5007 Java Programming Foundations: Programming Essentials**
Students will gain a comprehensive understanding of principles/concepts of Java programming and how to apply those principles/concepts in conjunction with principles of software engineering to design and develop object- oriented software systems.

F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

The experience gained through the development of the B.S. in Cybersecurity degree program curriculum (new fall 2018) to meet the criteria for the Center of Academic Excellence in Cybersecurity education had a major impact on the department’s capability to design the curriculum and student learning outcomes for the M.S. in Cybersecurity degree program.

Additionally, the Department of Computer Science has an Industrial Advisory Board comprised of industry experts and UWF faculty that meets at a minimum once per year. The Industrial Advisory Board provides perspectives on the curriculum as well as trends in the field. Table 10, below provides the names of the Industrial Advisory Board members.

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Brian Clarke</td>
<td>Silver Bullet Pensacola, Florida</td>
</tr>
<tr>
<td>Ms. Terry Enos</td>
<td>Navy Federal Credit Union Pensacola, Florida</td>
</tr>
<tr>
<td>Dr. Alessandro Morelli</td>
<td>Institute for Human and Machine Cognition Pensacola, Florida</td>
</tr>
<tr>
<td>Mr. John Corliss</td>
<td>Department of Homeland Security Washington, D.C.</td>
</tr>
<tr>
<td>Mr. Heath Gardner</td>
<td>Jetpay Pensacola, Florida</td>
</tr>
<tr>
<td>Mr. Jesse Sweetland</td>
<td>AppRiver Gulf Breeze, Florida</td>
</tr>
<tr>
<td>Mr. Patrick Rooney</td>
<td>Coastal Services Pensacola, Florida</td>
</tr>
</tbody>
</table>
G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

Notably, UWF attained the designation of a Center of Academic Excellence for Cybersecurity education from the Department of Homeland Security and the National Security Agency in 2016. The Accreditation Board for Engineering and Technology (ABET) is the leading accrediting body for engineering and computer science programs such as those that appear under CIP code 11. While ABET does accredit certain master’s level programs, at this time the University of West Florida does not plan to seek ABET accreditation for the M.S. in Cybersecurity degree program.

H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?

Not applicable this is a not a doctoral degree program.

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The M.S. in Cybersecurity degree program will be offered fully online by the Department of Computer Science in the Hal Marcus College of Science and Engineering, at the UWF Pensacola campus. The university has tools in place for delivery of online courses including the Canvas Learning Management System, WebEX online meeting software, Panopto captioning software for video closed captioning, and other resources needed for online delivery.

While resources, such as software, typically make STEM curricula relatively expensive to deliver, the proposed program will not require financial support at a greater level than other programs within the college. As this proposal seeks to convert the existing M.S. in IT specialization into a stand-alone degree program, the majority of the resources and infrastructure are already in place. In fact, the Year 1 through Year 5 E&G cost per FTE for the stand-alone M.S. in Cybersecurity is below the state average for CIP Code 11. Offering the program in collaboration with or jointly with other universities has not yet been explored by UWF.
IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

As shown in Appendix A Table 4, the following UWF full-time regular faculty will support the M.S. in Cybersecurity degree program:
- Sikha Bagui, Ed.D.
- Ezhil Kalaimannan, Ph.D.
- Amitab Mishra, Ph.D.
- Bernd Owsnicki-Klewe, Ph.D.
- Steve Bitner, Ph.D.
- New Hire, Ph.D.

B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated full-time faculty (as identified in Table 4 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

The M.S. in Cybersecurity degree program is a conversion of a specialization in UWF’s existing M.S. in Information Technology program. Therefore, most of the faculty resources are already in place. The program will hire one new lecturer who will devote 37.5% of his or her .75 FTE or 3 courses per year to the new program.

Year 1 faculty salary and fringe shown in Appendix A Table 2 will come from E&G funds:
- Reallocated Base for Faculty = $88,293
- New Faculty $42,560
- Adjunct faculty Year 1 = $6,000

Year 5 faculty salary and fringe shown in Appendix A Table 2 will come from E&G funds:
- Continuing Base for Faculty (at 1.05% increase per year) = $159,052
- Adjunct faculty Year 5 $7,000

C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

Faculty vitae in Appendix D include the following unit faculty who will be supporting the proposed degree program:
- Sikha Bagui, Ed.D.
- Ezhil Kalaimannan, Ph.D.
- Amitab Mishra, Ph.D.
- Bernd Owsnicki-Klewe, Ph.D.
- Steve Bitner, Ph.D.
D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

In fall 2018, the Department of Computer Science had in excess of 600 majors across the various undergraduate and graduate programs. In academic year 2017-2018 the department awarded 104 undergraduate and 50 graduate diplomas. In fall 2018, Computer Science faculty conducted approximately 70 individual sections of online and face-to-face courses. Enrollment growth in the department has been strong; driven by increases in the undergraduate Cybersecurity program (stand-alone began fall 2018). The department anticipates that the proposed graduate degree program will experience the same positive enrollment numbers and will enhance existing undergraduate program enrollment.

In recent years, service activities of faculty have included extensive work on curricula including the development of the Cybersecurity program discussed here, significant work and progress toward ABET accreditation of the Computer Science degree program curriculum, participation in numerous departmental, college-level and university-level committees, service to the profession as reviewers, and community outreach.

**Departmental Faculty Research Activity**

Department of Computer Science faculty are actively engaged in research (Table 11) and the pursuit of extramural grant funding (Table 12).

**Table 11. Sample of Recent M.S. in Cybersecurity Degree Program Faculty Publications and Projects.**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authors</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
</tr>
</tbody>
</table>

**Dr. Ezhil Kalaimannan**

Journal Articles and Conference Proceedings since 2015


Chi, H., Kalaimannan, E and Hubbard, D, "Integrate Text Mining into Computer and Information Security Education", KSU Conference on Cybersecurity Education, Research, and Practice. Paper 11, Kennesaw


**Dr. Amitab Mishra**


A. Mishra and D. P. Agrawal, “Continuous Health Condition Monitoring by 24x7 Sensing and Transmission of Physiological data over 5-G Cellular Channels”, International Conference on Computing, Networking and
**Owsnicki-Klewe, B.**, Objektorientierung in der Informatikausbildung auf der Basis von Smalltalk (Object Orientation in Computer Science Education based on Smalltalk). Informatik Spektrum No. 20, pp. 335-343, (with M. Böhm, J. Freytag, G. Pfeiffer, J. Raasch) [invited]  
**Owsnicki-Klewe, B.**, Coffey, J. Introducing a Reflective Activity into the Design Process in an Advanced Computer Programming Course, CCSC-MS: |

Table 12. Recent Grant Activity by M.S. in Cybersecurity Degree Program Faculty.

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalaimannan, E. Capacity Building Program Grant -- Florida Center for Cybersecurity (FC2), The University of South Florida, Role: Principal Investigator, June. 2017 - June. 2018.</td>
<td>$75,212</td>
</tr>
<tr>
<td>Kalaimannan, E. Collaborative seed grant offered by the Florida Center for Cybersecurity (FC2), The University of South Florida, March 2015 - Dec. 2016.</td>
<td>$12,500</td>
</tr>
<tr>
<td>Kalaimannan, E. Cross College Faculty Research (CCFR) grant offered by the Office of Vice President for Research, The University of Alabama in Huntsville, Aug. 2013 - $5,000 per year (Renewable for a total of 24 months and $10,000).</td>
<td>$15,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$102,712</strong></td>
</tr>
</tbody>
</table>
X. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.

The UWF Department of Computer Science currently offers a B.S. in Cybersecurity degree program and an M.S. in Information Technology with a specialization in Cybersecurity. The UWF Library is equipped to provide resources and services for the proposed stand-alone M.S. in Cybersecurity degree program.

The libraries shelve more than 800,000 print volumes and house an extensive microforms collection. Electronic resources include more than 160,000 e-books and access to approximately 80,000 journals and other serial titles through a discovery system. An analysis of holdings in relevant Library of Congress classifications indicates that UWF holds over 5000 books related to cybersecurity, computer security, and information technology. The library also provides access to over 2000 relevant peer-reviewed e-journals.

Specialized indexing, abstracting, and full-text databases relevant to cybersecurity and computer science include the ACM Digital Library, Applied Science & Technology Source, IEEE/Xplore, Computer Science Collection (ProQuest), and Computer Database. More general resources supporting cybersecurity are Science Direct, Web of Science, Wiley Online Library, and Engineering Village. Full-text dissertations and theses are available through ProQuest Dissertations and Theses. Using their Argonet accounts, students and faculty may access electronic resources any time from any place.

Current library resources available to implement the proposed MS in Cybersecurity through Year 5 include:

Databases
- ACM Digital Library
- Applied Science & Technology Source
- Computer Database (Gale)
- Computer Science Collection (ProQuest)
- Engineering Collection (ProQuest)
- Engineering Village
- IEEE Xplore
- Science Full Text Select
- ScienceDirect
- Telecommunications (ProQuest)
- Web of Science
- Wiley Online

Major Peer-Reviewed Journals include, but are not limited to:
- ACM Transactions
• Computer Fraud & Security
• Computer Law & Security Review
• Computers & Security
• Cryptologia
• Digital Investigation
• EURASIP Journal on Information Security
• IEEE Network
• IEE Proceedings: Information Security
• IEEE Security & Privacy
• IEEE Transactions on Dependable and Secure Computing
• IEEE Transactions on Information Forensics and Security
• IET Information Security
• Information and Computer Security
• Information & Security: An International Journal
• Information Security
• Information Security Journal: A Global Perspective
• Information Security Technical Report
• Information Systems Security
• International Journal of Business & Cyber-Security
• International Journal of Communication Networks and Information Security
• International Journal of Computer Network and Information Security
• International Journal of Cyber Criminology
• International Journal of Cyber Society and Education
• International Journal of Cyber Warfare & Terrorism
• International Journal of Cyber-Security and Digital Forensics
• International Journal of Secure Software Engineering
• International Journal of Information and Network Security
• International Journal of Information Security
• International Journal of Information Security and Privacy
• International Journal of Information Security Science
• International Journal on Information Technologies & Security
• International Journal of Intelligent Information and Database Systems
• Journal of Applied Intelligent System
• Journal of Computer Security
• Journal of Computer Virology and Hacking Techniques
• Journal of Counterterrorism and Homeland Security International
• Journal of Cryptology
• The Journal of Digital Forensics, Security and Law
• Journal of Homeland Security and Emergency Management
• Journal of Homeland Security Education
• Journal of Information Privacy & Security
• Journal of Information Security and Applications
• Journal of Intelligent Information Systems
• Journal of Internet Services and Information Security
Each academic discipline is assigned a Reference Librarian to serve as a department liaison, providing library instruction, collection development, and reference assistance for the students and faculty in that discipline. To support the needs of online learners, students may also schedule a research consultation with their liaison via e-mail, online chat, telephone, or in person.

The library provides an Online Learners Library Guide (http://libguides.uwf.edu/online) outlining services and resources that support the increasing number of online learners. The library has also been responsive to the needs of clients who prefer to work from home. In addition to being able to access databases and materials in full-text online, UWF students and faculty may also take advantage of these online library services:

- Read course-required readings on electronic reserves
- Request books and articles from Interlibrary Loan
- Request Intercampus Loan (to/from the Fort Walton Beach Instructional Site library)
- Renew books
- Submit a reference question via text, email, or chat
- Request priority cataloging of an item that is on order
- Suggest the purchase of a particular book or journal
- Request an item to be recalled for use
- Have UWF and Interlibrary Loan books delivered to your home address for students and faculty who live over 50 miles from campus

B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 2 in Appendix A. Please include the signature of the Library Director in Appendix B.

The library services and resources currently available are adequate to support the Master of Science in Cybersecurity degree program through Year 5. Furthermore, UWF Libraries’ current holdings are competitive. No additional resources are recommended by the UWF Dean of Libraries.

C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.

The M.S. in Cybersecurity degree program will be offered online through the Canvas Learning Management System; therefore, on-campus classroom space will not be needed except for possible face-to-face meetings with faculty to discuss course materials and work or research. Faculty do not anticipate any issues regarding workspace for such sessions.

Building 4 on the Pensacola campus currently provides office space for the proposed M.S. in Cybersecurity program faculty and the Hal Marcus College of Science and Engineering Dean.
The Department of Computer Science controls two classrooms in building 4, a Computing Research Lab and a Cybersecurity Lab:

**Classrooms – Building 4, Rooms 348 and 349**
Computer Science controls the scheduling of these rooms. They each have 1,120 square feet of floor space, 40 computers, and seating for forty students. They have white boards on three walls, projectors and retractable screens. The podiums have Crestron media controllers that takes input from a desktop computer on the podium, a laptop that can be brought to class, a document camera, and a DVD player. The room has an audio amplification system.

**Cybersecurity Laboratory – Building 4, Room 250**
The Cyber Lab has 580 square feet of floor space, 24 Dell PCs with Windows 10, plus two instructor PCs. The equipment in the room is configured so that the instructor can disconnect entirely from the Internet for computer war gaming without risk of unleashing malware locally or elsewhere. Besides its use for cybersecurity classes, the room is also scheduled as a general classroom by Computer Science as needed.

**Computing Research Laboratory – Building 4, Room 247**
This room has 1,120 square feet of floor space, 18 Dell PCs, 36 Cisco Catalyst 2900XL Switches, 12 Cisco 3600 Routers and 18 Cisco 2500 Routers. Computer Science shares the room with Electrical and Computer Engineering (ECE). ECE houses eight electronics workbenches, each with an oscilloscope, power supply, waveform generator, signal filter, multi-meter, and Dell PC. The lab is used for faculty and student research. Access to the room is controlled by a combination lock on the door. Authorized students are given the combination and they can use the room any time.

**Other Workspaces**
Technology Support:
- Hal Marcus College of Science and Engineering computer equipment hardware and software are maintained by the college technology support team.

Online Help:
- Canvas is maintained by the UWF university technology support team to include the Helpdesk for immediate student tech needs.

Faculty Offices:
- All full-time faculty have private offices nearby for easy access to students and student classrooms.

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

No additional classroom, teaching laboratory, research laboratory, or office space will be necessary to implement or maintain the proposed M.S. in Cybersecurity degree program through Year 5.
E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

No new capital expenditure for instructional or research space is required to implement or sustain the proposed M.S. Cybersecurity degree program through Year 5.

F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

Other than offices, computers, and the Canvas Learning Management System, all of which are in place, no specialized equipment is needed to implement or sustain the proposed M.S. in Cybersecurity degree program through Year 5.

G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

No additional specialized equipment is needed to implement or sustain the proposed M.S. in Cybersecurity degree program through Year 5.

H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

No additional special categories of resources are needed to implement or sustain the proposed M.S. in Cybersecurity degree program through Year 5.

I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.

As shown in Appendix A Table 2, the Department of Computer Science has allocated $13,120 for graduate assistantships and fellowships in Year 1 and $32,800 for Year 5. The department deems the supply of assistantship money adequate to fund anticipated demand for assistantships from the proposed M.S. in Cybersecurity degree program.

J. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

The undergraduate Cybersecurity program places students in internships with several organizations including the federal government as well as local firms such as AppRiver, and Navy Federal Credit Union. While graduate students are more commonly employed and less likely to seek internships, the Chair of Computer Science and the Industry Advisory Council affirm that graduate students will have internship opportunities at many of the same places as the undergraduate students.
Appendix A

Table 1b Projected Headcount from Potential Sources (Graduate Degree Program)

Table 2 Projected Costs and Funding Sources

Table 3 Anticipated Reallocation of E&G Funds

Table 4 Anticipated Faculty Participation
APPENDIX A

TABLE 1-B
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES
(MS Cybersecurity)

<table>
<thead>
<tr>
<th>Source of Students</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
</tr>
<tr>
<td>Individuals drawn from agencies/industries in your service area (e.g., older returning students)</td>
<td>5</td>
<td>2.75</td>
<td>10</td>
<td>5.5</td>
<td>20</td>
</tr>
<tr>
<td>Students who transfer from other graduate programs within the university**</td>
<td>5</td>
<td>2.75</td>
<td>2</td>
<td>1.1</td>
<td>0</td>
</tr>
<tr>
<td>Individuals who have recently graduated from preceding degree programs at this university</td>
<td>10</td>
<td>5.5</td>
<td>30</td>
<td>16.5</td>
<td>37</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at other Florida public universities</td>
<td>5</td>
<td>2.75</td>
<td>10</td>
<td>5.5</td>
<td>20</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at non-public Florida institutions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Additional in-state residents***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Additional out-of-state residents***</td>
<td>2</td>
<td>1.1</td>
<td>5</td>
<td>2.75</td>
<td>10</td>
</tr>
<tr>
<td>Additional foreign residents***</td>
<td>3</td>
<td>1.65</td>
<td>3</td>
<td>1.65</td>
<td>3</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals***</td>
<td>30</td>
<td>16.5</td>
<td>60</td>
<td>33</td>
<td>90</td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.
** If numbers appear in this category, they should go DOWN in later years.
*** Do not include individuals counted in any PRIOR category in a given COLUMN.
## APPENDIX A

### TABLE 2

**PROJECTED COSTS AND FUNDING SOURCES**

<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funding Source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal E&amp;G funds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal columns 1+…+7</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Columns</strong></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Faculty Salaries and Benefits</td>
<td>88,293</td>
<td>0</td>
</tr>
<tr>
<td>A &amp; P Salaries and Benefits</td>
<td>2,800</td>
<td>0</td>
</tr>
<tr>
<td>USPS Salaries and Benefits</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other Personal Services</td>
<td>6,000</td>
<td>0</td>
</tr>
<tr>
<td>Assistantships &amp; Fellowships</td>
<td>13,120</td>
<td>0</td>
</tr>
<tr>
<td>Library</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Expenses</td>
<td>798</td>
<td>0</td>
</tr>
<tr>
<td>Operating Capital Outlay</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Special Categories</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td>$111,011</td>
<td>$0</td>
</tr>
</tbody>
</table>

*Identify reallocation sources in Table 3.

**Includes recurring E&G funded costs ('reallocated base,' "enrollment growth," and "new recurring") from Years 1-4 that continue into Year 5.

***Identify if non-recurring.

### Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Position</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td>A &amp; P (FTE)</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>USPS (FTE)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th>Year</th>
<th>Total E&amp;G Funding</th>
<th>Annual Student FTE</th>
<th>E&amp;G Cost per FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>$153,571</td>
<td>16.5</td>
<td>$9,307</td>
</tr>
<tr>
<td>Year 5</td>
<td>$203,155</td>
<td>66</td>
<td>$3,078</td>
</tr>
</tbody>
</table>

### Table 2 Column Explanations

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td>E&amp;G funds that are already available in the university’s budget and will be reallocated to support the new program. Please include these funds in the Table 3 – Anticipated reallocation of E&amp;G funds and indicate their source.</td>
</tr>
</tbody>
</table>

176
<table>
<thead>
<tr>
<th>Description</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td>2</td>
</tr>
<tr>
<td>New Recurring (E&amp;G)</td>
<td>3</td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td>4</td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td>5</td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td>6</td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td>7</td>
</tr>
<tr>
<td>Subtotal columns 1+...+7</td>
<td>8</td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td>9</td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td>10</td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td>11</td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td>12</td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td>13</td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td>14</td>
</tr>
<tr>
<td>Subtotal columns 9+...+14</td>
<td>15</td>
</tr>
</tbody>
</table>

- **Enrollment Growth (E&G)**: Additional E&G funds allocated from the tuition and fees trust fund contingent on enrollment increases.
- **New Recurring (E&G)**: Recurring funds appropriated by the Legislature to support implementation of the program.
- **New Non-Recurring (E&G)**: Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section III. A.) of the proposal. These funds can include initial investments, such as infrastructure.
- **Contracts & Grants (C&G)**: Contracts and grants funding available for the program.
- **Philanthropy Endowments**: Funds provided through the foundation or other Direct Support Organizations (DSO) to support the program.
- **Enterprise Auxiliary Funds**: Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.
- **Subtotal columns 1+...+7**: Subtotal of values included in columns 1 through 7.
- **Continuing Base** (E&G): Includes the sum of columns 1, 2, and 3 over time.
- **See explanation provided for column 2.**
- **New Enrollment Growth (E&G)**: See explanation provided for column 2.
- **Other*** (E&G): These are specific funds provided by the Legislature to support implementation of the program.
- **Contracts & Grants (C&G)**: See explanation provided for column 5.
- **Philanthropy Endowments**: See explanation provided for column 6.
- **Enterprise Auxiliary Funds**: Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.
- **Subtotal columns 9+...+14**: Subtotal of values included in columns 9 through 14.
**APPENDIX A**

**TABLE 3**
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds to be Reallocated from the Department of Computer Science</td>
<td>111,011</td>
<td>111,011</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Totals  $111,011  $111,011  $0

* If not reallocating funds, please submit a zeroed Table 3
**APPENDIX A**

**TABLE 4**

**ANTICIPATED FACULTY PARTICIPATION**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Rank</th>
<th>Highest Degree Held</th>
<th>Source of Funding</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Sikha Bagui, Ed.D.</td>
<td>Professor</td>
<td>Tenured</td>
<td>Fall 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ezhil Kalaimannan, Ph.D.</td>
<td>Assistant Professor</td>
<td>Tenure Earning</td>
<td>Fall 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amitabh Mishra, Ph.D.</td>
<td>Assistant Professor</td>
<td>Tenure Earning</td>
<td>Fall 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bernd Owskin-Klewe, Ph.D.</td>
<td>Lecturer</td>
<td>Non-Tenure Earning</td>
<td>Fall 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Steven Bitner, Ph.D.</td>
<td>Assistant Professor</td>
<td>Tenure Earning</td>
<td>Fall 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>New Hire, Ph.D.</td>
<td>Lecturer</td>
<td>Tenure Earning</td>
<td>Fall 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total Person-Years (PY) | 0.86 | 0.86 |

**PY Workload by Budget Classsification**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Source of Funding</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td>0.58</td>
<td>0.86</td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>C</td>
<td>New faculty to be hired on a new line</td>
<td>0.28</td>
<td>0.00</td>
</tr>
<tr>
<td>D</td>
<td>Existing faculty hired on contracts/grants</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>E</td>
<td>New faculty to be hired on contracts/grants</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Overall Totals for**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.86</td>
<td>0.86</td>
</tr>
</tbody>
</table>
Appendix B

Signatures
APPENDIX B

Please include the signature of the Equal Opportunity Officer and the Library Director.

Signature of Equal Opportunity Officer

Kim LeDuff
Name of Equal Opportunity Officer

Date

Signature of Dean of University Libraries

Stephanie Clark
Name of Dean of University Libraries

Date

This appendix was created to facilitate the collection of signatures in support of the proposal. Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II.E of the proposal and the Library Director has reviewed sections X.A and X.B.

UWF also requires that a Request to Offer a New Degree program is reviewed by the Chief Technology Officer.

Signature of Chief Technology Officer

Melanie Haveard
Name of Chief Technology Officer

Date
Appendix C

Academic Learning Plan, Student Learning Outcomes, and Curriculum Map
MASTER OF SCIENCE IN CYBERSECURITY

Mission Statement
The mission of the Department of Computer Science is to provide a high-quality, student-oriented educational experience to undergraduate and graduate students in the Northwest Florida region. The department prepares students for successful computing careers by empowering them with the knowledge and skills to contribute responsibly and creatively to a complex and ever-changing world, and to continue professional development and life-long learning.

Program Descriptions
The M.S. in Cybersecurity degree program prepares graduates to be leaders in the protection of data assets and analysis of potential threats to system and networks. The curriculum focuses on the techniques, policies, operational procedures, and technologies that secure and defend the availability, integrity, authentication, confidentiality, and non-repudiation of information and information systems and the development of secure software systems.

Student Learning Outcomes
Student learning outcomes for students in the Cybersecurity program are listed below. UWF Cybersecurity graduates should be able to do the following:

Content
- Analyze concepts, principles, and theories in computing technology for use in the cybersecurity field.

Critical Thinking
- Analyze cybersecurity problems and formulate and evaluate solutions.

Communication
- Deliver effective oral and written artifacts to document professional communications.

Integrity/Values
- Articulate professional, legal, and ethical issues in the discipline.

Assessment of Student Learning Outcomes
Cybersecurity graduate students will acquire advanced skills and knowledge that enable them to join a computing or information technology profession or continue a path of higher education towards a doctoral degree. They will be assessed in several cybersecurity classes as well as a research seminar, which is a required class completed at the end of their program of study. The seminar class allows students to demonstrate an integrative grasp of the outcomes by studying contemporary issues in cybersecurity and developing appropriate solutions to problems.

Job Prospects for Master’s of Science in Cybersecurity Graduates
Security Analyst Cybersecurity Engineer
Security Architect Cybersecurity Specialist
Malware Analyst Cybersecurity Advisor

For more information on the Cybersecurity Master’s Program at UWF, please visit http://uwf.edu/computerscience/
<table>
<thead>
<tr>
<th>Course Cluster (6 SH) (Students Select 2 Courses)</th>
<th>3 SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program SLOs</td>
<td></td>
</tr>
<tr>
<td>CIS 6394 Digital Forensics</td>
<td>3 SH</td>
</tr>
<tr>
<td>CIS 6XX1-1 Data Security</td>
<td>3 SH</td>
</tr>
<tr>
<td>CNT 5XX1-1 System and Network Security</td>
<td>3 SH</td>
</tr>
<tr>
<td>COP 5725 Database Systems</td>
<td>3 SH</td>
</tr>
<tr>
<td>CEN 5079 Secure Software Dev.</td>
<td></td>
</tr>
<tr>
<td>CEN 6074 Software Assurance</td>
<td></td>
</tr>
<tr>
<td>CET 6882C Network Performance, Maintainance &amp;</td>
<td></td>
</tr>
<tr>
<td>COP 5775 Database Administration</td>
<td></td>
</tr>
<tr>
<td>COT 6XX1-1 Seminar in Cybersecurity</td>
<td>3 SH</td>
</tr>
</tbody>
</table>

**Content**

**SLO1**: Analyze concepts, principles, and theories in computing technology for use in the cybersecurity field

**SLO2**: Analyze cybersecurity problems and formulate and evaluate solutions

**SLO3**: Deliver effective oral and written artifacts to document professional communications

**SLO4**: Articulate professional, legal, and ethical issues in the discipline
Appendix D

Faculty Curriculum Vitae
CURRICULUM VITAE

DR. SIKHA S BAGUI

ADDRESS
3021 Pelican Lane
Pensacola, FL 32514, USA
Email: bagui@uwf.edu

PHONE
(850)474-3022 (Office)

PERSONAL INFORMATION
Citizenship: US citizen

ACADEMIC BACKGROUND


MBA, IS specialization, University of Toledo, Toledo, Ohio, August, 1986.

BS, Cuttington University, Monrovia, Liberia, January 1984.
(Also completed one year(1990-1991) in Ph.D. program at Kent State University, Kent, Ohio, MIS specialization).

