Department of Technology Systems

Graduate Program Guide

Master of Science in Network Technology
Master of Science in Technology Management
Master of Science in Occupational Safety
Ph.D. in Technology Management (Consortium)

Graduate Certificates

East Carolina University

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College of Engineering and Technology
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Greenville, North Carolina 27858

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Web: http://www.ecu.edu/tsys

NOTE: This document is a general departmental guide and is designed to assist graduate students in completing their certificate and degree requirements. Although faculty are available for assistance, graduate students are responsible for knowing what is required of them and for their timely progress through their academic program. Graduate students are encouraged to read and become familiar with the ECU Graduate Catalog and the Graduate School’s website at http://www.ecu.edu/gradschool. This document is not intended to replace the Graduate Catalog and other official documents of East Carolina University. In the event of a conflict between statements contained in this handbook - University policies and procedures shall govern.
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1. THE EAST CAROLINA CREED

The East Carolina Creed

In the pursuit of educational excellence, responsible stewardship, and intellectual freedom, the community of scholars at East Carolina University is committed to learning at the highest level. Founded in the tradition of service and leadership, members of our academic society exemplify high standards of professional and personal conduct at all times.

As an East Carolinian...

I will carry out personal and academic integrity.
I will respect and appreciate the diversity of our people, ideas, and opinions.
I will be thoughtful and responsible in my words and actions.
I will engage in purposeful citizenship by serving as a positive role model.

Adherence to these moral principles is the obligation of every East Carolinian on and off campus. In doing so, our individual freedom to learn and a pledge to serve will be preserved.
2. DEPARTMENT CHAIR’S WELCOME MESSAGE

Welcome to the Department of Technology Systems at East Carolina University. We are excited that you have chosen to continue your graduate education here at ECU. Rest assured, that we will work with you every step of the way to achieve your academic goals. We hope that you find this Handbook helpful in guiding you through the processes need to successfully complete your degree or certificate program.

The staff, and faculty of the Department are available to address your questions and concerns. Please feel comfortable in seeking assistance or advice as needed. We are here to help you advance your technology careers, learn new skills, and foster scholarship in our profession.

My best wishes for your continued success.

Dr. Tijjani (TJ) Mohammed
Department Chair
3. DEPARTMENT CONTACT INFORMATION

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<th>Program Coordinators</th>
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<tr>
<th><strong>MS in Occupational Safety (MSOS)</strong></th>
<th><strong>Ph.D. in Technology Management</strong></th>
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<tbody>
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<th>MSNT Concentration Coordinators &amp; MSTM Focus Area (FA) Coordinators</th>
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<tr>
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<tr>
<th><strong>MSTM - Industrial Distribution &amp; Logistics (FA)</strong></th>
<th><strong>MSTM - Manufacturing (FA)</strong></th>
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<tr>
<th><strong>MSTM - Quality (FA)</strong></th>
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<th>Graduate Certificate Coordinators</th>
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<tr>
<th><strong>Graduate Certificate – Computer Network Professional</strong></th>
<th><strong>Graduate Certificate – Cyber Security Professional</strong></th>
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5. HELPFUL LINKS FOR GRADUATE STUDENTS

Department of Technology Systems – Home Page
http://www.ecu.edu/tsys

Department of Technology Systems – Graduate Program Guide
http://www.ecu.edu/cs-cet/techsystems/upload/TSYS-Graduate-Programs-Guide.pdf

Department of Technology Systems – Thesis and Practicum Forms

ECU – Home Page
http://www.ecu.edu/

ECU – Fact Book
http://www.ecu.edu/cs-acad/ipar/research/factbook.cfm

ECU – Graduate School
http://www.ecu.edu/gradschool/

East Carolina University – Graduate Catalog
The ECU Graduate Catalog is the official document describing program requirements and university regulations. You can access the current Graduate Catalog online at:
http://www.ecu.edu/catalog

ECU – Graduate Admissions Information
http://www.ecu.edu/cs-acad/gradschool/Admissions-Information.cfm

ECU – Graduate Academic Policies and Forms
http://www.ecu.edu/cs-acad/gradschool/Academic-Policies-and-Forms.cfm

ECU – Academic Calendars
http://www.ecu.edu/fsonline/senate/fscalend.cfm

ECU – International Students
http://www.ecu.edu/cs-acad/gradschool/International-Students.cfm