ACADEMIC EXPERIENCE

Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2013 – present)

Associate Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2008 – August 2013).

Assistant Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2004 – Aug 2008).

Lecturer, Department of Computer Science, University of West Florida, Pensacola, Florida (August 1999-August 2004).

Adjunct Instructor, Department of Computer Science, University of West Florida, Pensacola, Florida (Jan 1992-August 1999).

Graduate Teaching Assistant, Department of Management Information Systems, Kent State University, Kent, Ohio, (August 1990-June 1991).

Instructor, Department of Information Systems, University of Toledo, Toledo, Ohio (June 1986-August 1990).

ADMINISTRATIVE EXPERIENCE

Chair, Department of Computer Science, University of West Florida, Pensacola, FL
(August 2012 – August 2017)

**Founding Director,** Center for Cybersecurity, University of West Florida, Pensacola, FL (January 2014 – March, 2015)

**Interim Associate Chair,** Department of Computer Science, University of West Florida, Pensacola, Florida (January 2011 – July 2012).

**Program Director, CIS/IT, MSA/DBA, MS/CS-DB,** Department of Computer Science, University of West Florida, Pensacola, Florida (Fall 2007 – August 2012).

**COURSES TAUGHT**


**RESEARCH INTERESTS**

Data mining and Big Data analytics, SQL, database design and architecture, object-oriented databases, web databases, pattern recognition, statistical computing, Computer Science Education.

**PUBLICATIONS**

**Books**


**International Editions (books)**


**Journal Articles (Published/Accepted)**


**Refereed Publication in Encyclopedia**


**Refereed Proceedings**


**Refereed Extended Abstracts**


**Book Chapters**


**Other Publications**


**Papers re-printed as Book Chapters**


**Workshops**


**Grant Reports**


**Submittals/In preparation**


**Series Editor for** “Foundation for Database Design Books” for CRC press.

**Books in this series:**


**Editorial Board member:**

i. *International Journal of Data Analysis Techniques and Strategies (IJDATS).*
ii. *World of Computer Science and Information Technology Journal (WSCIT).*
iii. *Universal Journal of Computer Science and Engineering Technology (UniCSE).*
iv. *Inventi Journals*, [http://www.inventi.in](http://www.inventi.in)
viii. *International Journal of Technology in Computer Science and Engineering (IJTCSE).*

2. **Associate Editor:**

i. *International Journal of Advanced Computer Science and Applications (IJACSA).*

**Technical Committee Member**

International Conference on Intelligent Systems and Control (ISCO’2013).

**REVIEWED Articles for**

- IEEE Transactions for Data and Knowledge Engineering
- IEEE Transactions for Parallel and Distributed Computing
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- IEEE Computer
- Data and Knowledge Engineering
- Pattern Recognition Letters
- Journal of Big Data
- Journal of Technologies
- International Business Schools Computing Quarterly
- Encyclopedia of Database Technologies and Applications
- Iranian Journal of Electrical and Computer Engineering (IJECE)
- Handbook for Technology Management
- ACMSE
- *International Journal of Data Analysis Techniques and Strategies (IJDATS)*
- *International Journal of Knowledge Engineering and Data Mining (IJEDM)*
- *International Journal of Intelligent Information and Database Systems (IJIDS)*
- *International Journal of Advanced Computer Science and Applications (IJACSA)*
- Consortium for Computing Sciences in Colleges (CCSC)
- *International Journal of Computer Engineering Research (IJCER)*
- Data Science Journal
- Journal of Systems and Software
- Intelligent Systems and Control (ISCO 2013)
- 8th International Conference on Knowledge Generation, Communication and Management: KGCM 2014. Information.
- 2nd International Conference on Information System and Data Mining (ICISDM 2017).
- 3rd International Conference on Information System and Data Mining (ICISDM 2018).

**Grants for**

3. NSF Database Grant for Kennesaw State University, titled: Animated Database Courseware (ADbC), 2009.

**Books**

2. *Oracle – Physical Database Design* by Don Burleson, for CRC Press.

**HONORS & AWARDS**
Research Awards
1. Recipient of 2012 Distinguished Research and Creative Activities Award, UWF.
2. Recipient of 2007 Distinguished Research and Creative Activities Award, UWF.

Teaching Awards
1. Recipient of Excellence in Teaching and Advising Award, 2012, UWF.
2. Recipient of Excellence in Undergraduate Teaching and Advising Award, 2006, UWF.
3. Recipient of Teaching Incentive Program (TIP) Award, 2002-2003, UWF.
4. Recipient of Excellence in Undergraduate Teaching and Advising Award, 2001-02, UWF.

Other
Nominated for Distinguished Teaching Award by Student Government, 2000-01, UWF.
Recipient of Special Summer Graduate Scholarship, 1999, UWF.
Recipient of Delores A. Auzenne Graduate Fellowship, 1999, UWF.

GRANTS RECEIVED
1. NSF funded travel grant for Sixth Annual Winter Workshop: Data Mining, Statistical Learning and Bioinformatics, UF Gainesville, January 2004, $400.00.
2. Recipient of University Summer 2005 Research Award of $6250, for proposal entitled, Pattern Classification in Breast Cancer Data: A Data Mining Approach.
3. Grant recipient of Graduate Research Assistant, from Graduate Office, UWF, Spring 2006, $1,500.00.
6. Co-PI, Florida’s Great North West Workforce Innovation Consortium Grant, North West Florida Computing and Engineering Training Scholarship Program (Fall 2009 – Dec 2010), $1,000,000.

GRANTS SUBMITTED (Not funded)
1. PI, Mining Breast Cancer Data, grant submitted to Department of Defense, for approx. $300,000 for 3 years. Submitted: 2002.
2. PI, Developing a Java Based Parser Software for Converting XML Documents to the ER and EER model and relational databases, for approx $186,800, for 2 years. Submitted: August 2006.
5. PI, Longitudinal Study of Multiple Lipid Indices to Predict Cardiovascular Disease, NIH Challenge Grants, RFA-OD-09-003, $246,413, 1 year. Submitted: April 2009.


8. PI, TAACCCT, Department of Labor (DOL) Consortium grant, $500,000, June 2014

9. Co-PI, H1b Grant, DOL Consortium grant, $500,000, June 2014.


14. PI, NSF Grant: RET Site: Computer Science Research Experiences for Teachers Focused on Security of Internet of Things (IoT) and Data Analysis, $599,190, October, 2017.

PRESENTATIONS

International Conferences


4. Role of Climate and Local Emission Sources in the Wet Deposition of Mercury and Major Ions in the Pensacola Region, 10\textsuperscript{th} International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, Nova Scotia, July 24-29, 2011.


8. Ontology-Based SmartLife Enterprise Services Architectures for Big Data in the Cloud, ESOCC 2013, Malaga, Spain, September 11 – 13, 2013.


National Conferences

Regional Conferences/Symposiums


**Other Presentations**

1. Presented several seminars on using Enable, DBASE III Plus, and Lotus 123 to faculty at The University of Toledo in 1987.
2. "*Multimedia, Hypermedia & CD-ROM technology*", presented at Kent State University, April, 1991.
5. “*Mining Association Rules for Insurance Data*”, presented at The Department of Computer Science, University of West Florida, Pensacola, FL, March, 2002.
10. “*Association Rule Mining*”, presented at The Department of Computer Science, Florida A & M University, Tallahassee, FL, July 2003.

**Local Symposium Presentations**

2. “*Discovering Crime Patterns in a State Database*,” presented at SEASTARS 2004, April 19, 2004 (poster session).
5. “*A Java Based Parser Software for Converting XML Documents to ER Diagrams and Relational Databases,*” presented at SEASTARS 2006, April 26, 2006 (poster session).

SERVICE

Departmental Service, Fall 1999 – Spring 2005

1. Departmental committees:
   Undergraduate Committee (1999 - 2005); Online committee (2005); Chair Search committee (Spring 2005 – Summer 2005), Lecturer Search committee (Summer 2005), Java Programming Committee (COP2253) (Fall 2004 – 2005).
2. Course Coordinator commitments:
   Aug 1999 – August 2005:
   Microcomputer Application Packages (CGS 2570), Multimedia Systems (CGS 3994), Web Page Design (CGS 3823), Database Systems (COP 4710), Advanced Database Systems (COP 5715), Desktop Publishing (CGS 2580), Visual Programming (CGS 3464). Developed CCRs for the above courses during this period, and was instrumental in putting Microcomputer Application Packages online for the first time.
   Summer 2001 to August 2005:
   Database Systems (COP4710), Advanced Database Systems (COP5715), Data Structures and Algorithms (COP3530) (Summer 2001 – April 2003)
3. ABET coordinator for review for (Fall 1999 – Fall 2001):
   Database Systems (COP 4710), Data Structures and Algorithms (COP3530).
4. Programming Competitions
5. Directed Independent Study students: Spring 2009 – 3; Fall 2008 – 1; Fall 2007 – 1; Spring – 2; Fall, 2005 – 1; Spring 2005 – 1; Spring 2003 – 1; Summer 2002 – 1; Fall 2001 – 1.

Departmental Service, FALL 2006 – Present

   Certificates developed:


5. Program reviews:
   i. Chair, IT Program Review, 2009-2010.
   ii. Chair, CS Undergraduate and Graduate Program Review, 2013-2014.
   iii. Chair, IT Program Review, 2016-2017.

6. Committees served on:
   a. Search Committees:
      i. Search committee, Office Support Specialist position (in Computer Science), member, Fall 2006
      ii. Chair, CS Faculty Search Committee, Fall 2009, Fall 2010.
      iii. Member, CS Department Faculty Search Committee, Spring, 2012.
      iv. Chair, CS coordinator/advisor search committee, Spring, 2012.
      v. Chair, Cybersecurity Faculty Search Committee, 2013-14.
      viii. Hiring official, IT Techie Search Committee, Fall, 2014.
      ix. Hiring official, Battle Lab Techie Search Committee, Fall 2014.
      x. Chair, CS Faculty Search Committee, 2014-15.
   b. Other committees:
      i. Junior Faculty Mentoring committee (2005 – 2006)
      ii. Departmental Web Page development committee, 2007-present
      iii. SE Curriculum development committee, member, 2007-2008.
      iv. Grand Opening Planning Committee, member, Fall 2009.
      v. Assessment Committee, member, Summer 2010 – present.
      vi. Common Pre-requisites Committee, department representative, Spring 2011 – present.
      vii. Member, CS departmental scholarship committee, 2009 - present
      viii. Member, CS departmental assessment committee, 2011-present.
      ix. Chair, CS department strategic planning committee, 2013-present.
      xii. Chair, CS Department Equipment committee, 2014-present.
      xiii. Member, By-Laws Committee, 2014-present.

7. Developed CCRs for:
   i. Advanced Database Systems (COP6727) – graduate database course
   ii. Data Mining (CAP4770/5771) – dual listed data mining course
   iii. Database Administration (COP4723/5775) – dual listed course
   iv. CIS major, CIS minor, IT major, IT minor
   vi. MSIT program CCR, 2015.
   viii. MSIT/Database specialization, 2015.

8. New Courses developed:
   1. Advanced Database Systems (COP6727)
   2. Data Mining(CAP4770/CAP5771)
3. Database Administration (COP4723/COP5775)

9. Online courses developed:
   1. Database Systems (COP4710/COP5725)
   2. Advanced Database Systems (COP6727)
   3. Data Mining (CAP4770/CAP5771)
   4. Database Administration (COP4723/COP5775)
   5. Seminar in SOA (COP5990).

10. New Specializations developed:
   1. MSA/DBA (2007).
   2. MS/CS/DB (2010).

11. New Programs developed:
   1. MSIT
      i. MSIT/Database Management (2015).

12. Student recruitment efforts

13. Coordinated, prepared and administered test for student – to test out of Web Page Design Course (CGS3823), Spring 2006.


16. Directed independent study students: (2009-2010): 12; supervised one honors thesis; coordinated 6 internships; and served on one master’s committee.

17. Advising:
   1. 2009-2010: 55 undergraduate advisees and 42 graduate advisees.
   2. 2010 – 2011: 60 undergraduate advisees and 45 graduate advisees
   3. 2011 – 2012: 55 undergraduate advisees and 48 graduate advisees


19. International Collaborations:
   2. Working with Faith University in Turkey, 2014-2015
   3. Working with Reutlingen University in Germany, 2011 – present.

20. Meetings:
   1. Organized and hosted Florida Consortium on Cybersecurity (FC2) at UWF’s Department of Computer Science, Sept 16, 2014.
   2. Committee member, STARTUP weekend, 2013-present.

21. Articulation Agreements
   1. Articulation with Pensacola State College

22. Non-Disclosure Agreements

23. Accreditations and Designations
   1. Professional Master’s Designation (PSM) for Master of Science in Administration, with a
      specialization in Cybersecurity.
   2. CAE, 2015.

COLLEGE-WIDE SERVICE

   a. Chair, CAS Graduate Program Committee (CAS Council ad hoc committee), fall 2010.
4. Search Committee, Art Department, member, 2008.
8. Tenure and promotion mentoring committee, Biology, 2012-2013.
9. ATC Search Committee, member, Spring 2011.

UNIVERSITY-WIDE SERVICE

3. Faculty Merit Scholarship Program Review Committee, member, 2005 – 2006.
4. Faculty Phone-A-Thon, Admissions Office, UWF, student recruitment, Fall and Spring, 2006.
9. Faculty Video Profile for SSE, Summer 2009.
10. University Faculty Personnel Committee, 2010-2013.
11. Member of STRIDE task force (part of ADVANCE – NSF grant), 2012 – 2015
12. Member of ADVANCE (part of NSF grant), 2012-2015.
13. Member of Chair’s Handbook Composition Committee, 2012-2013.

COMMUNITY SERVICE

1. Judge in Math/Computer Science Judge for 49th Annual West Panhandle Regional Science and
2. Lead judge in Math/Computer Science Judge for 50th Annual West Panhandle Regional

PROFESSIONAL SERVICE

1. Developed Alumni database for Department of Computer Science, UWF, (Fall 2006-Spring 2007).

Conferences Chaired/Co-chaired

6. Co-chaired session at PAISI, The 22nd Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD), Melbourne, Australia, June 3-6.

Conferences Committees


PROFESSIONAL DEVELOPMENT

1. Attended UWF’s Mini-Conference on Best Practices for Active Learning and Student Engagement (March, 2007).
5. Studio-e – Training for Online Teaching, Fall 2007-08.
12. Attended Diversity Recruitment, Hiring and Retention, Department Chair Workshop, Jan 28th, 2015.

PROFESSIONAL MEMBERSHIPS

Member of UWF Charter of Upsilon Pi Epsilon, an International Honor Society for Computing and Information Disciplines (2006 – present).

STUDENTS GUIDED

Graduate Project Advisor

**Thesis Committees**
Carlos Perez, 2009-2010

**Dissertation Committees (Chair)**

**Computer Science Department Honors Project Advisor**
Tabatha DeJesus, Fall 2013

**Directed Studies and Undergraduate Research**

**External Dissertation Committee:**
Angie Cox, 2015, Trident University; Dustin Mink, University of South Alabama.

**PostDocs:**
Xingang Fang (2015-2016)
**Steven P. Bitner**

**Contact**  
stevenbitner@gmail.com  
http://www.stevenbitner.com

**Informaiton**  
Kansas City, MO

**Research**  
Computational geometry and algorithm optimization.

**Interests**  
Web programming, the U.S. Navy Reserves, rock climbing, hiking and camping.

**Skills**  

**Operating Systems:** Mac, Linux, UNIX, Windows

**Computer Languages:**  
Proficient in PHP, MySQL/MSSQL, Ajax, Java, C++, HTML, CSS, Javascript, jQuery, Mustach, LATEX, LAMP/WAMP, UNIX

**Shells**  
Familiar with Perl, OpenGL, AngularJS

**Education**

Ph.D., Computer Science, August 2010  
Under supervision of Dr. Ovidiu Daescu  
University of Texas at Dallas, Dallas, TX

Dissertation title: “Proximity Problems in Two and Three Dimensional Euclidean Space”

M.S., Computer Science, 2008  
Traditional track  
University of Texas at Dallas, Dallas, TX

B.S., Computer Science, 2006  
Department of Computer Science  
Texas State University - San Marcos, San Marcos, TX, USA

**Work experience**

**Assistant Professor**  
The University of West Florida  
August 2018 to Present

Develops and presents courses at the undergraduate and graduate levels. Conducts research for publication in peer-reviewed conference and journal media. Engages with students and teaching assistants to ensure successful implementation of learning objectives and a welcoming classroom environment. Works in a traditional classroom environment as well as in synchronous and asynchronous online learning environments.

Courses taught:

COP 3022: Intermediate Computer Programming

COP 5007: Software Engineering Foundations: Java Programming

COP 6727: Advanced Database Systems

**Chief Architect**  
First Principle Innovators  
March 2015 to Present

Works within the directives of the CEO to design, manage, and execute all of the engineering development for all web, mobile, frontend, backend, software, hardware, and manufacturing technologies and technological processes needed to create and maintain all of the company’s products and services at the highest level of quality and performance.

Works within the directives of the CEO to select and procure third party sources of data, API sources, raw materials, license agreements, and partnerships, needed to enable the technology behind the company’s products and services to function at the highest level of quality and performance.

Manages software engineering resources to ensure products are built to
specifications and thoroughly tested.

**Lieutenant - Information Professional Officer**  **Sep 2013 to October 2017**  
United States Navy Reserves  
Served as Pacific Theater Multinational Exercise Support Officer in Charge for NR Expeditionary Strike Group 7. Responsible for coordinating support in accordance with the Joint Manning Documents for approximately 5 exercises each year. The cumulative manning exceeded 1000 days of direct support to the gaining command.  
Served as Naval Liaison Officer in exercises in South Korea, Thailand, Japan and the Philippine Islands. Provided amphibious planning support, knowledge management planning and general Naval expertise while serving with all branches of the US and foreign militaries.

**Senior Software Developer**  **July 2013 to February 2015**  
Answers Corporation  
Served as the team lead for a number of owned and operated websites with over 100 million unique visitors per month. PHP, MySQL and Javascript based development for the largest privately owned website in the United States.  
Responsible for greatly decreasing time to first byte (TTFB) via caching, query and script optimization. Maintained user interface code for content generation portals as well as multivariate testing development and support.

**Adjunct Instructor**  **August 2012 to May 2013**  
University of Missouri; Kansas City, MO  
**Courses taught:**  
CS/IT 490 WD (Web Development). Recreated the university’s class anew with the focus as PHP/MySQL development. Taught HTML/CSS basics as well as PHP/MySQL interactions with PDO and user authentication using BCrypt. Oversaw multiple student projects involving design, authentication and database update capabilities, using HTML, CSS, PHP, MySQL, JavaScript and Ajax.  
CS201 (Computer programming and problem solving II). Introductory C++ course covering from “hello world” type programs through basics of templating and object oriented programming. Instructed on the use of linked lists, arrays, vectors, stacks, queues, as well as user defined classes and structs. Additional concepts covered were inheritance, recursion and polymorphism. This is an ABET certified course.

**Operations Research Analyst**  **Sep 2010 to July 2013**  
US Army TRADOC Analysis Center; Fort Leavenworth, KS  
Analyzed and improved existing line of site calculation methodologies for the Advanced Warfighting Simulation (AWARS) software model used by the US Army to make future combat decisions. Improved accuracy of expected human casualty calculation by modifying the methodology in accordance with newly available data.  
Led software development cycle for Data Visualization Tool (DaViTo) as project lead and developer. This Java based tool utilizes OpenMap, R, and JFreeChart in order to enable warfighters the ability to perform exploratory data analysis based on enemy activity data.  
Served as the government lead on a study into the effectiveness of village
stability and focussed operations in Afghanistan. Proposed and implemented an employee dashboard software package that utilizes PHP, MySQL, and Ajax to track employee hours logged against reimbursable projects as well as training requirements and completion. Additionally, implemented employee skills capture and individual development plan interfaces to create a single daily sign-on point for all basic employee tasks.

Created PHP/MySQL based survey capture tool for field exercises that gathers and displays Likert scale data allowing for instant statistical analysis of collected training mission data.

**Research Assistant**

Sep 2006 to Aug 2010

The University of Texas at Dallas; Richardson, TX

Supported by Jonsson Scholarship (2006-2008) and ASEE SMART Scholarship (2008 to 2010)

Conducted research and published results in the area of computational geometry with advisor Ovidiu Daescu.

**Journal articles**


**Conference presentations**


**Presentations**


Finding segments and triangles spanned by points in $\mathbb{R}^3$. 19th Annual Canadian Conference on Computational Geometry, Carleton University, Aug. 20, 2007

Minimum-sum dipolar spanning tree for points in $\mathbb{R}^3$. 19th Annual Canadian Conference on Computational Geometry, Carleton University, Aug. 20, 2007

Finding segments and triangles spanned by points in $\mathbb{R}^3$. Kyoto International Conference on Computational Geometry and Graph Theory, Kyoto University, Jun. 12, 2007

Farthest Segment Spanned by points in space. 16th Fall Workshop on Computational and Combinatorial Geometry, Smith College, Nov. 10, 2006.

Art Gallery Application at Texas State University. Undergraduate research award, and student travel award. 109th Annual Meeting of the Texas Academy of Science, Lamar University, Mar. 3, 2006.
EZHL KALAIMANNAN

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Bldg.4, Room 241
University of West Florida
Department of Computer Science
11000 University Pkwy
Pensacola, FL 32514
Email: ekalaimannan@uwf.edu
Office: (850) 473-7005

Professional Preparation

Anna University, India, Electrical Engineering B.E., 2006
University of Alabama in Huntsville, Computer Engineering, M.S., 2008
University of Alabama in Huntsville, Cyber Security, Post-Bachelor Certificate, 2012
University of Alabama in Huntsville, Computer Engineering, Ph.D., 2014

Appointments

Since 2014  Assistant Professor, Department of Computer Science, University of West Florida, Pensacola, FL
2010 – 2014  Adjunct Instructor, College of Business Administration, University of Alabama in Huntsville, Huntsville, AL
2009 - 2012  Graduate Teaching Assistant, Department of Electrical and Computer Engineering, University of Alabama in Huntsville, Huntsville, AL

Synergistic Activities

- Capacity Building Program Grant -- Florida Center for Cybersecurity (FC2), The University of South Florida, Role: Principal Investigator, June. 2017 -- June. 2018; Funded Amount - $75,212.
  - Research Project Title: A Novel Framework to Teach Hands-on Laboratory Exercises in Cybersecurity.

- Recipient of the Collaborative seed grant offered by the Florida Center for Cybersecurity (FC2), The University of South Florida, Mar. 2015 – Dec. 2016, $12,500.
  - Research Project Title: Exploring Security Attacks in Cache Enabled Tactical Hybrid Networks

- Recipient of the Cross College Faculty Research (CCFR) grant offered by the Office of Vice President for Research, The University of Alabama in Huntsville, Aug. 2013 - $5,000/year (Renewable for a total of 24 months and $10,000).
  - Research Project Title: Computational Optimization Models for Investigating Crime in Digital Forensics
- Technical Program Committee Member: *Pre-ICIS Workshop on Information Security and Privacy (WISP 2012)*; Annual ADFSL Conference on Digital Forensics, Security and Law (ADFSL 2015, 2016, 2017); 17th International Conference on Computer and Information Technology (ICCIT 2014, 2015); 15th Annual Digital Forensics Research Conference (DFRWS USA 2015, 2016, 2017); Seed Grant Program funded by the Florida Center for Cybersecurity (FC2).


**Peer-Reviewed Publications**

**Journal Articles:**


**Articles in Conference Proceedings:**


Presentations/Talks


• Kalaimannan, E (2015). An Information Diffusion Model to analyze the Behavior of Online Social Network based Malwares. Paper presented at the International Conference on Computational Science and Computational Intelligence (CSCI’15), Dec. 7-9, Las Vegas, USA.


Collaborators & Other Affiliations

• Collaborators and Co-Editors. Jatinder N.D. Gupta (UAHuntsville), Ravi Patnayakuni (UAHuntsville), Seong Moo-Yoo (UAHuntsville), Sikha Bagui (University of West Florida), Norman Wilde (University of West Florida), Swapnoneel Roy (University of Central Florida), Hongmei Chi (Florida A&M University), Sumit Kumar Jha (University of Central Florida), Jinpeng Wei (Florida International University), Geethapriya Thamilarasu (University of Washington Bothell), Cyril Raj (M.G.R. Educational & Research Institute, India).

• Graduate Advisors and Postdoctoral Sponsors. Prof. Jatinder N.D. Gupta and Dr. Seong Moo-Yoo (University of Alabama in Huntsville, Huntsville, AL, USA).

• Thesis Advisor and Postgraduate-Scholar Sponsor. None.
AMITABH MISHRA
amishra@uwf.edu.

SUMMARY
A qualified academic professional with experience in secondary learning environment, and a wealth of knowledge in development and implementation of educational technology tools and applications in college classrooms and labs with a touch of industrial exposure, working for an educational institution currently.

PROFESSIONAL EXCELLENCE SUMMARY
• Have over sixteen years of experience in teaching at the college and university level, both in USA and India.
• Have six years of industrial work experience in coal mining and steel industries as a technical manager, technical evaluator, project coordinator and trainer on computerized automation.
• As the In-charge of Lab development, was responsible for the development of networked computer labs and other labs related to process control and automation with hands-on experience on hardware.
• Implemented innovative methods to develop relations and a better interface between the students, teaching staff and administrative staff.

TECHNICAL SKILLS
• Over 15 years of software development experience of programming in: C, C++, Java, Python, Fortran, Pascal, Assembly – Microprocessors/Microcontrollers
• Over 10 years of working with scripting languages: HTML/CSS, Javascript, Shell Scripting (bash), SQL and XML
• Over 10 years of experience of working with operating systems: Windows, Linux, Solaris
• Over 10 years of experience of working with scientific software: LabVIEW, MATLAB - Simulink, R Programming, TinyOS and NesC. Qualnet, OMNET, Castalia
• Experience in working with computer and communication hardware: Computer system assembly, setting up wired and wireless network infrastructure, TelosB and Tmote Wireless Sensor Platforms, Toshiba DCS and standalone controllers, Taylor MOD DCS, Siemens PLC, Allen Bradley PLC

EDUCATION
University of Cincinnati, Cincinnati, OH – GPA 3.89
Finished with a CGPA of 3.93 and nine publications in international conferences and journals
Research Group: Center for Distributed and Mobile Computing (CDMC) – PI: Prof. Dharma P. Agrawal
Master of Technology in Instrumentation July 1999 – June 2001
Devi Ahilya University, Indore, India – First Class Honors Degree
Topped the merit list across all semesters in the Class of 2001

**PG Diploma in Personnel Management**
National Institute of Personnel Management, Kolkata, India – First Class Honors
Topped the merit list at All-India level and bagged 3 gold medals and a national award

**PG Diploma in Biomedical Informatics**
Bioinformatics Institute of India, NOIDA, India – First Class Honors

**Bachelor of Engineering in Electronics**
Ravi Shankar University, Raipur, India – First Class Degree

Certification:
“Internet of Things: Roadmap to a Connected World” – Massachusetts Institute of Technology, May 2016
“Advance Ad-hoc and Sensor Networks” - University of Mumbai, India – 2007
“Computing” – IGNOU, India – 2003
“German Language” – Maxmüller Bhavan, Rourkela, India – 1993

**TEACHING EXPERIENCE**

**University of West Florida**, Pensacola, FL, USA, Aug 2015 – Till date
**Assistant Professor**, Department of Computer Science
- Taught 9 undergrad courses since Fall’15 semester – Algorithm and Program Design in C, Introduction to Computer Organization, Operating System Fundamentals, Data Structures and Algorithms – I, Object Oriented Programming
- Teaching 3 undergrad courses in the Spring’17 semester – Data Structures and Algorithms I – 2 sections, Operating System Fundamentals
- Engaged in Cybersecurity research with the Center of Cybersecurity ad working on IoT Security
- Holding a courtesy appointment as a Visiting Research Scientist at the Florida Institute for Human and Machine Cognition, Inc. (IHMC)
- Recipient of the UWF GROW Institute Summer Award for grant-writing; submitted an NSF grant proposal under the Secure and Trustworthy Computing program
- Site Director, Association for Computing Machinery (ACM) International Collegiate Programming Contest (ICPC) 2016, Southeast USA Regional Site, UWF, Pensacola, FL [https://ser.cs.fit.edu/ser2016/]
- Faculty In-charge, Computer Science Tutoring, HMCSE-UWF since 2016
- Serving in Growth and Development Committee, UWF, 2016
- Served in Summer Undergraduate Research Project Review Committee, HMCSE, UWF, 2016
- Served in Presidential Scholarship Application Review as an Interviewer, UWF, 2015 and 2016

**Northern Kentucky University**, Highland Heights, KY, USA, Aug 2012 – May 2013
**Lecturer**, School of Computing Sciences and Informatics
- Taught 6 courses - Object-Oriented Programming in Java, Data Structures and Algorithms, Information Technology Fundamentals Lab
- Received an average rating ranging between fair and good in students’ feedback

**University of Cincinnati**, CINCINNATI, OH, USA, 2008 – June 2012
Graduate Teaching Assistant, School of Computing Sciences and Informatics

- Taught 5 courses: Network and System Programming – three courses, Computer Fundamentals: Data Structures – two courses
- Received an average rating ranging between good and excellent in students’ feedback
- Taught computer programming in Java to school kids in the 2-week long summer camps organized by the department for the last three summers
- Occasionally taught classes in the absence of instructors
- Conducted two training sessions for graduate students on installation of TinyOS and network simulators
- Developed a web based tutorial for hands-on training on TinyOS for other graduate students
- Worked in three projects on application of wireless sensor networks in generation of music for dance in collaboration with College Conservatory of Music, UC.
- In-charge of equipment inventory and acquisition for the CDMC research group [voluntary]
- Handled computer and network troubleshooting for the CDMC research group [voluntary]

Undergraduate Level Courses Taught at UC

1. Network and System Programming – taught three courses
2. Computer Fundamentals: Data Structures – taught two courses

Teaching Assistant at UC:

1. Data Structures – one course
2. Network Programming – one course
3. Computer Architecture – one course
4. MATLAB programming – two courses
5. C++ Programming – one course
6. Java Programming – three courses
7. Computer Networks – three courses
8. Wireless and Mobile Networks – two courses
9. Ad-hoc and Sensor Networks – two courses

Associate Professor, Computer Science and Engineering, Bhilai Institute of Technology, Durg (C.G.), INDIA, 1997 – 2008 and 1990 – Jan 1992

Graduate Level Courses Taught in India

1. Design of Industrial Transducers and Sensors — 4 courses
2. Process Control and Industrial Automation — 3 courses
3. Analytical Instrumentation — 2 courses
4. Biomedical Instrumentation — 1 course
5. Business Management — 1 course

Undergraduate Level Courses Taught in India

1. Electronic Instrumentation — 9 courses
2. Mobile Communication and Computing — 6 courses
3. Digital Signal Processing — 4 courses
4. Principles of Communication Systems — 3 courses
5. Microprocessors and Interfacing — 2 courses
6. Digital Electronics — 2 courses
7. Advanced Microprocessors — 2 courses
8. Industrial Transducers and Sensors — 2 courses
9. Computer Fundamentals — 1 course
10. Radio Engineering — 1 course
11. Network Analysis — 1 course
12. Electronic Engg. Materials — 1 course

- Taught courses and labs related to computers and communication (Programming courses taught – C, C++, Java, HTML, SQL, LabVIEW, MATLAB, Assembly – 8085, 8086, 8051)
- Supervised undergrad and grad projects in engineering and inspired students to integrate technology into daily classroom activities
- Solely responsible for setting-up the Computer Centre for the school with OFC and UTP wired backbone and wireless networking and Internet services in the institute
- Completed 2 consultancy projects for solving industrial problems
- Chief Organizer for 9 technical and education-oriented workshops, conferences, trainings and special university events

Record of service: Administrative Assignments (BIT, Durg, India)

<table>
<thead>
<tr>
<th>Role</th>
<th>Department/Program</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator</td>
<td>M. Tech. Program, Instrumentation and Control</td>
<td>2006-08</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Depts. of Electronics and Telecom Engg., Computer Science and Engg., Information Technology, and Computer Applications</td>
<td>2007-08</td>
</tr>
<tr>
<td>Prof. In-charge</td>
<td>Students’ Association</td>
<td>2000-07</td>
</tr>
<tr>
<td>Founder</td>
<td>Music Club</td>
<td>2005</td>
</tr>
<tr>
<td>Head</td>
<td>Dept. of Computer Science and Engg.</td>
<td>2003-06</td>
</tr>
<tr>
<td>Prof. In-charge</td>
<td>Internet Services, BIT</td>
<td>2001-06</td>
</tr>
<tr>
<td>Administrator Official Website, BIT</td>
<td></td>
<td>2001-06</td>
</tr>
<tr>
<td>Prof. In-charge</td>
<td>Training and Placement, BIT</td>
<td>2004-05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2001-03</td>
</tr>
<tr>
<td>Prof. In-charge</td>
<td>Central Library, BIT</td>
<td>2003-05</td>
</tr>
<tr>
<td>Founder</td>
<td>Book Bank</td>
<td></td>
</tr>
<tr>
<td>Prof. In-charge</td>
<td>Alumni Activities</td>
<td>2001-05</td>
</tr>
<tr>
<td>Labs developed</td>
<td>Microprocessors and Microcontrollers Lab, Instrumentation Lab, Computer Hardware Lab, Computer Centre, BIT Electronics Workshop</td>
<td></td>
</tr>
<tr>
<td>Team Member</td>
<td>CG State Engineering Admissions</td>
<td>2002-03</td>
</tr>
<tr>
<td>Team Member</td>
<td>Examination Control Centre</td>
<td>1997-2008</td>
</tr>
<tr>
<td>Examiner</td>
<td>6 universities and 2 autonomous Institutes</td>
<td></td>
</tr>
</tbody>
</table>
Conduction of theory and practical examinations.

Question paper setter and evaluator

Expert University Interview Committees: 2005-08

Faculty and Technical Staff recruitment

SELECTED COURSE PROJECTS

Multilevel Encryption-Decryption for Windows CE using Random Number Generator 2006

- Working on Arduino microcontroller controlled sensing, acquisition and transmission of physiological parameters
- Aiming at cognitive utilization of voice and data networks around the smartphone for transmission of sensed parameters

Virtual 3-D tour engine 2005

- Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
- Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

Automatic Speaker Recognition System using pitch and formant analysis 2004

- Designed, implemented and tested a testbed involving Tmote sensors for studying link parameters over multiple transmission channels and various power levels
- Studied packet transmission, link quality and received signal strength parameters and analyzed the results received

Selected Publications:


**Guest Lectures and Talks delivered/ Technical and Training Sessions conducted**

- Delivered two technical lectures on “The concept of Comprehensive Environmental Monitoring and Control System (CEMACS) and typical CEMACS design” and “CEVIACS using Wireless Sensors” in the workshop on – ‘Trends of Instrumentation and Control towards environmental challenges’, 5th - 6th October 2007, sponsored by Chhattisgarh State Council for Science and Technology, organized by Bhilai Institute of Technology, Durg, India


- Delivered a talk on “Connectivity for the Youth: Trends, Services and Challenges”, in the Symposium on ‘World Telecommunications and Information Society Day – 2007’, 17th May 2007, organized by BSNL and Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India

- Delivered a talk on “OLEDs - The material and technology that one can fold, roll and wear” in the National Seminar on ‘RECENT TRENDS IN ELECTRONIC MATERIALS and PHYSICAL SCIENCES’, 15th -16th September 2006, organized by Department of Electronics and Physics, St Thomas College, Bhilai, India

- Delivered two technical lectures on “Wireless Sensor Networks - Design Considerations, Architecture and Hardware” and “Wireless Sensor Network Applications” in the national workshop on “Sensor Instrumentation for Environmental Pollution Monitoring”, 5th -17th June 2006, organized by Chhattisgarh Swami Vivekanand Technical University in
collaboration with Centre for Environmental Science and Engineering, Bhilai Institute of Technology, Durg, India

- Delivered two technical lectures on – “Mobile Telephony in a nutshell” and “Emerging trends in Mobile Telephony” in the one-day Seminar on Modern Trends in Mobile Communication, 25th February, 2006, organized by MPC College of Engg. Technology, Bhilai, India
- Conducted a one-day workshop on “MATLAB programming for Engineers” at Rai University, Raipur, India on 15th of January, 2006
- Conducted the Telecom Quiz on ‘World Telecommunication Day – 2004’, 17th May 2004, organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on “E-learning” in the National Seminar and Symposium on ‘Education through Net - A new concept’, 22nd August 2003, Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on “Telecommunication in Medical Health Care” in the National Seminar and Symposium on ‘World Telecommunication Day – 2003’, 17th May 2003, organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on “VoIP and Internet Telephony” in the National Seminar and Symposium on ‘World Telecommunication Day – 2002’, 17th May 2002 organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on “The New Internet Technology - in the face of changing world scenario” in the National Seminar and Symposium on ‘World Telecommunication Day – 2001’, 17th May 2001, organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Guest faculty for the course titled “Computer Networks and UNIX NOS” for Master of Computers in Management program under DA University, Indore, India during 1999-2000 academic session

Conferences/ Seminars/ Short Term Courses / Training Programs Organized

- Coordinator for the workshop on “Trends of Instrumentation and Control towards environmental challenges”, 5th-6th October 2007, sponsored by Chhattisgarh State Council for Science and Technology, organized by Bhilai Institute of Technology, Durg, India
- Resource person and faculty for the ongoing 60-hours refresher program – “Improving on technical and HR skills” meant for pre-final year undergraduate students. (started July 2007)
- Member of the organizing committee and Coordinator for Technical Sessions for the National Conference on “Broadband Communications”, under BITCON, organized by Department of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India, March 2007
- Coordinator for the National Conference on “Innovative Information Technologies and Secure Transactions”, under BITCON, organized by Department of Information Technology, Bhilai Institute of Technology, Durg, India, March 2007
- Coordinator for the National Conference on “Technological Advancements in Processing and Decision making”, under BITCON, organized by Department of Computer Applications, Bhilai Institute of Technology, Durg, India, March 2007
• Executive Committee for All India Seminars on “Advanced Communication Techniques and Networking: Exploring Challenges”, 6th-7th January 2007, organized by Institution of Engineers (India), Bhilai Local Chapter and SS College of Engg. and Technology, Bhilai, INDIA
• Coordinator for the workshop on -MATLAB and SIMULINK programming for Scientists and Engineers”, 12th December, 2006 organized by Dept. of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India
• Conducted a 45-Hour Comprehensive Training Program (Oct-Nov 2006) for undergraduate students in the Pre-final year of their studies in order to improve upon their preparedness for facing job recruitment drives, organized under the banner of Training and Placement Office of the Institute.
• Coordinated a training program on “Virtual Instrumentation using LabVIEW-7 and NI-ELVIS”, 4th-5th August 2006, organized by Dept. of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India
• Coordinator for the workshop on “MATLAB: Toolboxes for Power Systems, Communications, Signal Processing, Neural Networks, Image Processing and Control”, July 2006, organized by Dept. of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India
• Convener for ‘Phoenix-2006 - A national level student talent colloquium involving students’ technical paper and poster presentation, technical project and computer programming contests organized by Bhilai Institute of Technology, Durg, CG, India on 7th-8th April 2006
• Initiator and Organizer of “Campus Training Forum” (CTF) at Bhilai Institute of Technology. CTF is a forum that works towards all-round development of students as true professionals. (Functioning started on 11th Feb 2006).
• Coordinator for ‘ACT-2005’, a National Conference on “Advance Communication Techniques” held at Bhilai Institute of Technology, Durg, India on 5th-6th April 2005

SELECTED RESEARCH AND CONSULTANCY PROJECTS

Android Smartphone based Coordinator for Wireless Body Area Networks 2014
• Working on Arduino microcontroller controlled sensing, acquisition and transmission of physiological parameters
• Aiming at cognitive utilization of voice and data networks around the smartphone for transmission of sensed parameters

Lifetime enhancement of Wireless Body Area Networks 2013
• Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
• Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

Wireless Sensor Network Testbed 2011
• Designed, implemented and tested a testbed involving Tmote sensors for studying link parameters over multiple transmission channels and various power levels
• Studied packet transmission, link quality and received signal strength parameters and analyzed the results received
• Used for various other studies by senior members in the research group

**Wireless Sensor Network based control of Music**

**2009**

• Worked on five different projects involving dancers, clarinetists and pianists with College of Music, UC
• Designed, fabricated and tested interface and conditioning circuits for external pressure, IR, optical and 3-axis accelerometer transducers for Tmote and TelosB sensors for use in sensor localization and music control
• Coded the NesC modules for data acquisition, caching and transmission for the TelosB/Tmotes
• The wireless sensor network would sense and relay the control command for playing the music to a base station Mac computer

**Plate Mill, Rourkela Steel Plant, Rourkela, India**

**2005**

• Successfully implemented *LIVE - Logically Interactive Virtual Eyes* - An optical solution development project for dividing shear problem in Plate Mill, RSP, Rourkela, India
• The project involved image sensing of long plates using multiple cameras, compositing the images in a nonconventional display resolution and projecting them into conventional PAL-TV monitor in the control pulpit for Operator assistance

**Blast Furnace 7, Bhilai Steel Plant, Bhilai, India**

**2001**

• Developed the algorithm, coded and implemented a network inter-process communication mailbox in UNIX for the supervisory computer system
• The mailbox was responsible for communicating sensor data from programmable logic controllers using TCP/IP, via a Terminal Server, through a UNIX server, to a Windows computer

**Satpura Power, Jabalpur, India**

**1999**

• Designed, implemented and commissioned the automatic charging system for the Biomass Gasifier used in the generation of electrical power using firewood
• Responsible for making detailed electrical drawings, equipment planning and procurement, overseeing of installation, testing and commissioning

**SELECTED ACADEMIC PROJECTS**

**Multilevel Encryption-Decryption for Windows CE using Random Number Generator**

**2006**

• Working on Arduino microcontroller controlled sensing, acquisition and transmission of physiological parameters
• Aiming at cognitive utilization of voice and data networks around the smartphone for transmission of sensed parameters

**Virtual 3-D tour engine**

**2005**

• Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
• Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework
Automatic Speaker Recognition System using pitch and formant analysis

- Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
- Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

RF Switching

- ISM Band frequency transmitter and receiver circuits for controlling home consumer electronic appliances
- Transmitter acts as a four-channel NLOS remote controller with a much higher range than conventional IR based remotes

DAQ for Temperature measurement using NI ELVIS 3.0

- Instrumentation system designed for temperature transducers, signal conditioning and linearization, and secondary display devices using NI ELVIS and LabVIEW
- The system can accept RTDs, Thermistors and Thermocouple transducers

DIP using C

- Utilities for edge detection, image transforms, histogram equalization, color to grayscale conversion written in C language
- Use of DFT, DCT, DST, Hadamard, Discrete Walsh and KL Transform for comparison of speed and energy compaction

Optical networking through Dense Wavelength Division Multiplexing

- Optical networking for meeting high BW data demand using DWDM for routing, grooming, optical amplification and restoration at wavelength level and data capacity enhancement
- Optical layer transparent to SONET layer; provides restoration, performance monitoring and provisioning of individual wavelength instead of electrical SONET signals
- Provides ultra-fast communication over a short distance of a few meters, stationary network
  - Capability extension possible up to a Terabit LAN

Design and implementation of a convolutional coder and decoder in FPGA

- 4-state Coder-Decoder pair using FPGA with error detection and correction, tested for noisy conditions (AWGN)
- The pair is designed for convolutional Trellis Coded Modulation for high speed modems operating in bandwidth limited channels

EVM

- Microprocessor 8085 based EVM
- Program and subroutines stored in EPROM

Collapse Indicating Devices

- Checks the pressure on any supporting surface using a piezoelectric crystal/strain gauge and gives out an alarm if the pressure exceeds predetermined unit
- Possible uses in public places, terraces, underground mines, weighing machines and elevators
FM Remote speaker system using PLCC
- HF Audio signals coupled with HV power line; signal travel along the power line and ensuring no attenuation due to bus-bar capacitance
- Isolation of power and communication equipment, power line EMI, modulation issues handled
- FM provides auto-volume control
- Duplex asynchronous serial link between two computers @9600 bauds with error detection and correction

Telephone Remote Control Switch
- ON-OFF control for home appliances through telephone calls via a circuit interfaced to the remote telephone line/device by dialing specific DTMF digits
- Audio feedback/ACK on control action completed

Local Positioning System
- Inertial Guidance - dead reckoning based local reference system from an initial reference

PC Controlled Obstacle detection and collision avoidance in a robotic rover
- Robo-rover using IR sensor TSOP-1738 for obstacle sensing
- Rover control program in C-language (stepper motor control through parallel port)

Parallel Telephones with Auto Secrecy and intercom facility
- Disabling of other parallel phones (3 of the 4 in parallel) when one has been lifted

Anti-Theft Messenger
- Auto messaging in the event of theft or fire
- Fully reconfigurable microcontroller based embedded system with battery support

Microcontroller based access control system
- PIC 16F84 microcontroller based lock-unlock system operated by access codes
- Programmed in microchip assembly language; secure password reset

Control of Home Appliances through Telephone line using PLC
- DTMF 8-channel switching via power line and Teleremote control via telephone lines
- 4-bit DTMF data sent through power main line for appliance ON/OFF control using 8 relays

Face Recognition using Eigen face method
- Uses image-vector based approach, in which there is statistics-based dimensionality reduction by using Eigen weight method
- The method also uses the extraction of some local features to determine tilt and rotation

PC-based wireless appliance control system
- Parallel port for control of devices through wireless transmitter and receiver
  - C++ program for control with multiple possible user accounts

Health Monitoring System
- Microcontroller-based, low cost monitoring system for human body parameters
INDUSTRIAL EXPERIENCE

Assistant Manager (Instrumentation), Instrumentation Department
Steel Authority of India Limited, Bhilai Steel Plant, BHILAI, CG, India, 1992 – Nov 1997
• Planned, co-ordinated and controlled the C&I systems overhaul, additions, modifications, revamping
• Head of a team of 30 qualified technicians, responsible for scheduling preventive, shutdown and breakdown maintenance and training the team on the computerized automation systems and safety
• Responsible for implementing ISO-9001:2000 standards of calibration, testing, installation and maintenance of sensor systems, associated electronics, programmable logic controllers and distributed computer control systems
• Responsible for association and co-ordination between engineering agencies involved in the development of green field projects
• Conducted monthly contact classes and training programmes for the development of skilled manpower in the department.

Projects worth mention:
• Designed the logic, programmed and implemented the boiler drum level control loop program for the DCS automation system of a Power Station Boiler using TCL language
• Designed the logic, programmed and implemented the Raceway Flame Temperature Control Loops (assembly level and machine programming) for Blast Furnaces on Toshiba controllers
• Designed the logic, programmed and implemented the automatic model for online control of Blast Furnace Cowper Stoves on Q-Basic language
• Designed and engineered the fabrication of a modified Hot Blast and Stove Dome Thermocouple fixing assemblies for in-situ fixing in very short shutdown time

Coal India Limited, South Eastern Coalfields Limited, BILASPUR, CG, India, Jan – Aug 1992
Junior Executive Trainee, Electronics and Telecommunication Department
• Worked on Strowger and Electronic Automatic Telephone Exchanges, Landline telephone network, VHF Communication Wireless links
• Well versed with telephone system electronics, telephone network wiring and terminations
• Performed a technical evaluation for an upcoming UHF-TDMA Radio Telephony project

ACCOLADES AND AWARDS
1. Project with CCM-UC was the cover story of UC Grad School Yearbook 2009
2. NIPM – PGDPM Examination 2004
   i. Tarneja National Award – Recitation and Cash award
   ii. NIPM Proficiency Gold Medal
   iii. AIOE Gold Medal for highest marks in “Industrial Relations” paper
   iv. Karnataka State Gold Medal for highest percentage of marks in the country
4. 5th in Post-Training Merit List, SAIL-BSP’s Management Trainees (Technical) - 1992 Batch
5. Best Student of the School – BMHS School, Raipur, India - 1983-84
MEMBERSHIPS

• Student Member, IEEE
• Student Member, ComSoc
• Life Member, Indian Society for Technical Education
• Member, Institution of Engineers (India)
• Life Member, Biomedical Society of India
• Life Member, Instrument Society of India
• Member of Panel of Jury, CII Chhattisgarh HR Excellence Awards - 2005
• Member, Board of Studies, Electronics and Telecommunication Engg. Stream, Faculty of Engineering and Technology, CSV Technical University, Bhilai, CG, India, 2006-2008
• Member, Board of Studies, Electronics Stream of studies, Govt. V.Y.T. P.G. Autonomous College, Durg, CG under Pt. RS Shukla University, Raipur, CG, India, 2005-2008

COMMUNITY SERVICE

• Mentor for a Blue Team participating in CyberThon 2016 and the winning UWF team in CyberThon 2017, Pensacola, FL, USA
• Volunteer for preparing the middle-school students’ team for the CyberPatriot competitions at Ferry Pass Middle School, Pensacola, FL where I teach computer programming and cyber-security basics
• Grad Student Volunteer at University of Cincinnati – Computer Science Summer Camp
  June 2009, June 2011
  Helped in teaching of "Beginners' Java Programming" and in making robotics and sensors projects in two-week long Summer Camp - 2009 for high school students, organized by CS Dept, CEAS, UC.
  June 2010
  Taught "Beginners' Java Programming" and helped in making robotics and sensors projects in two-week long Summer Camp - 2010 for high school students, organized by CS Dept, CEAS, UC.
• Member, Volunteer and Historian for University of Cincinnati – Bhakti Yoga (Aug 2009 - July 2015)
  'University of Cincinnati – Bhakti Yoga' is a students’ group for general help in life through morals, spirituality, vegetarian food and healthy practices. I have participated and volunteered in all the group events that include lecture events, potlucks and fundraising efforts organized by the group since Fall 2009.
• Member and Historian for University of Cincinnati Vegetarian Club (Aug 2012 - July 2013)
  UCVC is a students’ group for promoting healthy living and vegetarianism among UC students that was formed in Fall 2012. I was responsible for maintaining and promoting the group as one of the Administrators of the Facebook page for the group. As the Historian, I was responsible for photographing, cataloging and sharing the details of group events on social media. I have also volunteered for monthly vegan potluck events as well as daylong promotion and fundraising events for the group.
• Volunteer for ‘Association for India’s Development’ (AID); worked in fundraising events, 2008-2011
• Member, Regional representative and Auditor of a social group ‘EhSaaS India’, that takes up specific help tasks for the Institutes for physically and mentally challenged in the country, by surveying their specific needs or problems and helping them out, 2005 – 2008
• Planned and managed a fundraising event in 2005 with the help of BIT Alumni for helping ‘Sneh Sampada’, Bhilai, CG, India – a residential institution for the mentally challenged
• Volunteer for ‘Anand Niketan’, Bilaspur, CG, India – a residential Institution for the education and development of the hearing challenged, since 1992
• Organizing Committee Member and Volunteer for BIT Durg Alumni Association (July 2001 - June 2008)

Volunteered for and helped organize annual Alumni Meets for my Alma Mater from 2001 - 2008
Dr. rer. nat. (Ph.D.) Bernd Owsnicki-Klewe

Email: bowsnickiklewe@uwf.edu

RECENT ACTIVITIES AT UWF (LECTURE DETAILS UNDER POINT F)

2010 through today: Assessment coordination for the CS department
2014 through 2016: ABET collaborator
Since 2008: Member of various departmental/university committees
Spring 2017: Currently CASL

CGS 3183: Basic Web Applications
CIS 4592: Capstone 2
COP 4027: Advanced Computer Programming
COT 4420: Theory of Computation (F2F/online)

Fall 2016
COP 2253: Java Programming
CEN 4400: Introduction to Operations Research
CTS 4817: Web Server Administration
COP 4856: Distributed Software Architectures 1 (F2F/online)
Support of the ACM ICPC South-East Regional

Summer 2016
CGS 3853: Web Page Design

Spring 2016
COT 3100: Discrete Structures
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone 1
COT 4420: Theory of Computation (F2F/online)

Fall 2015
COP 2253: Java Programming
CEN 4400: Introduction to Operations Research
CTS 4817: Web Server Administration
COP 4856: Distributed Software Architectures 1 (F2F/online)
Organization of the ACM ICPC South-East Regional

Summer 2015
CGS 3853: Web Page Design

Spring 2015
COT 3100: Discrete Structures (F2F/online)
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (F2F/online)

Fall 2014

COP 2253: Java Programming
CIS 4595C: Capstone Project
CTS 4817: Web Server Administration
COP 4856: Distributed Software Architectures 1 (F2F/online)

Organization of the ACM ICPC South-East Regional

Summer 2014

CIS 4905: Directed Study “Web Application Security”
CGS 3853: Web Page Design

Spring 2013

COT 3100C: Discrete Structures
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (F2F/online)
COP 4857: Distributed Software Architectures 2 (online)

Fall 2013

COP 2253: Java Programming
CIS 4595C: Capstone Project
CTS 4817: Web Server Administration
COP 4856: Distributed Software Architectures 1 (F2F/online)

Organization of the ACM ICPC South-East Regional

Summer 2013

CGS 3853: Web Page Design

Spring 2013

COT 3100/L: Discrete Structures with Lab
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (F2F/online)

Fall 2012

COP 2253: Java Programming
CIS 4595C: Capstone Project
CTS 4817: Web Server Administration
COP 4865: Distributed Software Architectures 1 (F2F/online)