ECU – Student Counseling Services
http://www.ecu.edu/counselingcenter/

ECU – Writing Center
http://www.ecu.edu/cs-acad/writing/writingcenter/hours.cfm
ECU – Information Technology & Computing Services (ITCS)
The ITCS department houses the help desk for all technology including ECU email, passphrases, difficulties with online technologies, and personal laptops (if in Greenville). Much of their assistance can be done online or remotely.
http://www.ecu.edu/itcs/

ECU – Financial Aid
http://www.ecu.edu/financial/

East Carolina University – Identification
Campus students are required to have a current, active One Card (ECU ID). DE students may request a student identification card by emailing ocs@ecu.edu or call 1-800-398-9275. More on the One Card can be found at: http://www.ecu.edu/cs-acad/eai/StudentID.cfm
6. DEPARTMENT OF TECHNOLOGY SYSTEMS

The Department of Technology Systems is a national leader in offering graduate, technology related degrees online. The programs are online based and permitting students to be advised, complete courses, collaborate on projects, conduct research, and complete the degree via the Internet. Students typically spend 10-15 hours per week in preparing for and participating in each course. Most of the students in the program are working professionals who are pursuing the degree for career advancement. Average completion time for masters programs is approximately 24 months assuming two courses are taken per semester. Courses are scheduled in a sequence over the fall, spring, and summer semesters to allow program entry in any semester.

6.1. Mission Statement

The Department of Technology Systems supports the mission of the College of Engineering and Technology and East Carolina University by creating a strong workforce for North Carolina, by preparing technologically competent graduates, and by supporting a globally competitive broad-based economy for North Carolina’s future through the application of technology in research and industry outreach.

6.2. Vision

The Department of Technology Systems aspires to a global leadership role in education by developing and delivering creative and responsive degree programs and by developing leading edge applied research capabilities.

6.3. Value Statement

The Department of Technology Systems promotes high standards in all aspects of academic, research, and service activities. Our values mirror ECU’s core values and we remain committed to their implementation and maintenance.

- **Respect**: We respect ourselves, others and our differences. This value is at the heart of our community.
- **Authenticity**: We promote honesty and integrity and we complete the objectives that we proclaim as our own.
- **Accountability**: We are committed to achieving our mission and providing a high quality education for our students in Technology Systems. We insure that our curricula are relevant and promote the skills required for students to compete globally and meet government and industry needs.
- **Teamwork**: We are one university, one college, and one department. We promote collaboration between the programs in the department, college and university, and we seek to exploit our natural synergies.
- **Commitment to Service**: We remain committed to serving our students, state, and region. We recognize potential, actively pursue opportunity, and seek to achieve positive transformation in our environment.
6.4. Graduate Programs

The Department of Technology Systems offers graduate programs leading to a Graduate Certificate, a Master of Science, and a consortium-based Doctor of Philosophy (PhD). The Department is a leading proponent of collaborative network-based learning and offers many of its graduate programs online. Graduate students are expected to be proficient in use of a personal computer and have access to high speed internet service. The department offers the following graduate degree and certificate programs.

**Master of Science (MS) in Technology Management** The master of science in technology management is designed to serve the needs of students who possess a baccalaureate degree in industrial technology, technology management, applied engineering, engineering technology and other similar technology oriented disciplines. The emphasis of the program is on application to practice, and creative problem-solving in technology driven industry and business. Students may select one of three options to complete the MSTM degree: non-thesis option, practicum option or thesis option. Students can structure the degree based on personal interest in:

- Manufacturing Systems
- Quality Systems, or
- Industrial Distribution and Logistics.

**Master of Science (MS) in Network Technology** with areas of in:

- Computer Networking Management
- Digital Communications Technology
- Information Security
- Web Technologies

**Master of Science (MS) in Occupational Safety.** The MS in occupational safety builds upon expertise in foundational regulatory and technical aspects of occupational safety and is a stand along degree program.

**Doctor of philosophy (PhD) in Technology Management.** This PhD program is designed to prepare scholars for leadership positions in education, industry, government, and business; the program is offered through a five-university consortium with the degree being awarded through Indiana State University.