Organization of the ACM ICPC South-East Regional

Summer 2012

CGS 3853: Web Page Design

Spring 2012

COT 3100/L: Discrete Structures with Lab
COP 4814: Net-Centric Applications
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (F2F/online)
COP 4534L: Data Structures and Algorithms 2 Lab

Fall 2011

CGS 2060L: Excursions in Computing Lab
COP 2253: Java Programming
CTS 4817: Web Server Administration
COP 4865: Distributed Software Architectures 1 (F2F/online)
Organization of the ACM ICPC South-East Regional

Spring 2011
COT 3100/L: Discrete Structures with Lab (Pensacola)
COP 4814: Net-Centric Applications (Pensacola)
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (DL, Online, Pensacola)

Fall 2010
COP 2253: Java Programming (3 sections, Pensacola/online)
CTS 4817: Web Server Administration

Organization of the ACM ICPC South-East Regional

Summer 2010
COP 2253: Java Programming
CGS 3853: Web Page Design

Spring 2010
COP 2253: Java Programming (Online)
COT 3100/L: Discrete Structures with Lab (Pensacola)
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (Pensacola)

Fall 2009
COP 2253: Java Programming (Pensacola/online)
CTS 4817: Web Server Administration
COP 4865: Distributed Software Architectures 1 (Pensacola)

Spring 2009
COP 2253: Java Programming (Pensacola/online) [3 sections]

Contact faculty for Bits & Bytes – UWF/CS Student's Group

Organization of the UWF Second Life presence

Fall 2008
COP 2253: Java Programming (Pensacola/online)
COT 3100/L: Discrete Structures with Lab (Pensacola)
COP 4865: Distributed Software Architectures 1 (Pensacola)

Coach for the 2008 ACM International Collegiate Programming Contest

Fall 2007
COP 2253: Java Programming (Pensacola) [2 sections]
CGS 3823: Web Page Design (Pensacola)
COT 4420: Theory of Computation (Pensacola)

Organization of the UWF Second Life presence

Contact faculty for Bits & Bytes – UWF/CS Student's Group

Spring 2007
COP 3022: Intermediate Programming (Pensacola) [2 sections]
COT 4420: Theory of Computation (Pensacola)
COT 3100: Applications of Discrete Structures
CEN 5915: Graduate CS research: Embedded Systems
UWF Honors Seminar “Great Works of Science”: Frontiers of Computing
Participation in Curriculum Reform Working Group
Participation in the setup of the new CS department web server
Final development, launch and maintenance of the CS web site

Fall 2006
CIS 3020: Science of Computing (Pensacola) [2 sections]
CGS 3604: Applications of Information Technology (Pensacola)
CGS 3823: Web Page Design (Pensacola)
CEN 4905: Directed Study (Client/Server Architectures)
Participation in Curriculum Reform Working Group
Development of a concept for the CS web site
Participation in ITS training “Certified Web Developer”
Member of the Association for Computing Machinery (ACM)

Spring 2006
CIS 3020: Science of Computing (FWB, Pensacola) [2 sections]
COP 3022: Intermediate Programming (FWB)
COT 4420: Theory of Computation (FWB)
Co-organization of “Seastars 06”

Fall 2005
CEN 3031: Software Engineering (FWB)
COP 3530: Algorithms and Data Structures (FWB)
COP 3022: Intermediate Programming (FWB)
CIS 3020: Science of Computing (FWB)

A. EDUCATION
1984 Doctorate (Ph.D, Dr. rer. nat.) in Computer Science from the University of Hamburg (Grade A, “Magna cum laude”). Thesis supervisors: Prof. Dr. F. Schwenkel (Univ. of Hamburg), Prof. Dr. W. Brauer (Technical Univ. of Munich), Prof. Dr. H.-J. Schneider (Technical Univ. of Berlin)
1980 Diploma in Computer Science from the University of Hamburg (Grade A) on subject of “Knowledge Based Systems”

B. PROFESSIONAL HISTORY
- current Lecturer at the Department of Computer Science at the University of West Floridavi.
2004 - 2005 Settling over to the USA, received work permit and SSN. Work on a CS textbook, improving photography and Photoshop/Flash skills.
1990 – 2004 Full Professor for Foundations of Computer Science and Applications of Computer Science in Economy at University of Applied Sciences Hamburgvii, Department of Electrical Engineering and Computer Scienceviii.
1984 – 1990 Researcher with PHILIPSix Research Laboratory, Hamburg. Research topics: Theoretical considerations, design and nucleus implementation of a taxonomic knowledge representation system (based on description logics a la KL-ONE) at PHILIPS Research Laboratory, Hamburg. Several publications, invited talks and lectures within and outside of PHILIPS. Since December 1987: Project leader (leading 4 scientists) supervising system extensions like connecting to a DBMS and integration of nonmonotonic and vague reasoning. Work on example applications: Computer configuration and text understanding.
1980 – 1984 Freelance employee with REDA GmbH, Hamburg/Grossensee, a consulting firm
with focus on accounting and cost control for medium-sized manufacturing companies. Leading designer and implementation supervisor of BABSSY, a software system for integrated accounting, cost controlling and production control.

Responsibilities: Management of two pilot installations (in jewelry and mechanical engineering companies), technical and organizational support, consultant to customer management and general maintenance of customer relations. Reported directly to CEO. Later awarded procuration for REDA until leave in 1984.

1973 – 1980 Freelance employee with SCHIFFKO GmbHx, Hamburg. Design and implementation of software (FORTRAN) for Computer Aided Manufacturing (CAM) in shipbuilding. Esp. S16-BS, an interactive graphical program for interactive arrangement of pieces on steel plates for oxygen or laser cutting. Participation in several workshops and exhibitions on CAM and cutting technology.

C. Professional Services

1998 – 2004 Member of the Study Reform Committee of the Department of Electrical Engineering and Computer Science. Member of the work group on the definition of the revised CS study system, including introduction of Bachelor’s and Master’s degrees in CS. Participation in several auditions for accrediting Bachelor and Master courses in Computer Science and Information Engineering.

1997 – 1999 Member of the department’s working group on cooperation with local high schools on issues of CS education in high schools.
1997 – 1999 Participation in the University work group on the agreement upon “Ergonomic guidelines for computer workplaces”. Definition of ergonomic rules and their implementation within the around 800 staff computer workplaces at the University.
1995 – 2004 Reviewer of several books on AI and C++ programming (details available upon request)
1994 – 1995 Expert referee for several Federal Research Funding Applications procedures (by the German Secretary for Research and Technology)
1992 - 1994 Head of the “Laboratory for Software Technology” at the Dept. of EE and CS at FH Hamburg, overseeing five laboratory assistants/technicians. The laboratory is responsible for carrying out teaching support for more than 400 students of “Software Technology” and “Technical Computer Science”.
1992 – 1994 Member of the “Computer Council Berliner Tor”. Council objectives: Planning and overseeing the future technical and staff development of computer equipment for four major departments of the university.

1990 Referee for the German Workshop on AI, GWAI-90
1990 – 1999 Member of several committees for the appointment of professors in Hamburg, Leipzig and Elmshorn (Northern Academy)
1989 Referee for the workshop on ”Modeling” at the Austrian AI Conference, ÖGAI-89
1988 Program Chairman, organization and management of the 6th Spring School on AI, KIFS-88, Günter
1988 Member of the program committee of the German Workshop on AI, GWAI88
1987 Expert referee for ”Informatik in Forschung und Entwicklung” (Computer
1987
Reviser for the German Workshop on AI, GWAI-87

1979 – 1980 Participation in the “CAD Working Group” at the “German Research Center for Shipbuilding”. Emphasis on discussion and recommendation of “Guidelines for Future CAD Applications in Shipbuilding and Maintenance Technology” (recommendation to the German Secretary for Research and Technology). Evaluation of several Computer Graphics kernel systems, esp. GKS

D. Publications (In chronological order)


Repräsentation von strategischem Schachwissen (Representation of Strategic Chess Knowledge). KI-Rundbrief der GI Nr. 21, pp. 2-6, 1980 (with K. v. Luck)


Declarative Representation of Control Structures. In: J. Laubsch (ed.): GWAI-84, German Workshop on Artificial Intelligence, pp. 181-190, Springer Verlag, 1984 (with K. v. Luck) [refereed]

Repräsentation von positionellem Schachwissen mit Methoden der Künstlichen Intelligenz (Representation of Positional Chess Knowledge with Artificial Intelligence Methods), Ph.D. Thesis. Also: Report No. 111, Department of Computer Science, University of Hamburg


Configuration as a Consistency Maintenance Task. In: W. Hoeppner (ed.): GWAI-88, German Workshop on Artificial Intelligence, Springer Verlag, 1988 [refereed]

Probabilistic Inheritance and Reasoning in a Hybrid Knowledge Representation System. In: W. Hoeppner (ed.): GWAI-88, German Workshop on Artificial Intelligence, Springer Verlag, 1988 (with J. Heinsohn) [refereed]

Ein integriertes System zur Repräsentation von Wissen (An Integrated System for the Representation of Knowledge). PHILIPS "Unsere Forschung in Deutschland" (Our Research in Germany), 1989

A General Characterization of Term Description Languages. In: K.H. Bläsius, U.


Smalltalk als Plattform zur Integration unterschiedlicher Softwarekonzepte (Smalltalk as a Platform for the Integration of Various Software Concepts). Proceedings of the STJA (Smalltalk and Java in Industry and Education) '97, pp. 209-214, 1997 (with M. Böhm, G. Pfeiffer, J. Raasch) [refereed]


Objektorientierung in der Informatikausbildung auf der Basis von Smalltalk (Object Orientation in Computer Science Education based on Smalltalk). Informatik Spektrum No. 20, pp. 335-343, 1997 (with M. Böhm, J. Freytag, G. Pfeiffer, J. Raasch) [invited]

Introducing a Reflective Activity into the Design Process in an Advanced Computer Programming Course, CCSC-MS: 2016 (with J. Coffey)

E. Books


F. PRESENTATIONS (SELECTION, IN CHRONOLOGICAL ORDER)

Wissensrepräsentation mit Semantischen Netzen (Knowledge Representation with Semantic Networks). PHILIPS Research Laboratories, Hamburg, 1986

Semantic Networks. ISA Colloquium on Conceptual Modeling, Eindhoven, 1986

The MESON Knowledge Representation System. PHILAI-86, PHILIPS Workshop on Artificial Intelligence, 1986

Notes on the Role of Semantics in Knowledge Representation Systems. Tutorial at the German Workshop on Artificial Intelligence GWAI-86, 1986

On the Representation of Uncertainty in Semantic Networks. PHILAI-87, PHILIPS Workshop on Artificial Intelligence, 1987

Non-Concepts and Non-Roles. 1st German KL-ONE workshop, Saarbrücken, 1987

Advanced Course: New AI Formalisms for Knowledge Representation. 5th Spring School on AI (KIFS-87), Günne, (with K. v. Luck), 1987
Basic Course: Knowledge Representation. 6th Spring School on AI (KIFS-88), Günne, (with K. v. Luck), 1988

Configuration in the MESON Knowledge Representation System. PHILIPS TDS Appeldoorn, 1988

Verstehen und Referenz in der KI (Understanding and Reference in AI). Workshop on the Philosophy of Understanding, Dagsstuhl, 1989


Terminologische Repräsentationssysteme (Terminological Representation Systems). Univ. Bielefeld, 1989

The MESON Knowledge Representation System. AAAI Workshop on "Term Subsumption Languages in Knowledge Representation", Thorn Hill, NH, 1989

Wohin steuert die KI? (Where is AI heading to?). Spring School on Artificial Intelligence, Günne, 1991

Künstliche Intelligenz - Ein Thema für das Gymnasium? (Artificial Intelligence - A Topic in High-School Education?). Annual Conference of the MNU (Society for Education in Science and Mathematics), Stuttgart, 1992 (with Y. Klewe)

Semantic Networks and Term Description Languages for Knowledge Representation. Advanced Tutorial at the Conference on Artificial Intelligence in Medicine (AIME-93), Munich, 1993

Several presentations to high school representatives on “CS education in high school”, 1997-1999

Programming Languages (position statement). Workshop on ”Object Orientation in Education”. GI-Tagung Informatik und Ausbildung (Conference of the German CS Society on Computer Science and Education), Stuttgart, 1998


G. TEACHING EXPERIENCE

The following courses have been held at different Universities and academies in and around Hamburg.

Semantisch fundierte Wissensrepräsentationssysteme (Semantically Well-founded Knowledge Representation Systems). Seminar, Univ. of Hamburg, (with K. v. Luck), Fall 1988

Modellbildung in wissensbasierten Systemen (Modeling in Knowledge Based Systems). Seminar, Univ. of Hamburg, (with K. v. Luck), Spring 1989


Theoretical Foundations of Computer Science 3. Northern Academy, Elmshorn, 1999

Formal languages, grammars, Chomsky hierarchy of grammars and languages, Pumping Lemma for regular languages, context-free languages, parsing problem, Compiler architecture, LL(1) parsing


See Programming 2 (Java) below

The following courses have been held at the University of Applied Science, Hamburg. Some have been held multiple times since 1990. Some lecture’s material might overlap due to changes in the curriculum over the years.

Programming 1 (Pascal)

Simple data types, control structures, compound data types, procedural abstraction, data abstraction, top-down development, correctness (assertions, invariants)
Programming 2 (Pascal)
Basic algorithms, sorting and searching, information systems architectures, practical case studies

Programming 1 (Smalltalk)
Principles of object-orientation, CRC principle, message passing, classes, instances, methods, iterations, collections, streams, abstract classes and methods, design and redesign issues, GUI design, information systems architectures, simple design patterns ("Observer", “Factory”, “Singleton”, …)

Programming 2 (Java)
Distinctions between Smalltalk and Java, static vs. dynamic typing, type casts, design using abstract classes and interfaces, containers, exceptions, threads, events, AWT, applet programming, http services, reflective programming, advanced design patterns (“Strategy”, “COR”, …)

Programming for Students of Electrical Engineering (Pascal)
Simple data types, control structures, compound data types, procedural abstraction, top-down development, numerical methods, basic algorithms (sorting and searching)

Algorithms and Data Structures (Pascal, C++ and Java)
Quality of algorithms, abstract data types, asymptotic analysis, sorting algorithms, divide-and-conquer algorithms, external sorting, binary search trees, B-Trees, tree and graph searching, optimization (greedy, Dynamic Programming), data compression

Functional and Logic Programming (Scheme/Prolog)
Functional programming paradigm, functions as first-class objects, lambda abstraction, higher-order functions, lexical and dynamic binding, encapsulation principle, delayed evaluation, streams, meta programming, logical programming paradigm, pattern matching and unification, WAM, Prolog programming styles, non-deterministic programming, information systems in Prolog, deductive databases, introduction to NLP and DCG parsing

Artificial Intelligence (Scheme/Common Lisp)
Introduction to Scheme/Lisp, list processing, list representation of complex data structures, objectives and methods of Artificial Intelligence, pattern matching, deduction algorithms, frame-based representation schemes, Micro-Flavors, Expert Systems

Applications of Artificial Intelligence (Prolog)
Advanced Prolog programming, backtracking control (cut, fail), non-deterministic parsing, Definite Clause Grammars, syntax, compositional semantics, world models and references, QA systems, semantic anomalies, issues of ambiguity

Applications of Artificial Intelligence (Smalltalk)
Objectives and methods of Artificial Intelligence, symbolic and sub-symbolic AI, symbols and denotation, logic, basic model theory, uninformed search methods, “Generate and Test”, backtracking search, constraint solving, backward checking, forward checking, dependency-directed backtracking, informed search methods, gradient search, A* search, Means-End search, diagnostic problems, truth maintenance, uncertain knowledge, representation of temporal constraints, planning and configuration

Computer Science 1 (C++, in English for the international course on “Information Engineering”)
Algorithms, data structures and abstract data types, Discrete Mathematics introduction (summations and products, asymptotic analysis), sorting algorithms, divide-and-
conquer algorithms, binary search trees, B-Trees, data compression, tree and graph searching

**The Semantic Web (Elective module)**

Current state of WWW services, Berners-Lee's "Semantic Web" vision, Search Engines, Annotations, SW activities by W3C and SemanticWeb.org, Semantics, Logic and Set Theory, Ontologies (Aristotle to modern), Languages (RDF, Description Logics, (DAML, OIL, ...), Tools (Amaya, OilEd, ...), Ontology construction and use

**Introduction to Computer Science**

Overview of CS, history of CS, coding schemes, the concept of information, redundancy, logic circuits and arithmetic, hardware abstraction layers, equivalence of hardware and software, programming languages and paradigms, automata and limits of computation.

**Automata Theory**

Alphabets, formal languages, grammars, Chomsky hierarchy of grammars, finite automata, acceptance conditions, regular languages, non-deterministic FAs, regular expressions, pumping lemma for regular languages, finite machines, applications in UI and protocol design, context-free languages and LL(1) parsing, push-down automata, normal forms, pumping lemma for CFLs, equivalence of CFLs and PDAs.

**Compiler Construction**

Compiler/Interpreter architecture, lexical analysis with finite machines, LL(1) parsing, elimination of left recursion, left factorization, manual conflict resolution, error recovery strategies, issues of semantics, attributed grammars, syntax directed translation, type checking, intermediate code generation (Reverse Polish Notation), code design, limits of syntax-directed translation, bottom-up parsing, (S)LR parsing, lex and yacc

**Theory of Computability**

Objectives of Computability Theory, historical outline, Turing Machines, TMs as acceptors, recursively enumerable (Turing-acceptable) languages, computable functions, existence of non-computable functions, enumerable sets, decidable sets, construction of enumerators (dovetailing), Chomsky type 0 languages, equivalence of r.e./enumerable/type 0 languages, the Universal Turing Machine, non-deterministic TMs, undecidable problems, Halting Problem, equivalence of TMs, non-r.e. languages, undecidable languages, Rice’s Theorem, Recursive functions, Introduction to Complexity Theory

**Seminar on Applied Computer Science** (Examples of tutored student presentations) Non-deterministic algorithms, probabilistic algorithms, encryption and compression algorithms, compression and transmission standards, computer viruses, XML, VPNs, Java 2 and JFC, Servlets, Web Services, distributed systems, electronic marketplaces

**Seminar on Technical Computer Science** (Examples of tutored student presentations) XML, DTDs and XMLS, URIs and XML namespaces, CSS and XSL/XSLT, XPath, XLink, XPointer, XQuery, XML development tools, XML extensions (RDF, DAML+OIL, etc.), XML applications

**Introduction to CS**

History of CS, areas of CS, number systems, elementary circuit design, effective procedures (algorithms), Turing machines, efficiency issues, asymptotic analysis, PL paradigms (imperative, functional, logical), syntax/semantics/translation of PLs, social implications of CS.

**Automata and Formal Languages**

Alphabets, formal languages, grammars, Chomsky hierarchy of grammars, finite
automata, acceptance conditions, regular languages, non-deterministic FAs, regular expressions, pumping lemma for regular languages, finite machines, applications in UI and protocol design, context-free languages and LL(1) parsing

The following courses have been held at the University of West Florida.

**Science of Computing**
Data storage, data manipulation, operating systems, networking, algorithms, programming, software engineering, data abstractions, database systems, artificial intelligence, theory of computation

**Intermediate Programming in Java**
Arrays, Arraylists, Interfaces, inheritance, graphics, events, GUIs, exceptions, files and streams

**Introduction to Software Engineering**
Software Life-Cycle models, Software process models, teams, requirements analysis, OO analysis, OO design, implementation, post-delivery maintenance

**Data Structures and Algorithms**
Analysis of algorithms, Stacks and Queues, Binary Trees, self-adjusting trees (AVL, B-Trees), Hashing, Sorting, Graph algorithms

**Theory of Computation**
Sets, alphabets, mappings, formal languages, grammars, finite automata, acceptance conditions, regular languages, non-deterministic FAs, regular expressions, pumping lemma for regular languages, context-free languages, derivations, derivation trees, Chomsky Normal Form, pumping lemma for CFLs, Turing Machines, acceptance, recursively enumerable languages, construction of TMs, TMs as enumerators, Church-Turing Thesis, Halting Problem, undecidable languages, reduction proofs, Post’s Correspondence Problem

**Applications of Information Technology**
Computer terminology, computer components, hardware, software, HumanComputer interaction, GUIs, interface usage, networks, WAN/LAN, Internet, files and folders, HTML, tags, links, pictures, WWW search and information retrieval, information representation, bit, byte, codes, computer organization, CPU, peripherals, machine programs, operating systems, programming languages, algorithms, digital media, sound, images, sampling, compression, social implications of IT, computer hazards, legal issues, spreadsheets, Excel, databases, basic concepts, query composition, database design, privacy and security

**Web Page Design**
Introduction to the WWW, clients and servers, history, protocols, URLS, HTML/XHTML basics, tags, colors, fonts, advanced XHTML, lists, tables, Cascading Style Sheets (CSS), association via tags/classes, specific styles, elements, external style sheets, CSS positioning, images, formats, preparation and embedding, copyright issues, design basics, usability, accessibility, aesthetics, page navigation schemes, form and color, website planning and construction, browser differences, Javascript basics, Document Object Model (DOM), Javascript and DOM, Multimedia basics, Audio/Video preparation and publishing, codes and Codecs, compression, SMIL

**Applications of Discrete Structures**
Propositional logic, truth tables, equivalences, predicates, quantifiers, inferences rules, proofs (direct, indirect), sets, operations, Venn diagrams, functions, surjective/injective/bijective, inverse functions, sequences and summations, summation rules, algorithms, asymptotic analysis, function growth (O, W, Q), definitions, proofs, algorithm complexity, induction proofs (mathematical, strong, structural), recursive definition, recursive algorithms, recursion and recurrences, solving linear recurrences, divide-and-conquer algorithms, Master Theorem, Boolean functions, construction of Boolean functions (Disjunctive/Conjunctive Normal
Distributed Software Architectures 1

Web Server Administration
Installation and administration of the Apache web server under unix, user management, backups, support software (ftp, ssh), server extensions (CGI, PHP, tomcat), web application deployment, server security, secure connections (SSL/TLS), MS Server 2008 and IIS, .NET applications, virtualization

Capstone Research Experience
Research topic selection, literature selection, research project planning, presentation techniques, research report structure, practical aspects (project documentation, three presentations, one research report)

Net-Centric Applications
XML, basics, well-formedness, validation, DTD and XML Schema, CSS, XSLT, client-side scripting, JavaScript, jQUERY, AJAX, server-side processing, PHP, MySql database, web application security (XSS, SQL injection, ...), session management, web services, WSDL and SOAP, deployment strategies

Excursions in Computing Lab
Hands-on experience with Search Engines, Web Page Design, Cooperative Work, Media, Operating Systems, Databases, Programming, Research and Presentations

Data Structures and Algorithms 2 Lab
Design studies by course projects, coding and debugging, probabilistic algorithms, applications of asymptotic analysis (recurrences, Master Therorem), Counting and Combinatorics, Greedy Algorithms

Capstone Project
Development of a software system for a real-world client while working in small teams. Development and delivery of relevant artifacts such as a project proposal, design, test plan, code, user's manual, and project log with metrics as the software system evolves throughout the course. A final presentation and evaluation of the project experience is required.

Web Design for E-Commerce
Introduction to software components in e-commerce, Infrastructure for ecommerce, Security and legal issues in e-commerce, Creating a web site for an industry, Accessibility and Usability issues, expanding a web site to include catalogs and shopping carts, Future of e-commerce software; technology: HTML/CSS, Relational DBMS, PHP

Distributed Software Architecture 2
Advanced concepts in Java EE: Details of MVC, EJBs and Dependency Injection (DI), DI by Annotations or JNDI lookup, Bean life cycle and call-backs, Web Services: REST and SOAP-based. Object-Relational Mapping, JPA/JTA (Java Persistence/Transaction API), JMS (Java Message Service), Overview over distributed Dbs (Cassandra, MongoDB).
Directed Study “Web Application Security”
TCP/IP, TLS/SSL (https), attack forms and defenses; analysis of GOTOFAIL and HEARTBLEED, DANE/DNSSEC, Server-side TLS/SSL (Apache), Application-side TLS/SSL; Server Hardening, Server-side encryption, (hashes/salting), Injection attacks (sanitizing).

Introduction to Operations Research
Game Theory, zero-sum games, equilibria and probabilistic solutions; special optimization problems: Shortest path, transport and scheduling; Linear Optimization: Graphical and computational solutions. Predictions by probability distributions; Introduction to Data Analysis: Analysis of raw data, five number analysis, box plots, geographical data; Programming in R: vectors, matrices, data frames, APIs for optimization and statistical analysis.

Advanced Computer Programming
Asymptotics; basic data structures: Queues, Stacks, trees. Sorting algorithms, Advanced DS: Hash maps, heaps, graphs. OO Design and UML; Java Generics; Design Patterns; Multithreading; DB and Web programming

H. PROJECTS
G1. Research projects
2011 – 2014 SARIDE: Semantic Representations for Media Objects
1995 – 1997 Initiation and outline of a research project “Integration of Cognitive Systems” at the University of Applied Sciences, Hamburg, Department of Electrical Engineering and Computer Science (with Kai von Luck). Project goals: Integration of symbolic and sub-symbolic methods for problem solving. Supervision of several student’s theses emerging from this project, esp. in the area of symbolic planning and robot control.
1981 – 1984 Design and prototypical implementation of N.N., a Chess knowledge base for strategic middle game positions at the Department of Computer Science at the University of Hamburg as the Ph.D. project (with Kai von Luck).

G2. Student's (educational) projects
• Logic Programming and Planning (Prolog)
• Visualization for Software Engineering
• Visualization of Finite Automata (Pascal)
• Chess Programming
• Java Evaluation
• Java Applications

I. THESES SUPERVISED (SOME IN COOPERATION WITH LOCAL COMPANIES - SELECTION)
• An Expert System for Human Resource Scheduling
• A Compiler for the Simulation of Robot Motion
• Core Production Planning System
• Mobile Robot Design for Serving Multiple Goals
• A Knowledge Representation Framework for Simulation
• Planning with Blackboard Abstractions
• An Object Oriented Robot Simulation System
• Design of a Cooperative Internet Agent
• An Open Logic-Programming Environment for Smalltalk
• The Use of Annotations in the "Semantic Web"
• Ontologies and Web Search Engines

J. Online Resources (Lectures & Downloads)
• Online slides for the “Semantic Web” course (Spring 2003)
  http://www.informatik.haw-hamburg.de/~semweb/online/
• Course material for “Computer Science 1” http://www.informatik.haw-
hamburg.de/~owsnicki/cs1.html
• Handout “Theory of Computability” (ps, zip, in German) http://www.informatik.haw-
hamburg.de/~owsnicki/public/theo.zip
• Slides “Compiler Construction” (rtf, zip, in German) http://www.informatik.haw-
hamburg.de/~owsnicki/public/folrtf.zip
• Slides “Applications of AI” (ps, zip, in German) http://www.informatik.haw-
hamburg.de/~owsnicki/public/kips.zip
• Slides “Functional and Logical Programming” (ps, zip, in German)
  http://www.informatik.haw-hamburg.de/~owsnicki/public/flfolien.zip

K. COMPUTER-RELATED SKILLS
  FORTRAN IV/80, Common Lisp, Scheme, Prolog, Java, C/C++, Smalltalk,
  XML/HTML, JSON, OWL, CSS, JavaScript, Flash, Photoshop, MySQL, MongoDB,
  Apache, LaTeX, Linux, R, PHP

L. MISCELLANEOUS SKILLS/HOBBIES
• Audio production and hard disk recording
• Composition and Songwriting
• Guitar, bass, flute playing
• Digital/analog photography and web design
• Chess
• English language (fluent)
• German language (native)
Appendix E

University of West Florida Graduate Admissions and Graduation Requirements
ADMISSION AND GRADUATION REQUIREMENTS

http://catalog.uwf.edu/graduate/academicpolicies/graduation/

GENERAL INFORMATION

The Graduate School administers the application, admission, and readmission process for all degree-seeking and non-degree seeking graduate students. It also assists prospective graduate students in obtaining information about UWF.

General Policies
The University of West Florida encourages applications for admission from qualified students regardless of gender, culture, religion, ethnic background, age, marital status, or disability. Students with documented visual impairments, hearing impairments, motor impairments, or specific learning disabilities may petition for substitution of admission requirements provided such substitution does not significantly alter the nature of the program for which admission is being sought. For more information about the University's admission requirement substitution policy contact the Graduate School. Admission of students to the University of West Florida is within the jurisdiction of the University, but subject to the minimum standards adopted by the UWF Board of Trustees and the Florida Board of Governors.

Conditions of Admission
The Graduate School will notify the applicants of the admission decision. Admission to the University is often contingent upon the subsequent receipt of satisfactory and official college or university transcripts and verification of baccalaureate degrees. Failure to submit such documents may result in the cancellation of admission. Refer to Provisional Admission for more information.

Ownership of Submitted Documents
All credentials and documents submitted become the property of the University of West Florida. The originals or copies of the originals will not be returned to the applicant or forwarded to another institution, agency, or person.

Fraudulent Records
If it is found that an applicant has made a false or fraudulent statement or a deliberate omission on the application for admission, the residency statement, or any other accompanying documents or statements, the applicant may be denied admission. If the student is already enrolled when the fraud is discovered, the case will be adjudicated using the procedures specified for violations of the UWF Student Conduct System as contained in the Student Handbook.

Applicant Conduct
The University shall evaluate an applicant's previous conduct to determine whether offering the applicant admission is in the best interest of the University. Applicants with a record of previous misconduct at an educational institution or criminal conduct will be evaluated during the admission process in accordance with UWF/REG 3.003.

Request for Admission for a Later Semester
Applicants are admitted to the University only for the semester for which they apply. Students
who do not enroll in the semester for which they have been admitted and want consideration for a different semester must reapply for admission and pay another application processing fee. Applicants will be considered for admission under the policies in effect at that time. Admission is not automatic. If an applicant has attended, or is currently attending, another collegiate institution since the submission of the previous application, the applicant must indicate the institution on the new application and provide an official transcript of all work attempted.

Admission Documents Required
Applicants for graduate admission must provide the Graduate School with the following documents:

Application for Admission
Applicants must apply for graduate level admission online. The application for admission and a non-refundable, non-deferrable $30 processing, fee payable to the University of West Florida, should be submitted six to nine months prior to the semester for which admission is requested. It is the policy of the University not to defer or waive the application for admission and the application processing fee. The application processing fee must be in U.S. currency and drawn from a U.S. bank. There is an option to pay via credit card when the web application is submitted.

College Transcripts
Applicants must submit one official transcript from each college and university attended to the Graduate School. Applicants who received their undergraduate degree from UWF do not need to provide UWF transcripts. Transcripts are considered official when they are sent from a college or university directly to the Graduate School and bear an official seal and signature. Transcripts bearing the statement "Issued to Student," faxed transcripts, or transcripts submitted by the applicant are not considered official. Original documents, or signed officially certified photocopies of original documents, may be submitted by the applicant only when institutions outside the U.S. will not send academic records to other institutions. The verifying signature should preferably be that of an officer of the institution attended. All academic records that are not in English must be accompanied by certified English translations.

Test Scores
Official test results from a nationally standardized graduate admission test are required for all applicants unless otherwise specified by the graduate program to which the applicant is applying. Applicants should contact the graduate department for which he/she applied to inquire as to which test is acceptable for that program or if it may be waived. The University of West Florida accepts the Graduate Record Examination (GRE), the Miller Analogies Test (MAT), and the Graduate Management Admissions Test (GMAT). For the majority of departments, it is recommended that the graduate admission test be taken no later than April for the fall semester, August for the spring semester, or January for the summer semester. Applicants should contact the specific department for departmental deadlines for admission tests. Applicants to the Ed.D. program should take the GRE, MAT, or GMAT one year prior to desired admission. The test scores are considered official only when they are sent directly to the Graduate School from the testing agency. Examinee copies are not considered official. The GRE, GMAT, and MAT are offered several times a year at numerous testing centers in the U.S. and abroad. Advanced registration is required. Registration forms, as well as detailed information on the availability and character of the examinations, may be obtained from the UWF Testing Center.
Departmental Requirements
Some departments have additional admission requirements such as auditions, portfolios, goal statements, letters of recommendation, departmental applications, writing samples, personal interviews, and diagnostic testing. Applicants should contact the department directly regarding any departmental admission requirements.

Deadlines for Applications and Supporting Documents
The final deadlines for applications and supporting documents for graduate applicants are: Because some departments have earlier deadlines, applicants should contact the specific academic departments for departmental deadlines. It is in an applicant's best interest to apply early. Files completed after the published deadlines may not be processed in time for the applicant to be considered for enrollment in the desired semester.

Application for Graduation
Applications for Graduation are submitted for the term in which the student is completing their degree requirements. All applications must be submitted during the application period. Specific dates are noted in the Academic Calendar. Students who miss the deadline should contact their academic department to determine eligibility and to request a late submission. Students submitting a late application risk not being included in the commencement program important graduation communication. Retroactive graduation to a prior semester will not be approved.

Master's and Specialist Degrees
Students fulfilling requirements for a UWF master's or specialist degree must follow the instructions for Applying for Graduation and also the Graduation Guide.

GRADUATION PROCESS

Degree Requirements
All degree requirements must be complete by the last day of the semester for which the graduation application is submitted. Students whose Graduation Application is denied for any reason or do not meet the requirements for graduation must submit a new application for the semester in which the requirements are met.

Good Standing Status
A student must be in good standing to receive a UWF degree. Accordingly, any student who is subject to suspension or probation for scholastic or disciplinary reasons will not graduate until the conditions of suspension or probation have been satisfied.
Appendix F

Dr. Sudeep Sarkar, Professor and Chair Computer Science and Engineering at USF
October 10, 2018

Prof. Thomas Reichherzer

Chair, Computer Science and Engineering

University of West Florida

Dear Professor Reichherzer:

The Computer Science and Engineering Department at the University of South Florida, Tampa is supportive of your creating a separate MS degree program in Cybersecurity. UWF’s offering along with ours in the future will offer a diversity of options to Florida students in the field of Cybersecurity, which is in high demand among employers. There are plenty of open Cybersecurity jobs in the state and there is severe shortage of high-tech workers in the field.

We look forward to following your success in this degree implementation and continuing our collaborative efforts to establish the state of Florida as the leader in Cybersecurity education and research.

Sincerely,

[Signature]

Prof. Sudeep Sarkar, Professor and Chair

Computer Science and Engineering
UWF Board of Trustees Meeting
Academic Affairs Committee
February 14, 2019

Issue/Agenda Item: Request to Offer a New Degree Program - Master of Science in Engineering

Proposed Action: Approve Request

Background Information:

The University of West Florida (UWF) proposes to offer the Master of Science in Engineering (MSE) degree program in CIP Code 14.0101, a STEM discipline, effective Fall 2019.

The MSE is a graduate level degree program consisting of 30 semester credit hours beyond a bachelor’s degree. The program will be a collaboration between the Department of Electrical and Computer Engineering (ECE) and the Department of Mechanical Engineering (ME). It will be housed in the ECE department within the Hal Marcus College of Science and Engineering (HMCSE).

Engineering is one of the fastest growing academic disciplines at UWF. Enrollment in undergraduate engineering programs has increased by 148% with 272 students enrolled in fall 2008 to 674 students enrolled in fall 2018. High enrollment numbers are due in part to the high median salary for engineers of $93,808 in the local area. The addition of the MSE degree program will meet local, state, and national needs for trained engineers with graduate degrees. According to the U.S. Bureau of labor Statistics, the Crestview - Fort Walton Beach - Destin area has one of the highest concentrations of engineering jobs in the nation. In addition, the Florida Department of Economic Opportunity projects 11% growth in engineering jobs in the state of Florida between 2016-2024. Graduates from the degree program will work in a variety of high-technology industries such as renewable energy, power grid protection, robotics, autonomous vehicles, advanced manufacturing, defense, and transportation.

The local community has consistently requested that UWF expand its engineering offerings at both the undergraduate and graduate levels. According to a recent survey of graduates of UWF’s engineering programs, there is strong interest in a master’s level engineering program at UWF. The proposed MSE degree program will be offered through a blend of face-to-face, synchronous distance learning, and online delivery at both the Pensacola and Fort Walton Beach sites. The ECE and ME departments have extensive experience in delivering coursework in these formats and have the necessary ability and experience to deliver the proposed new degree program in the same formats.

The addition of the MSE degree program at UWF will provide clear benefits to the university and the local community including:

- Complement the existing Electrical and Computer Engineering and Mechanical Engineering programs.
- Allow the university to respond to regional workforce needs.
• Provide residents an educational pathway to an advanced degree in engineering for jobs that earn an average annual salary in excess of $100,000.

Implementation Plan:

• The CAVP approved UWF’s proposal to offer the MS in Engineering on April 14, 2017.
• The UWF Faculty Senate approved the curriculum on December 17, 2018.
• The UWF Board of Trustees Academic Affairs Committee considers the Request to Offer New Degree Program February 14, 2019.
• The UWF Board of Trustees considers the Request to Offer New Degree Program March 20, 2019.
• Notification to Florida Board of Governors March 2019.
• Notification to SACSCOC of Substantive Change March 2019.
• New degree program implemented Fall 2019.

Fiscal Implications: Fiscal implications are reflected in the Request to Offer.

Supporting documents:

Request to Offer a New Degree Program – MS in Engineering
http://pages.uwf.edu/aadocs/bot/RTO_MS_Engineering.pdf

Prepared by: Kimberly D. McCorkle, Vice Provost
(850) 857-6198, KMcCorkle@uwf.edu

Presenter: Kimberly D. McCorkle, Vice Provost
Board of Governors, State University System of Florida

Request to Offer a New Degree Program

(Please do not revise this proposal format without prior approval from Board staff)

University of West Florida

<table>
<thead>
<tr>
<th>University Submitting Proposal</th>
<th>Proposed Implementation Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hal Marcus College of Science and Engineering</td>
<td>Electrical and Computer Engineering</td>
</tr>
</tbody>
</table>

Name of College(s) or School(s)  
Hal Marcus College of Science and Engineering

Name of Department(s)/ Division(s)  
Electrical and Computer Engineering

Academic Specialty or Field  
Engineering

Complete Name of Degree  
Master of Science in Engineering

14.0101

Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees  
President  
Date

Signature of Chair, Board of Trustees  
Date  
Vice President for Academic Affairs  
Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Enrollment (From Table 1)</th>
<th>Projected Program Costs (From Table 2)</th>
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<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>25</td>
<td>13.75</td>
</tr>
<tr>
<td>Year 2</td>
<td>40</td>
<td>22.0</td>
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<tr>
<td>Year 3</td>
<td>48</td>
<td>26.4</td>
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<tr>
<td>Year 4</td>
<td>62</td>
<td>34.1</td>
</tr>
<tr>
<td>Year 5</td>
<td>66</td>
<td>36.3</td>
</tr>
</tbody>
</table>

$18,307  $664,554  0  0  $664,554

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.
INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including majors, concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

(a) Master of Science

(b) Engineering

(c) 30 Semester Credit Hours beyond the bachelor’s degree

(d) The University of West Florida (UWF) seeks to offer a Master of Science (MS) degree program in Engineering in CIP Code 14.0101. The program will be a collaboration between the Department of Electrical and Computer Engineering (ECE) and the Department of Mechanical Engineering (ME); however, it will housed in the ECE department within the Hal Marcus College of Science and Engineering (HMCSE). The proposed program will consist of 30 semester credit hours (SCH) beyond the bachelor’s degree. Graduates from the degree program will work in a variety of high-technology industries such as renewable energy, power grid protection, robotics, autonomous vehicles, advanced manufacturing, defense, and transportation. With Northwest Florida being a hub for advanced manufacturing and home to numerous military bases and technology companies (especially around Fort Walton Beach), graduates of this program will have excellent job opportunities locally, in the state, and nationally.

The proposed degree program aligns with the Florida Board of Governors’ 2025 Strategic Plan to have “well-educated citizens who are working in diverse fields, from science and engineering to medicine and bioscience to computer science, the arts and so much more.”

B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide a brief narrative explaining how each of these concerns has been or is being addressed.

During the 4/14/2017 meeting, there were no concerns raised by the Council of Academic Vice Presidents (CAVP).

C. If this is a doctoral level program please include the external consultant’s report at the end of the proposal as Appendix D. Please provide a few highlights from the report and describe ways in which the report affected the approval process at the university.

Not applicable, this is a not a doctoral degree program.

D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on the resource page for new program proposal).
Increase the Number of Degrees Awarded in STEM and Other Areas of Strategic Emphasis

The MS Engineering program will directly support the Florida Board of Governor’s goal of increasing the number of advanced degrees from Florida universities awarded in a STEM discipline. The program builds upon the existing strength of UWF’s current engineering programs which have developed an excellent reputation among regional employers for quality graduates. In addition, the proposed degree program will have three concentrations areas which have been the focus of the undergraduate engineering programs at UWF and the driver behind their success: Robotics, Power, and Advanced Materials. For example, the emphasis on robotics within the Electrical and Computer Engineering degree program has allowed UWF’s engineering students to shine in regional, national, and international robotics and unmanned vehicle competitions, often beating teams from larger and better known programs (http://news.uwf.edu/uwf-robotics-team-takes-home-second-place-in-ieee-southeastcon-competition/).

Increase Community and Business Workforce

The creation of the proposed degree program is in direct response to requests by UWF students, graduates, and the local community to offer a graduate level engineering program. During the university’s 2011-2012 academic visioning process, the addition of new engineering programs (both at the undergraduate and graduate levels) was one of the top priorities indicated by both internal and external stakeholders. Northwest Florida is home to numerous military bases (e.g. Naval Air Station, Pensacola and Eglin Air Force Base), technology companies (e.g. BAE Systems), and research laboratories (e.g. Air Force Research Laboratory) hiring engineers with advanced degrees. For example, among approximately 1,000 engineers employed at the Eglin Air Force Base 96th Test Wing and Life Cycle Management Center in Fort Walton Beach, half of them hold master’s degrees (data provided by Mr. George Mooney who is the Site Senior Functional for the Scientists and Engineers on Eglin. He is responsible for the policies, hiring, education, professional development, and recruiting of the workforce. He is also a member of UWF’s Military Advisory Council). Many of these engineers graduated with their BS degree in Engineering from UWF but had to go elsewhere to earn their MS degree. Local employers have asked UWF to build and offer an entire suite of undergraduate and graduate engineering programs for the benefit of its student body and the community at large.

E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

The Programs of Strategic Emphasis Categories:

1. Critical Workforce:
   • Education
   • Health
   • Gap Analysis

2. Economic Development:
   • Global Competitiveness

3. Science, Technology, Engineering, and Math (STEM)

Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations
The proposed MS Engineering program fits in the current Programs of Strategic Emphasis category Science, Technology, Engineering, and Math (STEM) which includes CIP code 14 (Engineering). The CIP code for the proposed degree program is 14.0101 (Engineering, General).

F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The proposed MS Engineering degree program will be delivered in a fashion similar to the successful MS in Math and Statistics degree program at UWF. The courses will be offered using a blend of face to face, synchronous distance learning (DL), and online delivery. The ECE and ME departments have been very successful in delivering all of their undergraduate programs via a synchronous DL setting between UWF’s Pensacola campus and the Fort Walton Beach instructional site; therefore, the faculty are very comfortable and proficient in using the system. In addition, the ECE and ME faculty deliver courses online and are familiar and comfortable with the Canvas Learning Management System.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

National

According to the U.S. Bureau of Labor and Statistics, the Crestview-Fort Walton Beach-Destin area has one of the highest concentrations of engineering jobs in the nation with a location quotient of 1.87 (location quotient is the ratio of the area concentration of occupational employment to the national average concentration; a location quotient > 1 indicates the occupation has a higher share of employment than average) and annual mean wage of $111,000 (source: https://www.bls.gov/oes/current/oes172071.htm).

State

The Florida Department of Economic Opportunity projects an 11% growth in engineering jobs in the state between 2016 and 2024 with 11.4% increase in the field of electrical engineering and 12.7% in the field of mechanical engineering, the two fields affected by the proposed degree program.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.
Engineering is one of the fastest growing academic disciplines at UWF. Enrollment in all programs has increased from 272 students enrolled in fall 2008 to 674 students enrolled in fall 2018.

One reason enrollment in UWF’s engineering programs is growing is because graduates earn high starting salaries. MS degrees in electrical and computer engineering are among the nation’s top ten best paying master’s degrees with a median salary of $130,000 and $129,000, respectively (https://www.monster.com/career-advice/article/best-and-worst-paying-masters-degrees). Another incentive to enrollment is demand by employers for graduates with engineering skills. According to the National Association of Colleges and Employers, master’s degrees in engineering are among employers’ top three in demand graduate degrees (http://www.nacaweb.org/job-market/trends-and-predictions/employer-demand-for-graduates-by-degree-level/).

There is a great demand in Northwest Florida for engineers with graduate degrees, especially around the Crestview-Fort Walton Beach-Destin area where there is a concentration of military bases and high tech companies.

The local community consistently has requested that UWF expand its engineering offerings at both undergraduate and graduate levels. There is a consensus among local community leaders that the success of the current engineering programs, their steady growth, and their excellent reputation, are strong indicators that UWF can successfully offer a graduate level engineering program.

According to a recent survey of graduates of UWF’s engineering programs, approximately 8-10% of the respondents pursue a graduate degree in engineering at top ranked universities, including Johns Hopkins, Carnegie Mellon, and Georgia Institute of Technology. However, a sizeable portion of UWF students are place-bound due to military, financial, or family obligations. These students have asked for and will benefit from a master’s level engineering program at UWF.

C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.

Only the University of South Florida (USF) and Florida Polytechnic University (FL Poly) offer an MS Engineering degree program within the same CIP code 14.0101 (Table 1). USF’s MS Engineering Sciences degree program is offered through the Dean’s Office in the College of Engineering and is designed mainly for students who do not have an undergraduate degree program in an engineering field. In an email conversation with Dr. Tom Weller, the previous Chair of the Electrical Engineering Department at USF, he indicated that most students opted for an MS in Civil or Mechanical Engineering instead of an MS in Engineering Sciences. The MS Engineering at FL Poly is housed in the Electrical and Computer Engineering Department. It started in Fall 2017 with a concentration area in electronics, communication, and control. In fall 2018, a robotics concentration area was introduced. In a phone conversation with Dr.
Muhammad Rashid, the Chair of the ECE department at FL Poly, he indicated that students enrolled in MS Engineering are required to complete a thesis (no project option), to engage with faculty and support their research agenda. He also indicated that the program is growing steadily and that many students benefit from tuition waivers and graduate assistantships.

UWF will house the proposed degree program in the ECE Department with its own allocated faculty lines and support staff. In addition, with the ECE and ME concentration areas offered within the program (Power, Robotics, and Advanced Materials), this MS degree program will be very attractive to undergraduate ECE and ME students who would like to continue their education at UWF.

Table 1. Florida Institutions that Offer an MS Engineering or Similar Degree

<table>
<thead>
<tr>
<th>Institution</th>
<th>Public/ Private</th>
<th>Location</th>
<th>Program Offered</th>
<th>CIP Code</th>
<th>Degree Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of South Florida</td>
<td>Public</td>
<td>Tampa</td>
<td></td>
<td>14.0101</td>
<td>MS Engineering Sciences</td>
</tr>
<tr>
<td>Florida Polytechnic University</td>
<td>Public</td>
<td>Lakeland</td>
<td></td>
<td>14.0101</td>
<td>MS Engineering</td>
</tr>
</tbody>
</table>

D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 30 credit hours per year and graduate FTE will be calculated as 24 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.

The proposed MS Engineering program will be the first master’s level engineering program at UWF. The Department Chair and HMCSE Dean anticipate that initial enrollment will consist of individuals who have recently graduated from existing STEM degree programs at UWF and individuals, including older returning students, drawn from agencies and industries in the Northwest Florida region (e.g. around Fort Walton Beach area where there is a concentration of tech companies). As the program establishes itself and becomes better known in the region and throughout the state, the department anticipates it will start attracting more in-state and out-of-state students, including international students. As shown in Appendix A Table 1-B, Year 1 enrollment should be around 25 students for an FTE of 13.75. With Year 5 enrollment at 66 students for an FTE of 36.3 (Appendix A Table 1-B).

Student demand for this program is demonstrated in Section II.A. which details a three-fold increase in enrollment in UWF engineering programs over a ten-year period, and in Sections I.D. and II.B. which discuss local employer and community requests for more engineering graduates from UWF.

E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in
consultation with the affected university), an analysis of how the program might have an
impact upon that university’s ability to attract students of races different from that which
is predominant on their campus in the subject program. The university’s Equal
Opportunity Officer shall review this section of the proposal and then sign and date
Appendix B to indicate that the analysis required by this subsection has been completed.

Regarding UWF’s proposed MS Engineering degree program, no comments were expressed
concerning impact on programs at FAMU or FIU during the 4/14/2017 meeting of the Council of
Academic Vice Presidents (CAVP) Program Coordination Work Group.

Consistent with its mission, UWF has admissions policies that balance attention to access,
inclusiveness, and quality. In addition, UWF encourages applications from qualified persons and
does not discriminate on the basis of age, color, disability, gender (including gender identity and
sex), marital status, national origin, race, religion, sexual orientation, or veteran status. Also,
UWF’s New Academic Program Approval Policy requires that programs appropriately address
diversity. Therefore, the university and its degree programs take proactive measures to achieve a
diverse student body. Recruitment efforts extend to many geographic regions to attract
prospective students.

The proposed MS Engineering degree program will be marketed to multiple student segments:
students from agencies and industries in UWF’s service area, students from other UWF
programs, students from other institutions, and students from other countries. Program faculty
and staff will use multiple outreach methods to ensure diversity in the program. For example,
there has been a steady increase in the enrollment of female engineering students aided, in part,
by the establishment of endowed scholarships and the re-focusing of recruitment strategies
(Figure 1). The HMCSE will implement a marketing campaign to promote the proposed degree
program to the aforementioned student segments. The HMCSE currently attracts a diverse
student body to its programs, and this trend is expected to extend to the new degree program
(Figure 2).
Figure 1. Five-year demonstration of increasing enrollment of women in UWF’s engineering programs.

Figure 2. Five-year chart demonstrating diversity in UWF’s engineering programs.

III.  Budget

A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In
narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

Expected total expenses for Year 1 of the program are $541,567 from E&G (Appendix A Table 2). The largest items of the Year 1 budget are for a one-time operating capital outlay ($300,000), faculty salaries and benefits ($149,267), and graduate student assistantships and fellowships ($39,000).

- The $300,000 in operating capital outlay will be used to:
  - Equip a research/teaching lab (e.g. robotic arms, CNC machines, smart grid simulation equipment, etc.) to support the faculty and graduate students’ research and teaching agendas ($110,000)
  - Add DL capability to a pair of classrooms (one at the Pensacola campus and one at the Fort Walton Beach instructional site) to support the blend of synchronous DL and online delivery of the program ($190,000).
- Portions of current UWF full time faculty salaries ($149,267) will be reallocated from the departments of Electrical and Computer Engineering and Mechanical Engineering (Appendix A Tables 3 and 4).
- The $39,000 earmarked for assistantships and fellowships will be used to provide graduate assistantship and tuition waiver for three students.

Other Year 1 E&G expenses include $26,300 for staff salaries, a portion of which ($6,300) will be reallocation from the departments of Electrical and Computer Engineering and Mechanical Engineering and the remaining $20,000 will be for a part time staff position. A $7,000 for OPS and a $20,000 in various miscellaneous expenses complete the $541,567 total budget for Year 1. No library expenses are anticipated as the existing collection of journals, electronic databases, and other library holdings are sufficient to implement the program in Year 1 and sustain this program through Year 5.

The projected Year 1 E&G Cost per FTE is projected to be $39,387, higher than the SUS average for MS Engineering programs of $16,749. This is mainly due to the startup costs of equipping a research/teaching lab, hiring two new faculty, and the relatively low initial enrollment of the new program in Year 1.

Expected expenses for Year 5 of the program are $664,554 from E&G (Appendix A Table 2). In Year 5, Table 2 shows the total for faculty salaries at $453,554. This includes salary and benefits for current UWF faculty, one new faculty hired in Year 1 on an existing line, and two additional new faculty hires on existing lines (one in Year 2 and one in Year 3) increased at a rate of 5% per year.

The second biggest expense of Year 5 is $104,000 earmarked for graduate assistantships and tuition waivers to support eight students. Other Year 5 E&G costs include $63,000 in salary and benefit expenses for a full time administrative staff person, $14,000 in OPS expenses, and $30,000 in miscellaneous program expenses. By Year 5, enrollment increases lower the E&G Cost per FTE by over 54% to $18,307.
UWF expects the benefits of this degree program to the university, region, and state to be significant in terms of advancing research, reputation, and grant opportunities.

B. Please explain whether the university intends to operate the program through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors’ approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.

UWF does not intend to operate the program through continuing education on a cost-recovery basis, seek approval for market tuition rate, or establish differentiated graduate-level tuition.

C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

The engineering faculty and Chair as well as the Dean of the HMCSE do not anticipate any negative impact by the proposed MS Engineering degree program on existing UWF programs. The faculty and Dean of the HMCSE anticipate that the program will have a positive impact on enrollments in the related undergraduate programs of Electrical and Computer Engineering, Mechanical Engineering, Computer Science, and other related science disciplines.

D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

As a graduate program, the proposed MS Engineering degree program will have no impact upon general education or common prerequisite courses.

E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.