**Graduate certificates** offered through the Department include:

- Computer Network Professional
- Cyber Security Professional
- Lean Six-Sigma Black-Belt (LSSBB)
- Website Developer
7. GENERAL GRADUATE INFORMATION

7.1. Graduate Program Admission Overview

Applicants must meet the admission requirements of the Graduate School. Acceptance into any master’s degree program in the Department of Technology Systems is based on satisfactory undergraduate grades, scores on a graduate test including the Graduate Management Admission Test (GMAT), the Graduate Record Examinations (GRE), and the Miller’s Analogy Test (MAT), and letters of reference. Completion of an undergraduate degree in a field related to the desired concentration or significant related technical experience are required for admission. The following represents the minimum standards for regular admission into the ECU Graduate School as a degree seeking student. Specific programs in the Department may have established higher or additional academic standards for their program(s); these additional requirements are highlighted in each graduate program’s section where applicable. To qualify for regular admission to any graduate degree program at ECU, an applicant must:

1) Hold a baccalaureate degree from a regionally accredited institution or from an approved foreign college/university. International Students must have their transcript evaluated by an outside accrediting board designated by ECU’s Graduate School

2) Score at or above the 30th percentile on the GRE or Millers (MAT) standardized admissions test or score an average of the 30th percentile for the combined GRE verbal + quantitative sections.

3) Have a minimum overall GPA of 2.7 based on a 4.0 scale or a minimum graduate GPA of 3.0 in a completed graduate degree program.

Students with limited technical expertise or a non-related baccalaureate degree are evaluated on a case-by-case basis by each program. In some cases, remedial undergraduate courses or additional graduate courses may be required to complement the graduate program. For more information on graduate admissions, students should go to: http://www.ecu.edu/gradschool/

GRE Waiver – Students applying for either the MS in Network Technology, the MS in Technology Management, or the MS in Occupational Safety may request consideration to have the GRE requirement waived based on one of the following considerations:

- The prospective graduate student has an overall GPA of 3.5 or higher from a regionally accredited institution with a related Baccalaureate degree program;
- The prospective graduate student is a current member of the ECU Honors College in good standing with a related Baccalaureate degree program and a minimum GPA of 3.3 or higher;
- The prospective graduate student has completed at least one of the graduate certificates offered within the department with an overall GPA of 3.2 or higher;
- The prospective graduate student has an overall GPA of 2.7 or higher from a regionally accredited institution with a related Baccalaureate degree program and has accumulated a minimum of 7 years of related professional experience over the past 10 years.
7.2. Graduation

The student is eligible to graduate when all credits and requirements for their respective program have been taken and passed and the GPA is above a 3.0. Students apply to graduate through Banner Self Service and this is to be done one semester prior to the semester of graduation. Prior to graduation, each student should verify that Degree Works lists the appropriate department, degree program, and any appropriate concentrations. Missing information must be corrected at least one semester prior to graduation.

Enrollment is required for the semester of graduation, unless graduation occurs during one of the summer terms. The student must fill out an “Application for Graduation” form from the Registrar’s Office no later than the beginning of the semester of graduation. The completed form should be taken to the Cashier’s Office, where a diploma fee must be paid, and then returned to the Registrar’s Office. Prior to the completion of the form, the student should meet with their Graduate Faculty Advisor to ensure that all requirements for graduation will be met by the end of the semester. More on the Graduate Graduation Process can be found at: http://www.ecu.edu/cs-acad/gradschool/Graduation-Process.cfm

7.3. Proctors for Distance Education & Online Learning

The Department of Technology Systems strives to provide education that is state of the art – in theory, application, and technology. This often includes implementing tools that allow for online assignments and assessment mechanisms. All students are expected to abide by the ECU Student Code of Conduct and additionally there are some academic activities when a proctor may be required. ECU recommends the use of proctors for examinations in the distance education or online modalities. To ensure the integrity of exams and other academic activities, this is also true for on-campus students who are completing tests online and on-campus tests in classrooms. It is the responsibility of this Department to:

1) Ensure that all students are aware of the proctoring policies of the UNC system by including this statement in student handbooks.
2) Ensure that faculty members are educated on the UNC policies and procedures.
3) Encourage faculty that wish to use the UNC proctoring system to ensure students are notified of the procedures in the syllabus.
4) Encourage faculty to utilize an electronic learning management system (e.g., Blackboard, Moodle) course site and include the information on the UNC proctoring system and course-specific specifications about proctoring.
5) Encourage faculty members to consider the complexities of proctoring when designing the syllabus to ensure that students have ample time to arrange for and complete the course activity.
6) Require all students to sign an Academic Integrity Pledge to demonstrate a commitment to academic honesty and completing work individually.
7) Request feedback from students routinely about the use of the UNC proctoring system via course evaluations and other feedback mechanisms.
8) Ensure that students are aware they may submit concerns regarding the use of the UNC proctoring system to the course instructor, or the Department Chair at any time. The following is a list of ECU resources for proctoring:

http://www.ecu.edu/cs-acad/deproctoring/
http://services.northcarolina.edu/exams/find.php

NOTE: Each professor may decide if they do or do not want to use proctors.