During the university’s 2011-2012 academic visioning process, the local community represented by members of the local businesses, industrial organizations, military bases, etc. identified engineering programs, both undergraduate and graduate, as a top priority for UWF. UWF has received substantial local financial support earmarked for its engineering programs. This included $5,000,000 to support the college of Science and Engineering (renamed Hal Marcus College of Science and Engineering in honor of the donor), $700,000 to support the launch of the Mechanical Engineering degree program, $300,000 to support the power lab at the Electrical and
Computer Engineering department, about $200,000 in engineering endowments, and close to $80,000 in support of robotics activities. This is evidence that the local community is ready to support this program and other graduate programs that enhance the engineering offerings at UWF.

IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

University

The new program will enhance the research done by UWF’s engineering faculty. Faculty research productivity will be aided by the program’s graduate research assistants. Each of the proposed concentration areas within the proposed degree program (Power, Robotics, and Advanced Materials) is already an active area of research within the ECE and ME departments. Being affiliated with a graduate degree program positively affects a faculty’s chance of receiving external research funding. The creation of the proposed degree program will also enhance research collaborations with other graduate programs at UWF, especially the MS programs in Computer Science and Math and Statistics.

The creation of the proposed MS Engineering degree program will have clear benefits to the university. Specifically, it will achieve the following:

● Complement the existing Electrical and Computer Engineering and Mechanical Engineering programs and strengthen aspects within their curricula (e.g., robotics, unmanned systems, etc.).
● Make the university more responsive to the regional workforce needs. If the undergraduate engineering programs can be taken as an indicator, more than 50% of the MS Engineering degree program graduates are expected to find job opportunities in the Northwest Florida region.
● Provide more research and collaboration opportunities within the university and outside entities, including Institute of Human and Machine Cognition in Pensacola and Air Force Research Laboratory in Fort Walton Beach.

Local

The proposed program will also have clear benefits to the local community and state. Specifically, the program will:

● Satisfy the local workforce need for engineers with advanced degrees.
● Enhance the local economy by helping engender more high-tech industry and well-paying jobs in Northwest Florida. Graduates with an MS degree in an engineering field

- Match the state demand for graduates in robotics and advanced materials (two concentration areas within the proposed program) with the existing Northwest Florida hub for advanced manufacturing and military bases.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)

Not applicable, this is a graduate degree program.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the Common Prerequisite Manual on the resource page for new program proposal). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

Not applicable, this is a graduate degree program.

C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

Not applicable, this will not be a formal Limited Access program.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in
Rule 6A-10.024 (see link to the Statewide Articulation Manual on the resource page for new program proposal). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

Not applicable, this is not an AS-to-BS capstone degree program.

INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on the resource page for new program proposal).

Our mission at UWF is to:

- Provide high-quality undergraduate and graduate education,
- Conduct teaching and research that services the body of knowledge, and
- Contribute to the needs of professions and society

The MS Engineering degree program strongly aligns with the University of West Florida Mission as well as its 2017-2025 Strategic Plan as follows:

**Strategic Direction 1.1**: Provide high-quality learning and co-curricular experiences that inspire students to become enlightened and engaged global citizens and successful professionals.

The MS Engineering program is an example of high-quality graduate education. The program provides students with opportunities to learn and collaborate with faculty teaching and researching in areas of high demand. UWF faculty will mentor graduate students as they expand their creativity and critical thinking skills thereby adding to the body of knowledge and innovation in the program’s areas of concentration.

UWF values research opportunities for students at all levels through initiatives that allow students to develop research and professional skills as well as develop the ability to think critically, acquire confidence, and inspire creativity. These professional skills and personal qualities are highly valued by employers searching for future employees who will seek to sustain and grow their businesses.

**Strategic Direction 3.3**: Augment and invest in academic and research programs that meet professional, personal, scholastic, and workforce needs.

The Northwest region of Florida and the state of Florida as a whole have identified the need for a workforce skilled in technology and engineering fields to support growth in defense, aerospace, advanced manufacturing, transportation, and healthcare. To meet existing and future workforce demands, UWF has developed the MS Engineering program to enhance the pool of highly-skilled professionals to support economic growth at the regional, state, and national levels,
therby contributing to the needs of professions and society.

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

UWF has undergraduate programs in Computer Science, Mechanical Engineering, and Electrical and Computer Engineering with strong enrollment. These programs will provide a steady stream of future students for the proposed MS Engineering program. Through President Saunders’ Next Big Initiative, a collaborative effort between the departments of Mechanical Engineering, Electrical and Computer Engineering, and the UWF Innovation Institute culminated in the creation of Center for Advanced Manufacturing, an area of emphasis within the proposed program.

There is a great potential for collaboration between the proposed program and existing programs and entities at UWF and beyond. With the hiring of new faculty members in cyber-physical security in the ECE department and at UWF’s Center for Cybersecurity, there is great potential, for example, for research collaboration in the area of smart grid protection.

UWF faculty and students are active in a variety of research activities related to the areas of emphasis within the proposed program: power, robotics, and advanced materials. A few highlights are:

- 2nd place in the IEEE SoutheastCon Hardware Competition held in Tampa, FL in April 2018 by UWF’s Robotics student team, and
- Numerous faculty research projects involving undergraduate students that culminate in publications in highly selective journals.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

The seed for the MS Engineering degree program was sown during the university’s 2011-2012 academic visioning process when input from internal and external stakeholders strongly recommended the establishment of graduate programs in engineering. For the proposed program, the preliminary planning phase took place in the summer of 2015. Throughout the planning phase, feedback from members of the Engineering Advisory Council (EAC) was requested regarding local need and demand and areas of concentration. An MS Committee composed of faculty from the ECE and ME departments was formed to work on the curriculum and identify the resources needed for the program. Details are presented in Tables 2 and 3 below.

Table 2. Planning Process

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2015</td>
<td>Representatives from Provost’s Office, Dean’s Office, and Engineering departments</td>
<td>Initial discussion about responding to need for more engineering programs at UWF expressed by internal and external stakeholders during the</td>
</tr>
<tr>
<td>Date</td>
<td>Implementation Activity</td>
<td>Activity</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Summer 2015</td>
<td>Discuss data gathered from local stakeholders regarding the need/demand for an MS program in Engineering.</td>
<td></td>
</tr>
<tr>
<td>Spring 2016-Fall 2016</td>
<td>Form a faculty committee to propose curriculum and areas of concentration for the program</td>
<td></td>
</tr>
<tr>
<td>Fall 2016</td>
<td>Discuss proposed program with EAC members</td>
<td></td>
</tr>
<tr>
<td>Fall 2016</td>
<td>Preparing the Request to Explore and the CAVP proposal</td>
<td></td>
</tr>
<tr>
<td>Spring 2017</td>
<td>Presentation to CAVP, no concerns</td>
<td></td>
</tr>
<tr>
<td>Fall 2017</td>
<td>Finalize program curriculum, list of resources needed</td>
<td></td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Finalize budget and hiring plan</td>
<td></td>
</tr>
<tr>
<td>Summer 2018</td>
<td>Submit program and course CCR’s</td>
<td></td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Prepare Request to Offer document</td>
<td></td>
</tr>
<tr>
<td>Spring 2019 (anticipated)</td>
<td>Submission of Request to Offer a New Degree Program to the UWF BOT</td>
<td></td>
</tr>
<tr>
<td>Spring 2019 (anticipated)</td>
<td>Submission of Request to Offer a New Degree Program to the Florida Board of Governors</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Events Leading to Implementation
VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

The Department of Electrical and Computer Engineering currently has earned ABET accreditation for its undergraduate degrees in Computer Engineering and Electrical Engineering. Both programs were reviewed for accreditation affirmation in fall 2018.

The new (fall, 2016) Department of Mechanical Engineering houses the Bachelor’s degree program in Mechanical Engineering which will go through the ABET review in the 2018-19 academic year.

MS programs in various engineering fields can seek ABET accreditation; however, only a small percentage do so. The vast majority of employers (including US government) rely on the undergraduate ABET accreditation as a program quality indicator. Among the SUS MS programs in engineering, only one has pursued ABET accreditation (MS in Industrial Hygiene at University of South Florida).

http://main.abet.org/aps/Accreditedprogramsearch.aspx

As such, UWF currently has no plan of seeking ABET accreditation for the proposed MS Engineering degree program.

VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor’s degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

See Appendix C for Academic Learning Plan and Curriculum Map.

Graduates with a Master of Science in Engineering degree should be able to do the following:

Content
● Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Critical Thinking
● Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Communication
● Communicate effectively verbally and in writing with a range of audiences.
Integrity/Values

- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

Project Management

- Apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.

B. Describe the admission standards and graduation requirements for the program.


In addition to the university graduate admission requirements described above, the department bases decisions for regular admission on a holistic review of credentials in which the following criteria are used to assess the potential success of each applicant:

Submission of one of the following graduate admission tests:

- Graduate Record Examination (GRE)
- Miller Analogies Test (MAT)
- Bachelor’s degree from an ABET accredited program in electrical, computer or mechanical engineering (or closely related field)
- Undergraduate cumulative GPA

The graduate admission test requirement may be waived for applicants with a 3.0 GPA or better. Students who are admitted to the program, but do not have a sufficient background for their chosen concentration area, may be required to complete additional coursework. All other students can only be admitted by approval of the Graduate Committee. These students will likely have to complete additional coursework as recommended by the Graduate Committee.

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The MS Engineering degree program requires the completion of 30 graduate semester credit hours (SCH). There will be three concentration areas within this program: Robotics and Controls, Power Systems, and Advanced Materials. Students will take the following courses depending on their chosen concentration area.

Common required course for all concentration areas: 3 SCH

- EGN 6XXX Principles of Engineering Analysis
Concentration area required courses: 9 SCH

Students must take a set of three courses from one of the following areas of concentration.

- Robotics & Controls
  - EEL 5XXX Introduction to Autonomous Systems
  - EEL 5XXX Advanced Control Systems
  - EEL 6XXX Engineering Foundation to Robotics
- Power Systems
  - EEL 5XXX Power System Operation and Control
  - EEL 5XXX Smart Distribution Systems
  - EEL 6XXX Power Electronics and Utility Applications
- Advanced Materials
  - EML 5XXX Composite Materials
  - EML 5XXX Principles of Fracture Mechanics
  - EML 6XXX Advanced Solid Mechanics

Technical Electives: 12 SCH

Students can choose any 12 semester credit hours (SCH) of any combination of 5000 and 6000 technical electives offered at either the Electrical and Computer Engineering department or the Mechanical Engineering department. At least three credits must be 6000 level.

Thesis or Project 6 SCH

Students must choose between completing a thesis or a project.

- EGN 6XX1 Thesis, OR
- EGN 6XX2 Project

Total Hours Required 30 SCH

D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.

Table 4. Sequenced Course of Study for the MS Engineering Program

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>SCH</th>
<th>Semester 2</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 5000-level required course in concentration area</td>
<td>3</td>
<td>Second 5000-level required course in concentration area</td>
<td>3</td>
</tr>
<tr>
<td>Technical elective</td>
<td>3</td>
<td>Advanced Engineering Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Technical elective</td>
<td>3</td>
<td>6000-level required course in concentration area</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>Total</td>
<td>9</td>
</tr>
</tbody>
</table>
E. Provide a one- or two-sentence description of each required or elective course.

**Required Courses**

**EEL 5XXX Introduction to Autonomous Systems**
This course is focused on mobile robotics with emphasis on robot control, navigation, and motion planning using kinematics and dynamics. Also, it deals with topics such as mobile robot sensors, sensor data processing, Kalman filtering, mobile robot localization, basic concepts of mapping, path planning and obstacle avoidance, and intelligent control architecture.

**EEL 5XXX Advanced Control Systems**
This course is focused on analysis, modeling, and design of advanced control systems in time and frequency domains. Implementation of control systems using continuous and digital techniques will also be covered.

**EEL 6XXX Engineering Foundation to Robotics**
This course is focused on robot modeling and it covers robot kinematics such as forward kinematics, inverse kinematics, and differential kinematics. In addition, it deals with robot dynamics, trajectory generation, and tracking. Advanced topics on high-level control such as admittance and impedance control will also be covered.

**EEL 5XXX Power System Operation and Control**
An overview of modern power system operational and control problems and solution techniques, including the current and advanced technologies and trends in development that will shape future electrical power systems.

**EEL 5XXX Smart Distribution Systems**
Theory and practical application methods available in the industry for the protection of distribution systems and includes smart grid applications for protection and control. Covering a broad range of topics related to developments and trends in smart distribution technologies including automatic restoration, data management, cybersecurity, interoperability and standards, and future vision, this course will be taught as a multidisciplinary course and emphasis is placed on the importance of strong collaboration between academia, utility and industry.
EEL 6XXX  Power Electronics and Utility Applications
Function of power electronics as an interface, listing of utility applications requiring power electronics interface, power device capabilities and the resulting structures of power electronic interfaces to exploit them, importance and the role of power electronic interfaces in various applications, and discussion of power electronics interface in appropriate detail.

EGN 6XXX  Principles of Engineering Analysis
Topics in advanced engineering analysis, including linear algebra, partial differential equations, Fourier series, complex variables, vector calculus with numerical techniques.

EML 5XXX  Composite Materials
Introduction to composite materials and their applications. Properties and microstructure of high-strength fiber materials (glass, carbon, polymer, ceramic fibers) and matrix materials (polymer, metal, ceramic, and carbon matrices). Specific strength and stiffness of high-performance composites. Design of composite structures and components. Manufacturing processes.

EML 5XXX  Principles of Fracture Mechanics

EML 6XXX  Advanced Solid Mechanics
Topics in stress analysis; including unsymmetrical bending, three-dimensional stress-strain; torsion; rotational stress; thin walled pressure vessels; beams on elastic foundations; and stress concentrations.

EGN 6XX1  Thesis
Design, research, and presentation of a master's thesis under the direction of a faculty committee.

EGN 6XX2  Project
Capstone course for Masters of Engineering students who do not elect the thesis option. Students will define and carry out a project that shows mastery of some topic in Engineering and produces a final product.

F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

The departments of Electrical and Computer Engineering and Mechanical Engineering have formed an Engineering Advisory Council (EAC) that includes representatives from local businesses and institutions. The EAC meets once or twice per year with engineering faculty to provide feedback on regional workforce needs, industry-driven competencies, program goals, curriculum changes, and performance evaluation of employees who graduated from the
engineering programs at UWF. EAC members are chosen to represent the widest possible range of local industries and institutions and various engineering and management backgrounds (Table 5).

At every stage of the development of this degree program, the EAC was updated on the progress and their feedback was sought regarding the regional need and demand for the program. EAC members showed great enthusiasm for the proposed program, indicated the local need for it, and their willingness to support it.

Table 5. Current Membership of the Engineering Advisory Council (EAC)

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Affiliation</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brett Luebke</td>
<td>Manager, Gulf Power</td>
<td>Electrical Engineering (EE)/Computer Engineering (CE)</td>
</tr>
<tr>
<td>David Lamar</td>
<td>Lead Engineer, David Lamar Civil Engineering</td>
<td>Civil Engineering (CV)</td>
</tr>
<tr>
<td>Maurice Bobbitt</td>
<td>Civil Servant, Eglin AFB</td>
<td>EE/CE</td>
</tr>
<tr>
<td>Sean Sylvester</td>
<td>Civil Servant, Eglin AFB</td>
<td>EE/CE</td>
</tr>
<tr>
<td>Kaitlin Fair</td>
<td>Research Engineer at AFRL Munitions Directorate Integrated Sensing and Processing Sciences Branch</td>
<td>EE/CE</td>
</tr>
<tr>
<td>Scott Hand</td>
<td>Director of New Product Development, QMotion</td>
<td>Mechanical Engineering (ME)</td>
</tr>
<tr>
<td>Jimmy Touma</td>
<td>Researcher, Air Force Research Laboratory</td>
<td>Physics/ME</td>
</tr>
<tr>
<td>Mary “Missy” Ward</td>
<td>Assistant Division Mgr, Emerald Coast Division Applied Research Associates (ARA)</td>
<td>Management</td>
</tr>
<tr>
<td>Scott Marshall</td>
<td>Consulting Material and Corrosion Engineer McSwain Engineering</td>
<td>ME</td>
</tr>
<tr>
<td>Larry S. Shemetulskis</td>
<td>Account Manager and Sales Coordinator, Tektronix</td>
<td>EE/CE/ME</td>
</tr>
<tr>
<td>Chris Fountain</td>
<td>Environmental Engineer and Contract Manager Ascend Performance Materials</td>
<td>ME</td>
</tr>
<tr>
<td>Name</td>
<td>Position / Company</td>
<td>Department</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Jason Gilmore</td>
<td>Chief Operating Officer MANOWN Engineering</td>
<td>ME</td>
</tr>
<tr>
<td>Peggy Milz</td>
<td>Quality Manager BAE Systems</td>
<td>ME</td>
</tr>
<tr>
<td>Egas “EJ” Gomes</td>
<td>Project Developer Energy Services, Gulf Power</td>
<td>CV</td>
</tr>
<tr>
<td>Daniel Corliss</td>
<td>Project Manager ECUA</td>
<td>CV</td>
</tr>
<tr>
<td>Erica Jernigan, P.E.</td>
<td>Senior Project Manager DRMP Inc.</td>
<td>CV</td>
</tr>
<tr>
<td>Heath Jenkins, P.E</td>
<td>Senior Project Manager Mott MacDonald</td>
<td>CV</td>
</tr>
<tr>
<td>Cory Snyder</td>
<td>Project Manager Municipal Engineering Services, Inc.</td>
<td>CV</td>
</tr>
<tr>
<td>Milo Kral, PhD</td>
<td>Consulting Engineer McSwain Engineering</td>
<td>Materials Science</td>
</tr>
<tr>
<td>William Sawarynski</td>
<td>Executive-Manufacturing Wind GE Renewable Energy</td>
<td>EE</td>
</tr>
</tbody>
</table>

G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

MS programs in engineering fields can seek ABET accreditation; however, only a very small percentage do so. The majority of employers (including U.S. government) rely on the undergraduate ABET accreditation as a program quality indicator. Among the MS programs in engineering disciplines that are offered throughout the SUS, only one is ABET accredited (MS in Industrial Hygiene at University of South Florida).

At this time, the university has no plan to seek ABET accreditation for the proposed MS Engineering degree program.

H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?

Not applicable, this is a not a doctoral degree program.

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional
delivery on main campus; traditional delivery at branch campuses or centers; or
nontraditional delivery such as distance or distributed learning, self-paced instruction, or
external degree programs). If the proposed delivery system will require specialized
services or greater than normal financial support, include projected costs in Table 2 in
Appendix A. Provide a narrative describing the feasibility of delivering the proposed
program through collaboration with other universities, both public and private. Cite
specific queries made of other institutions with respect to shared courses,
distance/distributed learning technologies, and joint-use facilities for research or
internships.

The proposed degree program will be offered on UWF’s Pensacola campus. The content will be
delivered using a blended face to face and online format with a synchronous distance learning
option available to students at the Fort Walton Beach instructional site. The number of
classrooms with DL capabilities will be increased to accommodate the anticipated demand by the
new MS program (See Section III.B. and Appendix A Table 2 line 14).

IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or
adjunct) faculty who will participate in the proposed program through Year 5. Include (a)
faculty code associated with the source of funding for the position; (b) name; (c) highest
degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-
earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of
annual effort that will be directed toward the proposed program (instruction, advising,
supervising internships and practica, and supervising thesis or dissertation hours).

The following UWF faculty are shown in Appendix A Table 4:

- Mohamed Khabou
- Michael Reynolds
- Oscar Chuy
- Bhuvaneswari Ramachandran

B. Use Table 2 in Appendix A to display the costs and associated funding resources for
existing and anticipated full-time faculty (as identified in Table 4 in Appendix A). Costs
for visiting and adjunct faculty should be included in the category of Other Personnel
Services (OPS). Provide a narrative summarizing projected costs and funding sources.

Faculty costs are those associated with the teaching of required courses, technical electives,
mentoring projects and theses, and the administration of the degree program.

As shown in Appendix A Tables 2 – 4, Faculty funding figures for Year 1:

- $149,267 a portion of the salary and fringe for four full-time faculty on existing lines to
  be reallocated from the departments to Electrical and Computer Engineering and
  Mechanical Engineering and one new hire on an existing vacant line.
- $7,000 OPS expense for two adjunct faculty

Faculty funding figures for Year 5:

- $453,554 Continuing Base salary and fringe for the Year 1 (fall 2019) faculty plus two
  new hires reallocated from existing lines to come aboard in fall 2020 and fall 2021.
• $14,000 OPS expense for four adjunct faculty

All faculty costs associated with the proposed degree program will come from E&G.

C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

Faculty vitae in Appendix D include the following unit faculty who will be supporting the proposed degree program:

• Mohamed Khabou
• Michael Reynolds
• Oscar Chuy
• Bhuvaneswari Ramachandran

D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

Faculty from the departments of Electrical and Computer Engineering and Mechanical Engineering in HMCSE are highly productive in teaching, research, and service activities.

**Teaching Productivity**

The combined number of student credit hours (SCH) generated by the departments of Electrical and Computer Engineering and Mechanical Engineering has been increasing steadily (Table 6). Combined, these two departments have 14 full-time faculty members, four of whom will teach in the new MS Engineering degree program. The fall 2018 figures show a very healthy teaching productivity of about 307 SCH per faculty.

<table>
<thead>
<tr>
<th>Department</th>
<th>Fall 2014</th>
<th>Fall 2015</th>
<th>Fall 2016</th>
<th>Fall 2017</th>
<th>Fall 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical and Computer Engineering</td>
<td>2846</td>
<td>2884</td>
<td>3544</td>
<td>2820</td>
<td>2563</td>
</tr>
<tr>
<td>Mechanical Engineering*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1266</td>
<td>1758</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2846</strong></td>
<td><strong>2884</strong></td>
<td><strong>3544</strong></td>
<td><strong>4086</strong></td>
<td><strong>4321</strong></td>
</tr>
</tbody>
</table>

* Mechanical Engineering (program start date fall 2016) department created in fall 2017, split from ECE Department.

In addition to high teaching productivity, the engineering faculty have been recognized for their dedication and high quality teaching (Table 7).
Table 7. Examples of Recent Teaching Awards in the Departments of Electrical and Computer Engineering and Mechanical Engineering

<table>
<thead>
<tr>
<th>Excellence in Teaching Award</th>
<th>SGA Award</th>
<th>ISEE Student Chapter Award</th>
<th>Excellence in Advising Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohamed Khabou 2013</td>
<td>Tom Gilbar 2017</td>
<td>Mohamed Khabou</td>
<td>Tom Gilbar 2014</td>
</tr>
<tr>
<td>Tom Gilbar 2014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andreas Fuchs 2015</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Productivity

Despite the fact that the engineering programs at UWF are undergraduate only and faculty do not have access to graduate students in the major to help with their research agenda, the two engineering departments have been very productive in the research area. With a combined ten full-time faculty members with research expectations (instructors do not have a research component/expectation), the two departments have a great combined publication record.

For example, during the 2017-2018 academic year, the faculty in both department produced a total of:

- Two book chapters,
- Ten refereed journal papers, and
- Ten refereed conference papers.

In addition, the faculty mentored numerous capstone and Summer Undergraduate Research Projects (SURP). Some of these projects resulted in:

- Patent application (e.g. patent US 15/131,689, “Slip mitigation control for electric ground vehicles”) and
- Won national competitions against much bigger engineering schools
  - e.g. 2nd place in 2018 IEEE SoutheastCon Hardware Competition.

In addition, the engineering faculty applied for numerous external funding opportunities and received close to $168,000 in external funding during the 2017-2018 academic year (Table 8).

Table 8. Sample of grant activity for engineering faculty during 2017-2018 academic year.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Grant Name</th>
<th>Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oscar Chuy</td>
<td>Development of Robotic Mobility Aid</td>
<td>$24,600</td>
</tr>
<tr>
<td>Brad Regez</td>
<td>Instrumentation Evaluation for Siemens</td>
<td>$60,000</td>
</tr>
<tr>
<td>Lakshmi Prayaga</td>
<td>Florida Center for Cybersecurity Cyber Jedi in Smart Cities</td>
<td>$83,000</td>
</tr>
<tr>
<td>Oscar Chuy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This research and grant productivity is truly distinguished given the undergraduate-only nature of the engineering programs and the number of faculty involved.
Service Productivity
The engineering faculty have been involved in numerous service activities at the department, college, university, local community levels, and the engineering profession at large. For example, the faculty stationed at the Fort Walton Beach instructional site have been crucial to the expansion of the engineering programs there. Their outreach and recruiting activities are too numerous to list and their efforts have been appreciated and recognized by the university (e.g., Dr. Tom Gilbar, received UWF’s 2015 Distinguished Service Award.)

The engineering faculty have also been very supportive of HMCSE activities including:
- Organization of the BEST Robotics Competition,
- Science Fair,
- Science Olympiad, and
- Being part of the STEM advancement initiative.

The engineering faculty have also been involved in campus wide initiatives including:
- The university’s 2011-2012 academic visioning process,
- Tenure, Promotion, and Evaluation Task Force,
- Strategies and Tactics for Recruiting to Improve Diversity and Excellence (STRIDE) task force.

In addition, the engineering faculty have been very active in professional organizations such as the Institute of Electrical and Electronics Engineers, American Society of Mechanical Engineers, American Society for Engineering Education, and Society of Women Engineers, etc., where they have assumed leadership positions. The engineering faculty have also chaired/led numerous professional activities in their fields of expertise.

X. Non-Faculty Resources
   A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.

UWF currently offers a BS in Computer Engineering program, a BS in Electrical Engineering program, and a BS in Mechanical Engineering program. In support of the MS Engineering degree program, the library is equipped to provide similar resources and services.

The libraries shelve more than 800,000 print volumes and house an extensive microforms collection. Electronic resources include more than 160,000 e-books and access to approximately 80,000 journals and other serial titles through a discovery system. An analysis of holdings in relevant Library of Congress classifications for general engineering, electrical engineering, mechanical engineering, and materials science indicates that UWF holds over 16,000 books. The library also provides access to over 1,800 peer-reviewed e-journals in engineering, as well as titles that support the interdisciplinary nature of the M.S.E.
Specialized indexing, abstracting, and full-text databases relevant to engineering are the ACM Digital Library, Applied Science & Technology Source, Engineering Collection (ProQuest), Engineering Village, Inspec, IEEE Xplore, and MathSciNet. More general databases supporting engineering are Web of Science, Science Direct, and Wiley Online Library. Full-text dissertations and theses are available through ProQuest Dissertations and Theses. Using their Argonet accounts, students and faculty may access electronic resources anytime from any place. Current library resources available to implement the proposed MS Engineering through year 5 include:

**Databases**

- ACM Digital Library
- Applied Science & Technology Source
- Business Source Complete
- Computer Science Collection (ProQuest)
- Engineering Collection (ProQuest)
- Engineering Village
- IEEE Xplore
- Inspec
- MathSciNet
- SciFinder
- Dissertations and Theses (ProQuest)
- Science Full Text Select
- Wiley Online
- ScienceDirect
- Web of Science

**Major Journals (Peer-Reviewed)**

Consists of but are not limited to:

- IEEE Transactions (Entire collection available through IEE/IET Electronic Library)
- ACM Transactions (Entire collection available through ACM Digital Library)
- International Journal of Robotics Research (Full-text 1999-present through SAGE Journals)
- Nonlinear Dynamics (Full-text 1997-present through Springer Nature Journals)
- Advanced Materials (Full-text 1997-present through Wiley Online Library)
- Journal of Applied Engineering Sciences (Full-text 2013-present through Applied Science and Technology Source)
- Journal of Engineering Education (Full-text 1997-present through Wiley Online Library)
- Journal of Systems and Software (Full text 1995-present through ScienceDirect)
- Advances in Electrical and Computer Engineering (Full-text 2007-present through DOAJ)
- Journal of Materials Science (Full-text 1997-present through Springer Nature Journals)
- Materials Science and Engineering: R: Reports (Full-text 1995-present through ScienceDirect)
- Materials & Design (Full-text 2015-present through ScienceDirect)
Each academic discipline is assigned a Reference Librarian to serve as a department liaison, providing library instruction, collection development, and reference assistance for the students and faculty in that discipline. To support the needs of online learners, students may also schedule a research consultation with their liaison via e-mail, online chat, telephone, or in person.