7.4. Email Communication

Upon enrollment at ECU, all students are given an ECU email account. The primary method of communication among faculty, departmental staff, and students is email. Most of the important information emanating from the department and the university will come via email, particularly related to departmental activities and events, courses, academic requirements and paperwork, funding opportunities, job openings, and if they have a graduate assistantship (GA), from their faculty supervisors. Therefore, it is imperative that graduate students check their ECU e-mail account regularly, at least twice daily is recommended. Information about how to use the email system is available both through the IT help desk and at http://www.ecu.edu/email.

7.5. Graduate Faculty Advisors

Upon admission to a graduate program of study in the Department of Technology Systems, each graduate student will be notified as to who their Graduate Faculty Advisor (GFA) will be for their program of study. The graduate students program, concentration, or certificate coordinator will typically serve as the students GFA unless otherwise designated by the Program Coordinator. For students taking the thesis or practicum options, once their Thesis/Practicum Committee Chair has been identified, that graduate faculty member will assume the role for guiding the student through the thesis/practicum process; however, for all other advising matters the GFA will be available for graduate advice and mentorship. GFA’s are all members of the ECU Graduate Faculty and are available to assist the student in completing their respective programs within their respective degree or certificate programs. Generally, the advisory process includes:

- An initial online or face-to-face conference with the GFA to review and sign off on the student’s Plan of Study for their specific program; the student should initiate this conference.
- Contact with the GFA at least once per semester; preferably during the online registration period.
- Continued regular contact with the GFA, even if the student is not taking coursework during a particular semester.

GFA’s are available to assist students in selecting graduation options, scheduling and sequencing courses, assisting with problems in scheduling, and providing referrals to other university resources. Appointments should be made with the GFA whenever the student has need of this type of assistance.

Graduate Faculty Advisors:
1. GFA’s provide guidance for program planning for the entire program at the time of initial advisement. A Graduate Program Plan of Study (POS) approved by the GFA should be in each student’s file; the student should have a copy for his/her own use; GFA’s should sign off on any POS changes made.

2. GFA’s should check the POS when his/her advisee is within twelve hours of graduation. Care should be taken to make sure that courses listed on the POS are congruent with courses taken to fulfill program requirements.

3. GFA’s are also available for advising and reviewing schedules for their graduate students prior to registration.

4. In the absence of the designated GFA, the Program Coordinator assumes the role of GFA for the graduate student until either a replacement is made or the original GFA returns.

**Graduate Student Expectations:**

1. Each graduate student, new or continuing, has the primary responsibility for assuring that he or she is completing degree requirements.

2. Keeping informed about dates and processes for on-line registration.

3. Taking actions on removing Incompletes.

4. Making applications for graduation, taking comprehensive exam when required, or completed thesis/practicum.

5. Maintaining a current copy of the POS and making sure that course requirements are met.

6. Checking with their GFA to determine needed courses or changes to POS.

7. Checking with Registrar at least six weeks prior to graduation; if any problems are found, the GFA and/or Program Coordinator should be notified immediately.

8. Keeping one’s GFA informed about changes and/or decisions relating to pursuit of the degree. If the graduate student becomes inactive for a semester or more, he/she is expected to notify their GFA about his/her status.
8. ACADEMIC INTEGRITY

8.1. Academic Integrity

The Department of Technology Systems will not tolerate violations of academic integrity and violations will be pursued to the fullest extent. East Carolina University has a clearly stated policy on academic integrity at http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm. In addition, the ECU Graduate Catalog has a clearly stated policy, as well at http://www.ecu.edu/cs-acad/grad/cfmarac#integrity. The text is provided verbatim below:

*Academic integrity is expected of every East Carolina University graduate student. A student’s instructor or individual graduate advisory committee or an appropriate departmental graduate committee or advisor may initiate actions, in accordance with Faculty Manual procedures, against a graduate student that is believed to have been engaged in academic dishonesty. Academic dishonesty includes: cheating, the giving or receiving of any unauthorized aid or assistance, or the giving or receiving of unfair advantage on any form of academic work; plagiarism, copying the language, structure, ideas, and/or thoughts of another and adopting those as one’s own work; falsification, statement of untruth, either oral or written, regarding any circumstances relating to academic work; and attempting any act which if completed would constitute an academic integrity violation as defined above.*

While academic dishonesty actions are taking place against a graduate student, the graduate student may not withdraw from the University, drop a course in which academic dishonesty is suspected, take a comprehensive or final examination for a degree, or submit a practicum report, thesis or dissertation to the Graduate School.

8.2. Honor Code

In addition, ECU has an Honor Code. And specifically, there is an additional statement for DE students. http://www.ecu.edu/cs-acad/DEOrientation/honorcode.cfm. Academic Integrity is expected of every East Carolina University student. Academic honor is the responsibility of the students and faculty of East Carolina University. A student or group of students knowing of circumstances in which an academic violation of the Honor Code may have occurred is encouraged to bring this to the attention of the responsible faculty member, their program director, or department chairperson. Academic integrity violations may result in a grade penalty, repetition of work, failure of the course, or removal from the graduate program. Academic violations include:

- **Cheating** - Unauthorized aid or assistance or the giving or receiving of unfair advantage on any form of academic work.
- **Plagiarism** - Copying the language, structure, ideas, and/or thoughts of another and adopting same as one’s own work.
- **Falsification** - Statement of any untruth, either oral or written, regarding any circumstances relating to academic work.
- **Attempts** - Attempting any act which if completed would constitute an academic integrity violation as defined herein.
8.3. Ethics

As a graduate student you are in your first true stage of professional training. Therefore, you are expected to conduct yourself in accordance with the ethical standards established by the profession of psychology. This applies to your academic conduct, your clinical practice, and research. Students are responsible to know and practice the Code of Conduct and appropriate ethical standards of their specialty area. Unethical conduct may result in removal from the graduate program.
9. MASTER OF SCIENCE IN TECHNOLOGY MANAGEMENT

The Master of Science (MS) in Technology Management (MSTM) is designed to serve the needs of students who possess a baccalaureate degree in industrial technology, technology management, applied engineering, engineering technology and other similar technology-oriented disciplines. The emphasis of the MSTM degree program is on technology management, application to practice, and creative problem solving in technology driven industry and business. Students are required to apply theory to practice through analytical projects and research involving industry problems and applications. The program of study includes course work composed of 15 s.h. core courses and 15 to 18 s.h. of approved elective courses. Students may select one of the three options: non-thesis, practicum, or thesis. The minimum degree requirement is 33 s.h. for the non-thesis option and 30 s.h. for practicum and thesis options. Specific Admissions Requirements

- A baccalaureate degree from a regionally accredited institution.
- Minimum overall GPA of 2.7 on a 4.0 scale on all undergraduate work.
- An appropriate score on either the GRE or MAT.

9.1. Program of Study

For the Master of Science (MS) in Technology Management (MSTM) there is a minimum degree requirement of 30-33 semester hours of credit. Additionally, the MSTM program requires student to follow one of three options outlined below:

1. Common core - 15 semester hours
   - ITEC 6000 - Statistical Applications in Industry
   - ITEC 6011 - Technological Ethics, Diversity, and Leadership
   - ITEC 6060 - Research Methods in Technology
   - ITEC 6200 - Technology Project Management
   - ITEC 6406 - Capital Project and Cost Analysis for Technology

2. Options - 15-18 s.h.

   MSTM Focus Areas: Students should select courses to help them meet their professional interests from the following:

   - MANUFACTURING: ITEC 6003, 6005, and 6407
   - QUALITY: ITEC 6110, 6112, and 6005
   - DISTRIBUTION AND LOGISTICS: Select 3 from IDIS 6515, 6525, 6535, and 6545

   Non-thesis option (18 s.h.) - Working closely with his/her advisor, the student will create a plan of study by selecting electives to address specific interests. Students will also be required to take a comprehensive exam to demonstrate mastery of course work. The comprehensive exam can only be taken after completion of 24 s.h. or more of total course work. The comprehensive exam can be taken based on student's specific interest or Focus Area. With this option, students choose courses from the approved electives list (18 s.h.).
Students are eligible to take the Comprehensive Examination upon completion of all the required core coursework or with approval by their Concentration Coordinator. Non-thesis track students are required to pass a comprehensive exam that should only be taken after completion of 24 s.h. or more of total course work. Students must pass the comprehensive exam in a maximum of two attempts or their enrollment will be terminated. The comprehensive exam can be taken within the student’s specific focus area. Students should review the section on completing the comprehensive examination for more details on the process and the committee structure.