The library provides an Online Learners Library Guide (http://libguides.uwf.edu/online) outlining services and resources that support the increasing number of online learners. The library has also been responsive to the needs of clients who prefer to work from home. In addition to being able to access databases and materials in full-text online, UWF students and faculty may also take advantage of these online library services:

- Read course-required readings on electronic reserves
- Request books and articles from Interlibrary Loan
- Request Intercampus Loan (to/from the Fort Walton Beach Instructional Site library)
- Renew books
- Submit a reference question via text, email, or chat
- Request priority cataloging of an item that is on order
- Suggest the purchase of a particular book or journal
- Request an item to be recalled for use
- Have UWF and Interlibrary Loan books delivered to your home address if you live over 50 miles from campus

B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 2 in Appendix A. Please include the signature of the Library Director in Appendix B.

The library services and resources currently available are adequate to support the MS Engineering through Year 5. Furthermore, UWF Libraries’ current holdings are competitive when compared to the resources available at other institutions with similar programs.

C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.

The Departments of Electrical and Computer Engineering and Mechanical Engineering have presence on the Pensacola campus and the Fort Walton Beach instructional site. On the Pensacola campus, the programs are housed in Building 4, where classrooms, teaching labs, research labs, and office space for faculty and staff are located. At the Fort Walton Beach instructional site, faculty and staff offices are located in Buildings 1 and 2; classrooms, teaching and research labs are located in buildings 4, 6, and 7.

A majority of the engineering courses are taught using one of the three distance learning (DL) classrooms on the Pensacola campus paired with three similar rooms at the Fort Walton Beach instructional site. All six rooms are equipped with DL equipment to deliver lectures in a synchronous manner. These DL classrooms that allow one faculty member to deliver education to students in two separate places will support the proposed MS Engineering program.
In addition, the ECE and ME programs currently have access to a variety of teaching and research lab spaces to support the proposed MS Engineering degree program both on the Pensacola campus and at the Fort Walton Beach instructional site including:

- Unmanned Systems Lab
- Mechatronics and Robotics Lab
- Artificial Intelligence and Projects Lab
- Power Lab
- Capstone Projects Lab
- Enterprise Projects Open Space
- Controls, Communication and Microprocessors Lab
- Circuits and Electronics Lab

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

Office space for the new faculty hires will be allocated in Building 4 on the Pensacola campus.

The proposed program will utilize existing classroom equipment and laboratory space, to implement and support the program through Year 5. Research space for the MS Engineering degree program will be allocated in Building 4 from the laboratory space currently being used by the Physics Department. This space will be vacated in Fall 2019 when Physics will move into the newly constructed Building 58C. The vacated space in Building 4 will be adequate and will not need any remodeling. This research and laboratory space is sufficient to maintain the program through Year 5.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

The budget for the proposed MS Engineering degree program includes $190,000 to increase the Distance Learning (DL) capabilities (Refer to Section III.B and Appendix A Table 2 column 4). The one-time expense, to come from Operating Capital Outlay E&G funding, is based on the cost of a recent DL conversion made by the university. The addition of DL capability to a pair of existing classrooms (one on the Pensacola campus paired with another one at the Fort Walton Beach instructional site) should be adequate to accommodate the anticipated student growth in the program through Year 5.

The balance of $110,000 from the $300,000 Operating Capital Outlay of E&G funding will serve to support the anticipated need for new equipment to support additional research and student projects through Year 5. The new equipment will be housed in existing laboratory space on the...
Pensacola campus in Building 4.

F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

The ECE and ME Departments currently have access to a variety of laboratory equipment that can be used to support and sustain the proposed MS Engineering program through Year 5. The list includes:

- WAM Barrett manipulator
- KUKA manipulator
- Custom built robotic walker/wheelchair
- Custom built Autonomous Ground Vehicle
- Vicon motion capture system (housed in the Department of Exercise Science)
- Bridgeport “J head” Milling Machine
- Clausing 5904 Lathe
- 12 Ton Bottle Jack press
- Rockwell/Delta Vertical Band saw
- Rockwell/Delta Drill Press
- Rockwell/Delta Table Saw

G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

The equipment needs described in Section X.D-E will be sufficient to implement and sustain the MS Engineering degree program through Year 5.

H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

The university does not anticipate the need for any additional resources, other than those described in Section X.D-E, to implement and sustain the program through Year 5.

I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.

Year 1 budget includes $39,000 to provide graduate assistantships and tuition waivers for three students (Appendix A Table 2 Column 3). With anticipated growth in enrollment, the program has budgeted $104,000 in Year 5 (Appendix A Table 2 Column 9) to provide graduate assistantships and tuition waivers for eight students. These graduate assistantships will serve to attract more students, support the research agenda of both students and faculty, and hone the teaching skills of the graduate assistants as they will be expected to teach an undergraduate laboratory section as part of their assistance package.

J. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.
The ECE and ME departments currently place more than 20 undergraduate students per year in various internship opportunities with local and national entities including:

- Gulf Power,
- Avalex,
- McSwain Engineering,
- Institute for Human and Machine Cognition,
- Boeing, and
- Air Force Research Laboratory.

We anticipate that the proposed program will provide similar opportunities for the graduate students as the concentration areas offered within the program match the needs of many of our existing partners. For example, students choosing the program’s Power concentration will find opportunities at Gulf Power; those interested in Robotics will find opportunities at the Institute for Human and Machine Cognition and the Air Force Research Laboratory; and those interested in Advanced Materials will find opportunities at McSwain Engineering.
Appendix A

Table 1B Projected Headcount from Potential Sources (Graduate Degree Program)

Table 2 Projected Costs and Funding Sources

Table 3 Anticipated Reallocation of E&G Funds

Table 4 Anticipated Faculty Participation
### APPENDIX A

**TABLE 1-B**  
**PROJECTED HEADCOUNT FROM POTENTIAL SOURCES**  
*(MS Engineering)*

<table>
<thead>
<tr>
<th>Source of Students (Non-duplicated headcount in any given year)*</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
</tr>
<tr>
<td>Individuals drawn from agencies/industries in your service area (e.g., older returning students)</td>
<td>8</td>
<td>4.4</td>
<td>10</td>
<td>5.5</td>
<td>10</td>
</tr>
<tr>
<td>Students who transfer from other graduate programs within the university**</td>
<td>2</td>
<td>1.1</td>
<td>4</td>
<td>2.2</td>
<td>4</td>
</tr>
<tr>
<td>Individuals who have recently graduated from preceding degree programs at this university</td>
<td>8</td>
<td>4.4</td>
<td>10</td>
<td>5.5</td>
<td>12</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at other Florida public universities</td>
<td>2</td>
<td>1.1</td>
<td>4</td>
<td>2.2</td>
<td>6</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at non-public Florida institutions</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1.1</td>
<td>2</td>
</tr>
<tr>
<td>Additional in-state residents***</td>
<td>4</td>
<td>2.2</td>
<td>6</td>
<td>3.3</td>
<td>8</td>
</tr>
<tr>
<td>Additional out-of-state residents***</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1.1</td>
<td>4</td>
</tr>
<tr>
<td>Additional foreign residents***</td>
<td>1</td>
<td>0.55</td>
<td>2</td>
<td>1.1</td>
<td>4</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>25</td>
<td>13.75</td>
<td>40</td>
<td>22</td>
<td>48</td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR category in a given COLUMN.
## APPENDIX A

### TABLE 2

**PROJECTED COSTS AND FUNDING SOURCES**

<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal columns 1+…+7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal columns 9+…+14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Identify reallocation sources in Table 3.

**Includes recurring E&G funded costs (‘reallocated base,’ "enrollment growth," and ‘new recurring’) from Years 1-4 that continue into Year 5.

***Identify if non-recurring.

### Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Total Positions</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>0.90</td>
<td>2.40</td>
</tr>
<tr>
<td>A &amp; P (FTE)</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>USPS (FTE)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$541,567</td>
<td>$664,554</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>13.75</td>
<td>36.3</td>
</tr>
<tr>
<td>E&amp;G Cost per FTE</td>
<td>$39,387</td>
<td>$18,307</td>
</tr>
</tbody>
</table>

### Table 2 Column Explanations

Reallocated Base* (E&G) | 1 | E&G funds that are already available in the university's budget and will be reallocated to support the new program. Please include these funds in the Table 3 – Anticipated reallocation of E&G funds and indicate their source.
<table>
<thead>
<tr>
<th>Description</th>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td>2</td>
<td>Additional E&amp;G funds allocated from the tuition and fees trust fund contingent on enrollment increases.</td>
</tr>
<tr>
<td>New Recurring (E&amp;G)</td>
<td>3</td>
<td>Recurring funds appropriated by the Legislature to support implementation of the program.</td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td>4</td>
<td>Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section III. A.) of the proposal. These funds can include initial investments, such as infrastructure.</td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td>5</td>
<td>Contracts and grants funding available for the program.</td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td>6</td>
<td>Funds provided through the foundation or other Direct Support Organizations (DSO) to support of the program.</td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td>7</td>
<td>Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.</td>
</tr>
<tr>
<td>Subtotal columns 1+...+7</td>
<td>8</td>
<td>Subtotal of values included in columns 1 through 7.</td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td>9</td>
<td>Includes the sum of columns 1, 2, and 3 over time.</td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td>10</td>
<td>See explanation provided for column 2.</td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td>11</td>
<td>These are specific funds provided by the Legislature to support implementation of the program.</td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td>12</td>
<td>See explanation provided for column 5.</td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td>13</td>
<td>See explanation provided for column 6.</td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td>14</td>
<td>Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.</td>
</tr>
<tr>
<td>Subtotal columns 9+...+14</td>
<td>15</td>
<td>Subtotal of values included in columns 9 through 14.</td>
</tr>
</tbody>
</table>

285
### APPENDIX A

**TABLE 3
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS***

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocation of expenses from the Departments of Electrical and Computer Engineering and the Department of Mechanical Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Salaries and Fringe</td>
<td>149,267</td>
<td>149,267</td>
<td></td>
</tr>
<tr>
<td>Administrative Salary and Fringe</td>
<td>6,300</td>
<td>6,300</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>$155,567</td>
<td>$155,567</td>
<td>$0</td>
</tr>
</tbody>
</table>

* If not reallocating funds, please submit a zeroed Table 3
APPENDIX A

TABLE 4
ANTICIPATED FACULTY PARTICIPATION

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Highest Degree Held</th>
<th>Academic Discipline or Speciality</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mohamed Khabou, PhD</td>
<td>Professor</td>
<td>Tenured</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Michael Reynolds, PhD</td>
<td>Associate</td>
<td>Tenured</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Oscar Chuy, PhD</td>
<td>Professor</td>
<td>Tenure</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Bhuvaneswari Ramachandran, Ph.D</td>
<td>Associate</td>
<td>Tenured</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New Hire, PhD</td>
<td>Assistant</td>
<td>Tenure</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New Hire, PhD</td>
<td>Assistant</td>
<td>Tenure</td>
<td>Fall 2020</td>
<td>9</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New Hire, PhD</td>
<td>Assistant</td>
<td>Tenure</td>
<td>Fall 2021</td>
<td>9</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>0.75</td>
<td></td>
</tr>
</tbody>
</table>

Total Person-Years (PY): 0.90

PY Workload by Budget Classification

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>PY Workload by Budget Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>A</td>
<td>0.15</td>
</tr>
<tr>
<td>B</td>
<td>0.75</td>
</tr>
<tr>
<td>C</td>
<td>0.00</td>
</tr>
<tr>
<td>D</td>
<td>0.00</td>
</tr>
<tr>
<td>E</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Overall Totals for Year 1: 0.90

Overall Totals for Year 5: 2.40
Appendix B

Signatures
Please include the signature of the Equal Opportunity Officer and the Dean of University Libraries.

__________________________________  _____________________  
Kim LeDuff, PhD  
Equal Opportunity Officer/ Vice President  
Division of Academic Engagement  

__________________________________  _____________________  
Stephanie Clark  
Interim Dean of University Libraries  

This appendix was created to facilitate the collection of signatures in support of the proposal. Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II. E. of the proposal, the Dean and AVP of University College has reviewed sections on General Education III. D., V. A. and VIII. B. & D. and the Library Director has reviewed sections X. A. and X. B.

UWF also requires that a Request to Offer a New Degree Program is reviewed by the Chief Technology Officer.

__________________________________  _____________________  
Melanie Haveard  
Chief Technology Officer  

Date  

Appendix C

Academic Learning Plan and Student Learning Outcomes
MASTERS OF SCIENCE IN ENGINEERING

MISSION STATEMENT
The mission of the Electrical and Computer Engineering Department is to offer undergraduate and graduate programs of excellence in engineering that serve the needs of the West Florida region, the state, and the nation. The goal of these programs is to prepare students for a successful professional career in their respective chosen discipline of study. All programs shall be revised continuously to improve quality and respond to current workforce needs.

STUDENT LEARNING OUTCOMES
Graduates with a Master of Engineering degree should be able to do the following:

Content
Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Critical Thinking
Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Communication
Communicate effectively verbally and in writing with a range of audiences.

Integrity/Values
Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

Project Management
Apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.
ASSESSMENT OF STUDENT LEARNING OUTCOMES
Program SLOs will be assessed using selected student work in the required course of Principles of Engineering Analysis (EML 6XXX) and in the Thesis/Project.

JOB PROSPECTS
With a Master of Engineering degree, you can pursue jobs in a variety of fields where specialization and/or extra knowledge are needed. With this degree, you can advance up the ranks and/or become the lead engineer in your unit/organization. Some of the opportunities a Master of Engineering degree holder enjoys include:

- Senior/Lead electrical engineer
- Senior/Lead mechanical engineer
- Senior/Lead computer engineer
- Senior/Lead systems engineer
- Engineering project manager
- Processing engineering manager
- Construction project manager
- Design engineer
- Product engineer
Appendix D

Curriculum Vitae
MOHAMED A. KHABOU
Professor and Chair
Electrical and Computer Engineering Department
University of West Florida
11000 University Pkwy, Pensacola, FL 32514
(850) 857-6031 mkhabou@uwf.edu

EDUCATION
1. Ph.D., Electrical Engineering, University of Missouri-Columbia, 1999
   Dissertation Title: Improving Shared-Weight Neural Network Generalization Using
   Regularization Theory and Entropy Maximization
2. MSEE, Electrical Engineering, University of Missouri-Columbia, 1993
3. BSEE, Electrical Engineering, University of Missouri-Columbia, 1990

PROFESSIONAL EXPERIENCE
4. Interim Director, PhD in Intelligent Systems and Robotics, University of West Florida, (4/2018-Present)
5. Chair, Electrical and Computer Engineering Dept., University of West Florida (January 2014-Present)
6. Professor, Electrical and Computer Engineering Dept., University of West Florida (2015-Present)
7. STEM Fellow, Center for University Teaching, Learning and Assessment (2013-2014)
8. Associate Professor, Electrical and Computer Engineering Dept., University of West Florida (2009-2015)
9. Assistant Professor, Electrical and Computer Engineering Dept., University of West Florida (2002-2009)
10. Visiting Assistant Professor, Physics Computer Science and Engineering Dept., Christopher Newport University. (1999-2002)

   - Teaching Assistant, Math Dept., University of Missouri-Columbia (1993-1999)

TEACHING EXPERIENCE
11. At University of West Florida
    EGS 1006 Introduction to Engineering
    EEL 3135 Discrete Time Signals and Systems
    EEL 3211 Electrical Energy Engineering
    EGN 3203 Engineering Software Tools
    EGM 4313 Intermediate Engineering Analysis
    EEL 3111L Circuits I Lab
    EEL 3701 Digital Logic & Computer Systems (Lecture + Lab)
    EEL 4712 Digital Design (Lecture + Lab)
    EEL 4713 Digital Computer Architecture (Lecture + Lab)
    EEL 4744 Microprocessor Applications (Lecture + Lab)
    EEL 4759 Digital Image Processing
    EEL 4822 Pattern Recognition
    EEL 4834 Programming For Engineers
    EEL 4930 Unmanned Systems Lab
    EEL 4914C Electrical Engineering Design
    EEL 4949 Co-Op Work Experience

12. At Christopher Newport University
    CPEN 414 Computer Architecture
    CPSC 205 Introduction to Computer Science
    CPSC 230 Introduction to Computers and Programming in C++
    CPSC 330 Computer Organization
    CPSC 642 Pattern Recognition
    ENGR 213 Discrete Mathematics
RESEARCH EXPERIENCE

- Using Smart Device Technology to Improve Quality of Life for Older Adults (2015-Present)
  Sponsor: Health Alliance Professorship
  Cooperating with Dr. Reichherzer from the Computer Science Department and Dr. Rodney Guttmann, the Director of the Center on Aging to combine off-the-shelf devices with novel computer algorithms to build a SMILE (Smart Independent Living for Elders) home in which older adults and their families can monitor and improve their daily lives.

- Processing and Classification of Actigraphy Signals (2012-2013)
  Cooperated/consulted with Actigraph Company on the design of features and classifiers to automatically process actigraphy signals.

- Effect of Distance Learning on Student Learning Outcomes (2008-Present)
  Cooperate with ECE Department colleagues and Dr. Claudia Stanny from the Center for University Teaching, Learning, and Assessment (CUTLA) on studying the effect of distance learning on the student performance in class and instructor evaluation.

- Eigenvalues and Shapes (2007-2010)
  Sponsor: Sultan Qaboos University Postgraduate Studies and Research
  Cooperate with Dr. Lotfi Hermi of University of Arizona and Dr Mohamed B. H. Rhouma of Sultan Qaboos University on the use of Laplacian-based features in pattern recognition

- System for Indexing and Retrieving Historical Documents (2006-Present)
  Sponsor: UWF Summer Research Award and collaboration with researchers at Ecole Nationale d'Ingénieurs de Sfax (ENIS), Tunisia
  Design and test a system to process, index, and retrieve images of historic documents and artifacts

  Sponsor: UWF 2005 Faculty Scholarly and Creative Activity Award
  Design and test of a reliable human face detector using a morphological shared-weight neural network.

  Sponsor: UWF Summer Research Grant
  Design and test a neural network-based system to detect human faces in visual scenes

- Remote Acquisition Storage System (2000)
  Sponsor: NASA-Langley Research Center (LaRC)
  Designed and tested autonomous microphones to detect and transmit sound waves of military airplanes flying over residential areas. The project was part of an effort to redesign the shape of airplane wings to reduce noise levels.

  Sponsor: Army Research Office
  Helped in the design and testing of a landmine detection system that uses ground penetrating radar and neural networks to detect buried metal and plastic landmines. The system was able to detect 98% of the landmines. The system was selected among 6 competing designs proposed by top universities including MIT

- Application of Fuzzy Logic to Automatic Target Recognition (1996-1999)
  Sponsor: Office of Naval Research
  Helped in the design and testing of an automatic detection system that detects tanks in laser radar images. The system used a combination of neural networks and fuzzy logic to detect more than 97% of the tanks.

- Image Algebra-Based Local Feature Extraction and Detection of Occluded Vehicles (1995-1997)
  Sponsor: Eglin AFB
  Helped in the design and testing of an automatic detection system that detects tanks and armored personnel carriers in synthetic aperture radar images. The system used a combination of neural networks and fuzzy logic to detect more than 90% of the targets.

- Pattern Recognition via Fuzzy Morphological Networks (1993-1994)
  Sponsor: MU Research Board
  Helped in the design of a new type of neural networks called shared-weight morphological neural networks. They proved to be superior to other networks in detecting particular patterns and shapes.
Sponsor: ERIM
Designed a system to recognize handwritten zip codes on mail pieces. The system was able to correctly recognize more than 96% of the handwritten numerals.

PUBLICATIONS

Book Chapters

Refereed Journal Papers

Refereed Conference Papers

47


Poster Papers

Technical Reports

Mentored Projects

AWARDS
B. Faculty Excellence in Teaching Award, University of West Florida, 2013
C. Electrical and Computer Engineering Award, Student Scholars Symposium, University of West Florida, 2014
D. Teacher of the Year Award, IEEE Student chapter, University of West Florida, 2004-2005
E. Computer Science Paper Award, SEASTARS Conference, University of West Florida, 2008
F. Electrical and Computer Engineering Paper Award, SEASTARS Conference, University of West Florida, 2009
G. Electrical and Computer Engineering Paper Award, SEASTARS Conference, University of West Florida, 2010

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES
I. Vice Chair, IEEE North West Florida region (2004)
J. Senior Member, IEEE
K. Member, HKN Honors Society
L. Faculty Advisor, IEEE student chapter, University of West Florida
M. Faculty Advisor, Florida Engineering Society student chapter, University of West Florida
N. Advisory Committee, Int'l Conference on Advanced Technologies for Signal and Image Processing (2014)
O. Program Committee, Int'l Conference on Neural Computation Theory and Applications (2013)
P. Organizing Committee Member, IEEE International Conference on Fuzzy Systems (2004)
Q. Organizing Committee Member, International Conference on Intelligent Technologies (2003)
R. Organizing Committee Member, International Conference on Artificial and Computational Intelligence for Control, Automation and Decision in Engineering and Industrial Systems (ACIDCA2000)
S. Session Chair, Intelligent Pattern Analysis III, the International Conference on Machine Intelligence (ICMI2005)
T. Reviewer for:
   Neural Computing and Applications
   Information Sciences Journal
   IEEE Transactions on Fuzzy Systems
   IEEE Transactions on Geoscience and Remote Sensing
   Journal of Optics Communications
   Journal of Electronic Imaging
Journal of Fuzzy Sets and Systems
Journal of Optical Engineering
IEEE International Conference on Neural Networks
IEEE International Conference on Fuzzy Systems
IEEE Southeast Conference
SPIE Conference on Image Algebra and Morphological Image Processing
International Conference on Artificial and Computational Intelligence for Control, Automation and Decision in Engineering and Industrial Systems
International Conference on Machine Intelligence
International Conference on Education and Information Systems, Technologies and Applications
International Conference on Intelligent Technologies
International Conference on Neural Computation Theory and Applications
International Conference on Pattern Recognition Applications and Methods
Journal of Computers and Electronics in Agriculture

COMMITTEE MEMBERSHIPS

U. Member, BEST Robotics Steering Committee
V. Member, Tenure, Promotion, and Evaluation Task Force
W. Member, Strategic Academic Visioning and Empowerment (SAVE) team
X. Chair, Internal Stakeholders Subcommittee, SAVE
Y. Member, STEM Steering Committee
Z. Member, STRIDE Committee
AA. Chair/Member, Faculty Search Committees
BB. Member, Department Curriculum Committee
CC. Member, ABET Accreditation Committee
DD. Chair, Outcome Assessments and Retention Committee
EE. Chair, Bylaws Revision Committee
FF. Coordinator, with the Computer Science Department
GG. Member, FWB Expansion Committee
HH. Member, College of Arts and Science Council (Fall 2003)
Michael C. Reynolds

Contact Information

University of West Florida
11000 University Parkway
Pensacola, FL 32514-5750
Office Phone: (850) 474-2977
Email: mreynolds2@uwf.edu

Education

8/99-8/04  Doctor of Philosophy in Mechanical Engineering, Purdue University, West Lafayette, Indiana.  
Thesis: “The Application of Command Shaping to the Tracking Problem”  
Advisor: Dr. Peter H. Meckl  

8/96-5/99  Master of Science in Mechanical Engineering, Purdue University, West Lafayette, Indiana.  
Thesis: “Solving and Benchmarking the Time-Optimal Control of Flexible Systems”  
Advisor: Dr. Peter H. Meckl

8/92-5/96  Bachelor of Science in Mechanical Engineering, Marquette University, Milwaukee, Wisconsin. Cum Laude Graduate.

Professional Experience

8/15 – present  Associate Professor and Chair, Mechanical Engineering, College of Science and Engineering, University of West Florida.

Founding chair of new Mechanical Engineering program. Designed curriculum, setup laboratories, recruiting students and preparing the processes necessary for ABET accreditation.

8/07 – 8/15  Head, Engineering Department, College of Science, Technology, Engineering, and Mathematics, University of Arkansas - Fort Smith.

First level of administration for electrical and mechanical engineering programs. Oversaw and approve budgets, directed recruiting, retention, and assessment initiatives. Evaluated faculty and directed departmental strategic
activities.

4/10 – 7/15  **Associate Professor**, Mechanical Engineering, College of Science, Technology, Engineering, and Mathematics, University of Arkansas - Fort Smith.

1/04 – 4/10  **Assistant Professor**, Mechanical Engineering, College of Science, Technology, Engineering, and Mathematics, University of Arkansas - Fort Smith.

Taught various freshman and sophomore classes in Mechanical Engineering. Advise and recruit students along with various projects and committees. Lead student recruiting efforts.

8/06 – 7/15  **Adjunct Associate Professor**, University of Arkansas – Fayetteville (was Adjunct Assistant Professor 8/06-4/10)

Worked with University of Arkansas in administration and teaching Bachelor of Science in Mechanical Engineering degree.

4/10 – 7/15  **Adjunct Associate Professor**, University of Arkansas – Little Rock

Served on PhD committee and do collaborative research with faculty at UA-Little Rock.

8/03-12/03  **Visiting Assistant Professor**, School of Mechanical Engineering, Purdue University.

Taught junior level course in systems modeling and control.

8/98-5/03  **Head Teaching Assistant**, School of Mechanical Engineering, Purdue University.

Taught and directed TAs of ME 475, a senior level controls lab. Designed and implemented new controller design projects using modular experimental equipment with a MATLAB/Simulink interface.

1/97-8/98  **Teaching Assistant**, School of Mechanical Engineering, Purdue University.


8/94-5/96  **Teaching Assistant**, Physics Department, Marquette University.

Rewrote entire lab manual. Taught students from all grade levels, including non-engineers.