The format of the comprehensive exam is a written exam. It tests the student’s breadth of knowledge in the areas of both core and concentration courses; it also features a research write-up. The comprehensive exam is offered in the fall and spring semesters. Students will be notified of the date of an upcoming comprehensive exam. Students who want to take the exam must notify the Office of Graduate Studies in the Department no later than two weeks prior to the upcoming comprehensive exam. The possible results of the comprehensive exam are pass and fail. Students must pass the exam to complete their degree. Students who fail the first attempt will be allowed a second attempt at a later semester.

Practicum option (15 s.h.)

- ITEC 6100 (3 s.h.) - Practicum in Industrial Technology
- Choose courses from the approved electives list (12 s.h.)

The practicum option in the MSTM provides students with an opportunity to engage in applied industry-based projects in the area of Technology Management. They may choose to pursue their own independent industry-based practicum. Students desiring to pursue practicum work should declare their intent to do so in the first semester. The process of taking the practicum option is as follows.

1) Identify a Practicum Committee Chair.
2) Form a Practicum Committee (minimum of one additional Practicum Committee Members); the remaining Practicum Committee Members must be approved by the Practicum Committee Chair.
3) Download the Pre-Practicum Research Approval Form, obtain all the required signatures and forward to the Director of Graduate Studies. Practicum Committee Chair is responsible for ensuring Practicum Committee Members agreement to serve on committee and Director of Graduate Studies verifies eligibility of the committee members.
4) Select a practicum topic and a target organization/industry where the project will take place by identifying an industry-based project approved by the Practicum Committee Chair, and obtaining a written confirmation using the form and forward to the Director of Graduate Studies.
5) Register for ITEC 6100- Practicum in Industrial Technology.
6) Develop and present a practicum proposal to the Practicum Committee for approval. Complete the Practicum Proposal Approval Form and forward to the Director of Graduate Studies.
7) Complete and document the practicum project.
8) Defend the practicum project report to the committee:
   1. Submit the report to the Practicum Committee Chair for review
   2. Schedule an oral practicum defense. The possible results of the defense would be:
      - **Pass with no revisions**: The practicum is accepted without further review by the committee.
      - **Pass with minor revisions**: The practicum requires minor revisions/corrections and needs to be reviewed by the Practicum Committee Chair within a time defined by the committee chair.
      - **Pass with major revisions**: Part of the practicum content requires major revisions/corrections and needs to be reviewed by the Practicum Committee within a time defined by the committee.
      - **Fail**: The quality of the practicum is not acceptable. The practicum must be rewritten and possibly involved additional research as outlined by the Practicum Committee. Students must undergo a second oral defense. Students may switch to another option or drop-out from the program if the second attempt fails.
   3. Complete the Practicum Signature Form and include in the practicum report.

**Completing the Practicum.** The Practicum provides an alternative to the thesis or comprehensive examination option. During the Practicum semesters, the student: (1) gains hands-on experience in applied research; or (2) designs and implements a proposed solution. The practicum culminates in the completion of a Final Practicum Report and Practicum Oral Defense.

**Practicum Committee.** The Practicum Committee follows similar procedures as those described for a Thesis Committee. Practicum Proposals are generally no longer than 20 pages and include a description of the research problem, literature review, hypotheses, and methodology (including the research site, subjects, and data-gathering method with instrument(s) appended, and data analysis plan. Where appropriate, a letter of agreement from the administrator of the research site(s) must be appended to the proposal.

**Practicum Oral Defense.** The Practicum Oral Defense follows similar procedures as those outlined for a Thesis defense. After the final version of the Final Practicum Report (with any corrections required by the Practicum Committee Chair) is approved by the Practicum Committee Chair, two copies of the report should be made, each signed by the Practicum Committee members and the Department Chair. One copy should be delivered to the Practicum Committee Chair and one copy the other to the Department’s Director of Graduate Studies. Both of the copies of the Final Practicum Report must be delivered by the last day of classes that semester.