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**Honors and Awards**
$28,524 - Collaborative Research Program – Arkansas Space Grant Consortium, “Command Controlled Weather Balloons for Extended Endurance High Altitude Experiments” (PI). With Dr. Adam Huang, University of Arkansas – Fayetteville (Co-PI).

$2,000 Women’s Foundation of Arkansas Grant for a Girl’s Engineering Camp at UAFS. Camp was conducted in June 2014.


$20,000 - EPSCoR NASA RID, Arkansas Space Grant Consortium, “A Broadband Flying-Wing Design” (PI), with Dr. Guoliang Huang, University of Arkansas – Little Rock. (2nd year of funding on this project).

$20,000 - EPSCoR NASA RID, Arkansas Space Grant Consortium, “A Broadband Flying-Wing Design” (PI), with Dr. Guoliang Huang, University of Arkansas – Little Rock. (Co-PI).

President, Arkansas Chapter of the American Society of Mechanical Engineers.

Named Editor-in-Chief, Journal of Online Engineering Education.

$500 EEES Grant for the development and implementation of programs to attract more women to engineering.

2nd place, Best Conference Paper, 2008 ASEE Midwest Regional Conference.

$2400 Engineering Equity Extension Service Grant for the development and implementation of programs to attract more women to engineering.

$10,000 Arkansas Space Grant for Research, Arkansas Space Grant Consortium, “Pre and Post Spaceflight Neuromuscular Characterization and Rehabilitation Device: Design and Analysis,” (Co-PI) with Dr. David Paulus, University of Arkansas - Fort Smith (PI).

$10,000 Arkansas Space Grant for Research, Arkansas Space Grant Consortium, “Interactive Variable Resistance Countermeasure to Adverse Physiological Adaptations Associated with Exposure to Microgravity,” (Co-PI) with Dr. David Paulus, University of Arkansas - Fort Smith (PI).
12/06 $500 Diversity Grant, ASME.

6/03 Best paper in session, 2003 American Control Conference.


11/02 ASME travel grant for the 2002 International Mechanical Engineering Congress and Exposition.

6/01 Best paper in session, 2001 American Control Conference.

6/01 Purdue Graduate Student Association travel grant for the 2001 American Control Conference.

5/96 Marquette University award for Outstanding Contributions to Spiritual Growth and Development.

Peer Reviewed Publications


Revised December 8, 2016


Peer Reviewed Presentations


Service

9/14 Director, 2014 Midwest Section Conference of the American Society for Engineering Education.

6/14 – present ABET Program Evaluator. Was selected and trained as a program evaluator for ABET, the premier accreditor for engineering and engineering technology programs.

8/04 – 7/15 Director of recruiting for engineering, University of Arkansas - Fort Smith. Developed and implemented a recruiting plan for engineering that raised the median ACT of incoming students from 22 to 26.
1/04 – 7/15 Director of engineering assessment, University of Arkansas - Fort Smith. Developed and implemented an assessment plan for both university and ABET requirements.

8/08 – 7/15 Chair of University Student Life committee. Advise and assist University Office of Student Life in programs, planning and assessment.

8/05 – 8/09 Served on university faculty Curriculum Committee. Review and approve campus-wide curriculum.

8/07 – 7/15 Established a student section of the Society of Women Engineers on the UA Fort Smith campus. Served as the advisor to SWE.

8/05 – 7/15 Established a student section of the American Society of Mechanical Engineers on the UA Fort Smith campus. Served as the advisor to ASME.

06,07,13,15 Served on search committees for university provost, dean of the college of business, dean of the college of STEM, and head of the biology department.

5/05 – 5/07 Designed and implemented an engineering camp for the recruitment of high school students into engineering. Served as the director of the week long, residential camp for 15 high school students each summer.

8/98 – 5/03 Developed and organized various workshops designed to improve the communication skills of our graduate teaching assistants at Purdue University. Worked to establish a community amongst the teaching assistants through these workshops.

8/99 – 5/02 Served on the faculty Communications Committee as the Teaching Assistant Representative at Purdue University. Helped to improve the communication skills of students through curriculum assessment and development.

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Professional Memberships

ASEE American Society for Engineering Education
ASME American Society of Mechanical Engineers

Research Interests


Teaching Interests
Automatic Control: Classical and Modern Control, Digital Control, LQR, QFT, Optimal Control, Mechatronics, and Control of Robotic Systems.
System Modeling: System Modeling, Mechanical Vibrations, Bond Graphs.
Mechanics: Statics, Dynamics.
Oscar Y. Chuy Jr.
Assistant Professor
Department of Electrical and Computer Engineering
University of West Florida
Bldg 4/ Rm. 132
11000 University Pkwy.
Pensacola, Florida 32514
Phone: (850)-474-3317
E-mail: ochuy@uwf.edu

Research Interest
Human Robot Physical Interaction and Cooperation, Motion Planning and Control, Control of Robotic Assistive Devices, and Control of Autonomous Vehicles.

Professional Preparation

Postdoctoral Research Associate (2007-2010)
Department of Mechanical Engineering
Florida State University
Tallahassee, FL USA
Supervisor: Prof. Emmanuel Collins

Ph.D., Bioengineering and Robotics (2006)
Tohoku University, Sendai Japan
Supervisor: Prof. Kazuhiro Kosuge

M.S., Electrical Engineering (Major: Instrumentation and Controls) (2001)
University of the Philippines, Dilliman, Quezon City, Philippines

B.S., Electrical Engineering (1996)
Mindanao State University - Iligan Institute of Technology, Philippines

B.S., Electronics and Communication Engineering (1994)
Mindanao State University - Iligan Institute of Technology, Philippines

Professional Experience

Assistant Professor (2015-Present)
Department of Electrical and Computer Engineering
University of West Florida  
Pensacola, FL USA  
research faculty i (2013-2015)  
department of mechanical engineering  
famu-fsu college of engineering  
florida state university  
tallahassee, FL usa

assistant scholar/scientist (2010-2013)  
department of mechanical engineering  
famu-fsu college of engineering  
florida state university  
tallahassee, FL usa

research associate (2006-2007)  
system robotics laboratory  
department of bioengineering and robotics  
tohoku university, sendai japan

graduate research assistant (2002-2006)  
system robotics laboratory  
department of bioengineering and robotics  
tohoku university, sendai japan

graduate research assistant (1998-2000)  
department of electrical and electronics engineering  
university of the philippines, philippines

department of electronics and electrical engineering  
mindanao state university - iligan institute of technology, philippines

contracts and grants

chuy, oscar (pi), nri:fnd: understanding the physical interaction of human and mobile co-robots for effective collaboration, february 2018, submitted to the national science foundation.

prayaga, lakshmi (pi) and chuy, oscar (co-pi), cyber jedi in smart cities (cjsc), february 2018, florida center for cyber security, (funded: $83,000)

prayaga, lakshmi (pi), chuy, oscar (co-pi), and schwuttke, ursula. nsf ret site: robotics to promote computational thinking skills, october 2017, submitted to the national science foundation.
**Chuy, Oscar (PI),** BSI Analysis of Breathing Sensor System, Breathing System Incorporated, August 2017- December 2017, (Funded: $6,200)

**Chuy, Oscar (PI),** Development of a Robotic Mobility Aid, UWF (Internal Grant), May 2017- April 2018, (Funded: $24,600)

Collins, Emmanuel (PI) & **Chuy, Oscar (Co-PI).** NRI: Control and Planning for Slip Mitigation in Manned and Unmanned Electric Ground Vehicles. Submitted to National Science Foundation (not funded).

Collins, Emmanuel (PI) & **Chuy, Oscar (Senior Personnel).** Momentum Based Motion Planning for Manipulators with Heavy Loads, NSF, CMMI-1130286, September 1, 2011 - August 31, 2014.


Collins, Emmanuel (Co-PI) & **Chuy, Oscar (Senior Personnel).** Motion Planning and Control of Electric Powered Wheelchair, (subcontract from University of Pittsburgh and Carnegie Mellon University, A National Science Foundation Engineering Research Center for Quality of Life Technologies), August 15, 2009 - July 31, 2014.

**Patent**


**Research Project**

Stability of Human Robot Physical Interaction, 2016 – Present

Human CoG State Estimation (Collaboration with Smart Design Lab, Tohoku University, Japan), 2017 – Present

Fast Motion Planning Using Experience (Collaboration with Florida State University), 2015 – Present


### Teaching

*Department of Electrical and Computer Engineering, Hal Marcus College of Science and Engineering, University of West Florida:*

Autonomous Systems (Introduction to Mobile Robotics) EEL4990  
Elements of Robotics EEL4663  
Discrete Time Signals and Systems EEL3135  
Linear Control Systems EEL4657  
Mechatronic Systems EML4804  

Electronics Laboratory EEL4308L  
Linear Control Systems Laboratory EEL4657L  
Mechatronic Systems Laboratory EML4804L  

*Department of Mechanical Engineering, FAMU-FSU College of Engineering:*

Mechatronics I (EML3811), Fall 2010 – Spring 2015  
Introduction to Mobile Robotics (EML5831, graduate)  
Introduction to Mobile Robotics (EML4830, undergraduate)
Mindanao State University-Iligan Institute of Technology, Philippines

Introduction to Electronics: Circuits and Devices
Feedback Control System

Supervision of Student Research and Projects

Research Project

Adam Moore, Stabilization of Attendant Wheelchair Based on User’s Pose, Summer Undergraduate Research Program (SURP), Hal Marcus College of Science and Engineering, University of West Florida, 2017.


Lash, S., Role of Arm Configuration to the Stability of Human-Robot Physical Interaction, Summer Undergraduate Research Program (SURP), Hal Marcus College of Science and Engineering, University of West Florida, 2016.


Senior Design

T. Boynton, L. Montenegro, and N. Files, Design of an Autonomous Returning Baseball, Department of Electrical and Computer Engineering, University of West Florida, Spring 2017 – Fall 2017.

E. Flagg and N. Tibenko, Design of an RFID/VAL (Voice Authentication Lock), Department of Electrical and Computer Engineering, University of West Florida, Fall 2016 – Spring 2017.


J. Davis, K. Dang, and K. Tan, Development of Unmanned Ground Vehicle (Competition), Department of Electrical and Computer Engineering, University of West Florida, Fall 2015 – Spring 2016.


M. Pekarek and M. Cherry, Design of an Android Jeopardy Game Using Google Chromecast and Bluetooth Controllers, Department of Electrical and Computer Engineering, University of West Florida, Spring 2016 – Fall 2016.


**Refereed Journal Articles**

Chuy, O.Y., Herrero, J., Al-Selwadi, A., Mooer, A., Control and Evaluation of a Motorized Attendant Wheelchair with Haptic Interface, ASME Journal of Medical Devices, doi:10.1115/1.4041336


Invited Book Chapters


Refereed Book Chapters


69
Refereed Proceedings


**Autonomous Robotic Systems** (pp. 345-354). Tsukuba, Ibaraki, Japan.


**Non-Refereed Proceedings**


### International Conference Presentation


**Society Memberships**

Institute of Electrical and Electronics Engineers (IEEE) Robotics and Automation Society, Member (2004- Present)
Service and Outreach

Associate Editor: 2018 IEEE Int. Conf. on Intelligent Robots and Systems (IROS)

Reviewer:
Journal of Advanced Robotics
IEEE Int. Conf. on Robotics and Automation (ICRA)
IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)

Session Chair:
IEEE Int. Conf. on Robotics and Automation, 2009
IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, 2010

Program Committee (International Conference):
7th IEEE International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management 2014
2012 IEEE International Conference on Robotics and Biomimetics

E-media chair(International Conference):
2016 IEEE/SICE International Symposium on System Integration
2011 IEEE International Conference on Robotics and Biomimetics

Service to other Universities:
Project Leader, Development of Mobile Robot Research Platform, De La Salle University, Philippines (2010).

Service to Community:
Mentor, For Inspiration in Recognition of Science and Technology (FIRST) completion, Panhandle Pirates (2009–2010).

Technical Skills

- Realtime Operating System: QNX, Vxworks, and Linux (RTAI)
- Realtime Control/Programming: C/C++, Matlab RT, and Labview RT
- Device Driver Development Experience: QNX and Linux (RTAI)
- Research Platform Development: Ability to develop and control robotic platform from mechanical design, electronic instrumentation, and control programming.
- Electronic design: analog and digital
BHUVANESWARI RAMACHANDRAN, Ph.D., MIEEE
Associate Professor,
Department of Electrical and Computer Engineering,
University of West Florida
Pensacola, FL 32514, USA
Email: br@uwf.edu

Thesis Topic:
“Development of Indices for Voltage Stability Assessment for Large Scale Power Systems”
B.E., Electrical Engineering, Annamalai University, India 1992

Professional Profile

Teaching

More than 24 years of teaching undergraduate and graduate students in Power and Energy Engineering
Designed and developed experiments in student laboratories for 24 years. 
Has developed course material for 7 undergraduate courses. 
Introduced a specialization in “Sustainable Energy Systems” at UWF. 
Experienced in teaching graduate courses in Power System Engineering and undergraduate courses in Electrical Engineering.

Research

Published more than 60 research papers in refereed journals and conferences. 
Supervised 15 graduate students with 1 Ph.D. student. 
More than 18 years of experience in Power, Energy and Smart Grid research.
Served as researcher for 3 years in Office of Naval Research projects and designed shipboard power systems for the US Navy.
Won several internal and external grants at UWF to teach and to pursue research involving undergraduate students.
Mentored more than 25 students in undergraduate research in Power Systems. 
Supervised more than 100 capstone design projects for undergraduate students in electrical engineering

Service

Served as a judge for several local student design competitions and science fairs at UWF 
Serving as Faculty Advisor for Society for Women Engineers at UWF

Reviewer for:
IEEE Transactions on Power Delivery
International Journal of Electrical Power and Energy Systems
IEEE Transactions on Magnetics.
IEEE Transactions on Power Systems
Energy Conversion and Management
Expert Systems with Applications
International Journal of Energy Technology and Policy
Book Chapters for Springer Publishers.

Other

Member of IEEE, PES and SWE.
Listed in Who’s Who in Asia, Who’s Who in Science and Engineering, Who’s Who in Women in Engineering for several years

Employment History

Associate Professor (Tenured), University of West Florida (8/27/2017- )
Assistant Professor, University of West Florida (08/2012- 8/2017)
Adjunct Assistant Professor, College of Engineering, FSU (08/2011-07/2012)
Assistant Scholar Scientist, Center for Advanced Power System, FSU (08/2010-07/2012)
Associate Professor, Annamalai University, India (05/2009-06/2010)
Postdoctoral Research Assistant, Center for Advanced Power System, FSU (05/2009-7/2010)
Assistant Professor, Annamalai University, India (07/2007-04/2009)
Lecturer, Annamalai University, India (02/1994-06/2007))

Expertise

Teaching

Graduate courses at Annamalai University, India
Power System Economics and Control
Power System Dynamics and Stability
Power System State Estimation
Graduate Course at Florida State University, USA
Design and Analysis of Control Systems- EML-4312/531
Undergraduate courses at Annamalai University, India
Linear and Non-linear Control Systems
Advanced Control Systems
Fundamentals of Power Systems
Computer Aided Power System Analysis
Advanced Computer Aided Power System Analysis
Power System Protection
Electrical Machinery
Advanced Electric Machinery
Undergraduate course at Florida State University
Fundamentals of Power EEL-3216, Fall’11
Undergraduate courses at University of West Florida
Electric Energy Engineering EEL 3211
Electric Energy Engineering Laboratory EEL3211L
Circuits-II EEL 3112
Electric Circuits Laboratory EEL 3117L
Electric Energy Systems-1 EEL 4213
Linear Control Systems- EEL 4657

Continuing education courses for Gulf Power Engineers

Distribution Power Quality
Distribution Voltage Regulation
Electric Motors
Fundamentals of Power Distribution
Three Phase Power
Basic Power System Protection

Research

Application of statistical forecasting techniques for power and energy management in a smart grid.
Power system restructuring and electricity market
Smart Grid, Micro grid, and grid integration of PHEVs and other technologies
Distributed generation and renewable energy sources integration in power systems o Power systems modeling and simulation
Reliability/security of power systems
State estimation and placement of phasor measurement units in power systems o Operation, control and energy management of electric shipboard power system.

Scholarly Activities

Refereed Journal Articles

30 Bhuvaneswari Ramachandran, Sanjeev K.Srivastava, Chris Edrington, David A.Cartes,
“An Intelligent Auction Scheme for Smart Grid Market using a Hybrid Immune Algorithm”


Referred National and International Conference Paper/Proceedings


10 R.Kannan, R.Bhuvaneswari and S.Subramanian, “Optimization of induction generator...


12 V.P.Sakthivel, R.Bhuvaneswari and S.Subramanian, “Hybrid Approach using GA and PSO for Alternator Design”, IEEE SOUTHEAST CON, March 5-8 2009 Atlanta, Georgia, USA.


Economic Generation Scheduling For Microgrid Operation” Innovative Smart Grid Technologies 2010, Maryland, Jan 2010, pp.1-6.


25 Bhuvaneswari Ramachandran and Alamelu Ramanathan, “Decentralized Demand Side


27 Fernanda Rabelo Souza and Bhuvana Ramachandran, “Dissolved Gas Analysis to Identify Faults and Improve Reliability in Transformers using Support Vector Machines”, Accepted for presentation at Power Systems Conference, Clemson State University, March 8-11, 2016.


29 Armand Keyhani and Bhuvaneswari Ramachandran, "Real-time Simulation of Demand Side Management and Vehicle to Grid Power Flow in a Smart Distribution Grid”, Electro Information Technology, Nebraska, May 14-17, 2017.


32 Zach Pannell, Dr.Bhuvaneswari Ramachandran and Dr.Dallas Snider, “Machine Learning Approach to Solving the Transient Stability Assessment Problem”, Presented at Texas Power and Energy Conference , University of Texas, Austin during , Feb 8-9, 2018.

33 Tyler Stevens, Dr.Bhuvaneswari Ramachandran and Dr. Achraf Cohen, “ Economic Dispatch of a Smart Grid Considering Uncertainties Associated with Renewable Energy Sources and Loads”, Accepted for Presentation at National Conference on Undergraduate Research to be held in at the University of Central Oklahoma from April 4-7, 2018 in Edmond, OK.

34 Tyler Stevens, Dr.Bhuvaneswari Ramachandran and Dr. Achraf Cohen, “ Economic Dispatch of a Micro Grid Considering Uncertainties Associated with Renewable Energy Sources and Loads”, Accepted for Presentation at IEEE SouthEastCon to be held in Tampa during 19 Apr - 22 Apr 2018.

35 Alex Brock, Bhuvana Ramachandran, Caroline John and Ezhil Kalaimannan, “Cybersecurity of a Power System under Simultaneous Attacks”. Southeast Symposium on Contemporary Engineering Topics” (SSCET) on Aug 3, 2018 at UAH, Huntsville, AL. Book Chapter Published


Accomplishments, Awards and Honors

1. Awarded BOYSCAST (Better Opportunities for Young Scientists in Chosen Areas of Science & Technology) fellowship for the year 2009-2010 by the Department of Science & Technology (DST), Government of India to visit institutions abroad, interact with scientists/technologists there, get trained in latest research techniques and conduct R&D in
specially chosen frontline areas of science & technology.

2. Students I mentored were awarded Second Prize in Maximum Altitude category in the 2013-2014 NASA Hybrid Rocket Competition held in Bunnell, FL in April 2014. Please see the website below.
   http://news.uwf.edu/index.php/2014/05/ufw-engineering-students-earn-place-nasa-hybrid-rocket-competition/

The same students along with few more students participated again in the 2014-15 NASA Hybrid Rocket competition held in Bunnell, FL in April 2015 and won 3rd prize in Maximum altitude category and 2nd prize in closest to 2000 ft category. Please refer to

In 2015-16, the students I mentored won the First place in both categories of “Max altitude” and “Closest to 2000 ft.” at the NASA Hybrid Rocket Competition.

3. Initiated a collaborative research and study abroad partnership between UWF and INSA, Lyon, France. Responsible for striking up a conversation between the two universities for bilateral agreement and had the opportunity to visit INSA, Lyon, France for a site visit during summer 2014. The bilateral agreement was signed in Dec 2014 and students from UWF have travelled to France for 1 year of studies before graduating from UWF.

Professional Affiliations

Institute of Electrical and Electronic Engineers (IEEE)
Power Engineering Society
3POWERGLOBE
IEEE Industrial Electronics Society
Electric Ship Research Development Consortium (ESRDC)
Society of Women Engineers- Faculty Advisor

Past Thesis and Dissertation Supervision Dissertation Topics completed

Graduate Thesis Completed
R.Beula, “Particle Swarm Optimization Based Constrained Economic Load Dispatch”, 2006.
R.Beula, “Improved Particle Swarm Optimization Based Constrained Economic Load Dispatch”, 2006.
B.Arulmadhu, “Bad Data Analysis for ANT Colony Optimization Based State Estimation”,

Internal and External Grants Pursued and Received

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Total Awarded $207,592
Appendix E

University of West Florida Graduate Admissions and Graduation Requirements
UNIVERSITY OF WEST FLORIDA GRADUATE ADMISSION AND GRADUATION REQUIREMENTS

http://catalog.uwf.edu/graduate/academicpolicies/graduation/

GENERAL INFORMATION

The Graduate School administers the application, admission, and readmission process for all degree-seeking and non-degree seeking graduate students. It also assists prospective graduate students in obtaining information about UWF.

General Policies
The University of West Florida encourages applications for admission from qualified students regardless of gender, culture, religion, ethnic background, age, marital status, or disability. Students with documented visual impairments, hearing impairments, motor impairments, or specific learning disabilities may petition for substitution of admission requirements provided such substitution does not significantly alter the nature of the program for which admission is being sought. For more information about the University's admission requirement substitution policy contact the Graduate School.

Admission of students to the University of West Florida is within the jurisdiction of the University, but subject to the minimum standards adopted by the UWF Board of Trustees and the Florida Board of Governors.

Conditions of Admission
The Graduate School will notify the applicants of the admission decision. Admission to the University is often contingent upon the subsequent receipt of satisfactory and official college or university transcripts and verification of baccalaureate degrees. Failure to submit such documents may result in the cancellation of admission. Refer to Provisional Admission for more information.

Ownership of Submitted Documents
All credentials and documents submitted become the property of the University of West Florida. The originals or copies of the originals will not be returned to the applicant or forwarded to another institution, agency, or person.

Fraudulent Records
If it is found that an applicant has made a false or fraudulent statement or a deliberate omission on the application for admission, the residency statement, or any other accompanying documents or statements, the applicant may be denied admission. If the student is already enrolled when the
fraud is discovered, the case will be adjudicated using the procedures specified for violations of the UWF Student Conduct System as contained in the Student Handbook.

**Applicant Conduct**
The University shall evaluate an applicant's previous conduct to determine whether offering the applicant admission is in the best interest of the University. Applicants with a record of previous misconduct at an educational institution or criminal conduct will be evaluated during the admission process in accordance with UWF/REG 3.003.

**Request for Admission for a Later Semester**
Applicants are admitted to the University only for the semester for which they apply. Students who do not enroll in the semester for which they have been admitted and want consideration for a different semester must reapply for admission and pay another application processing fee. Applicants will be considered for admission under the policies in effect at that time. Admission is not automatic. If an applicant has attended, or is currently attending, another collegiate institution since the submission of the previous application, the applicant must indicate the institution on the new application and provide an official transcript of all work attempted.

**Admission Documents Required**
Applicants for graduate admission must provide the Graduate School with the following documents:

**Application for Admission**
Applicants must apply for graduate level admission online. The application for admission and a non-refundable, non-deferrable $30 processing fee payable to the University of West Florida, should be submitted six to nine months prior to the semester for which admission is requested. It is the policy of the University not to defer or waive the application for admission and the application processing fee. The application processing fee must be in U.S. currency and drawn from a U.S. bank. There is an option to pay via credit card when the web application is submitted.

**College Transcripts**
Applicants must submit one official transcript from each college and university attended to the Graduate School. Applicants who received their undergraduate degree from UWF do not need to provide UWF transcripts. Transcripts are considered official when they are sent from a college or university directly to the Graduate School and bear an official seal and signature. Transcripts bearing the statement "Issued to Student," faxed transcripts, or transcripts submitted by the applicant are not considered official. Original documents, or signed officially certified photocopies of original documents, may be submitted by the applicant only when institutions outside the U.S. will not send academic records to other institutions. The verifying signature
should preferably be that of an officer of the institution attended. All academic records that are not in English must be accompanied by certified English translations.

Test Scores
Official test results from a nationally standardized graduate admission test are required for all applicants unless otherwise specified by the graduate program to which the applicant is applying. Applicants should contact the graduate department for which he/she applied to inquire as to which test is acceptable for that program or if it may be waived. The University of West Florida accepts the Graduate Record Examination (GRE), the Miller Analogies Test (MAT), and the Graduate Management Admissions Test (GMAT). For the majority of departments, it is recommended that the graduate admission test be taken no later than April for the fall semester, August for the spring semester, or January for the summer semester. Applicants should contact the specific department for departmental deadlines for admission tests. Applicants to the Ed.D. program should take the GRE, MAT, or GMAT one year prior to desired admission. The test scores are considered official only when they are sent directly to the Graduate School from the testing agency. Examinee copies are not considered official. The GRE, GMAT, and MAT are offered several times a year at numerous testing centers in the U.S. and abroad. Advanced registration is required. Registration forms, as well as detailed information on the availability and character of the examinations, may be obtained from the UWF Testing Center.

Departmental Requirements
Some departments have additional admission requirements such as auditions, portfolios, goal statements, letters of recommendation, departmental applications, writing samples, personal interviews, and diagnostic testing. Applicants should contact the department directly regarding any departmental admission requirements.

Deadlines for Applications and Supporting Documents
The final deadlines for applications and supporting documents for graduate applicants are: Because some departments have earlier deadlines, applicants should contact the specific academic departments for departmental deadlines. It is in an applicant's best interest to apply early. Files completed after the published deadlines may not be processed in time for the applicant to be considered for enrollment in the desired semester.

Application for Graduation
Applications for Graduation are submitted for the term in which the student is completing their degree requirements. All applications must be submitted during the application period. Specific dates are noted in the Academic Calendar. Students who miss the deadline should contact their academic department to determine eligibility and to request a late submission. Students submitting a late application risk not being included in the commencement program important graduation communication. Retroactive graduation to a prior semester will not be approved.
Master's and Specialist Degrees
Students fulfilling requirements for a UWF master's or specialist degree must follow the instructions for Applying for Graduation and also the Graduation Guide.

GRADUATION PROCESS

Degree Requirements
All degree requirements must be complete by the last day of the semester for which the graduation application is submitted. Students whose Graduation Application is denied for any reason or do not meet the requirements for graduation must submit a new application for the semester in which the requirements are met.

Good Standing Status
A student must be in good standing to receive a UWF degree. Accordingly, any student who is subject to suspension or probation for scholastic or disciplinary reasons will not graduate until the conditions of suspension or probation have been satisfied.