**Thesis option (15 s.h.)** - The student will conduct thesis research and present a seminar based on the thesis. The thesis proposal and the subsequent thesis must be approved by the student’s advisor and a committee composed of three technology systems faculty members. Students desiring to pursue the thesis option should consult their faculty advisor and identify a thesis advisor and topic in the first semester.
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- ITEC 7000 (6 s.h.) - Thesis
- Choose courses from the approved electives list (9 s.h.)

Students desiring to pursue this option should consult faculty and identify a thesis topic and advisor in the first semester. The process of taking the thesis option is as follows.

1. Identify a Thesis Committee Chair.
2. Form a Thesis Committee (minimum of two additional Thesis Committee members); the remaining Thesis Committee members must be approved by the Thesis Committee Chair and the Director of Graduate Studies; at least two Committee Members must be graduate faculty within TSYS.
3. Obtain all the required signatures on the Pre-Thesis Research Approval Form and forward to the Director of Graduate Studies. The Thesis Committee Chair is responsible for ensuring Thesis Committee Members agreement to serve on the committee and the Director of Graduate Studies verifies eligibility of the Thesis Committee Members.
4. Register for ITEC 7000 Thesis.
6. Conduct research activities:
   - Keep Thesis Committee Members advised on progress toward research agenda;
   - Complete thesis draft and submit to committee for review.
7. Defend the thesis to the Thesis Committee:
   - Based on the timeline specified by Graduate School, submit the final draft of thesis to committee for review.
   - Schedule an oral thesis defense. The possible results of the defense would be:
     - **Pass with no revisions**: The thesis is accepted without further review by the committee.
     - **Pass with minor revisions**: The thesis requires minor revisions/corrections and needs to be reviewed by the Thesis Committee Chair within a time defined by the committee chair.
     - **Pass with major revisions**: Part of the thesis content requires major revisions/corrections and needs to be reviewed by the Thesis Committee within a time defined by the committee.
     - **Fail**: The quality of the thesis is not acceptable. The thesis must be rewritten and possibly involved additional research as outlined by the Thesis Committee. Students must undergo a second oral defense. Students may switch to another option or drop-out from the program if the second attempt fails.
8. Complete the Thesis Signature Form and include in the thesis.

3. Approved electives list for the MSTM Program

(Choose electives according to selected option.)
- IDIS 6515 - Logistical Security and Safety Management
- IDIS 6525 - Transportation Logistics Management
- IDIS 6535 - Supply Chain Logistics Management
- IDIS 6545 - Global Logistics Management
- ITEC 6003 - Production Planning and Inventory Management
- ITEC 6005 - Lean Enterprise
- ITEC 6110 - Quality Planning and Analysis
- ITEC 6112 - Design of Experiments for Products and Processes
- ITEC 6407 - Computer Integrated Manufacturing and Automation
- ITEC 6903 - Special Topics in Technology
- SAFT 6250 - Occupational Ergonomics
- SAFT 6402 - Applied Safety Management
10. MASTER OF SCIENCE IN NETWORK TECHNOLOGY

The MS in network technology is designed to serve the needs of students who possess baccalaureate degrees in networking technology-oriented disciplines. Students take a common set of courses and select one of four concentrations: computer networking management, digital communications technology, information security, or web technologies. The program emphasizes advanced applications in computer networking such as network infrastructure management, networked systems design, network security, and technical problem solving in technology-driven organizations.

The MS in network technology is a part of a nationally recognized set of programs designated as professional science master’s (PSM) programs. Graduate students who complete the practicum option for degree completion will have the opportunity to incorporate industry-relevant, problem-solving activities into their studies alongside mentors in the field. In addition to receiving a MS degree in network technology, graduate students completing the practicum option will also receive a professional science master’s designation on their transcripts.

10.1. Specific Admissions Requirements:

- A baccalaureate degree from a regionally accredited institution.
- Minimum overall GPA of 2.7 on a 4.0 scale on all undergraduate work.
- An appropriate score on either the GRE or MAT.

10.2. Program of Study

A minimum of 30-33 semester hours is required as follows:

1. Common core - 15 semester hours
   - ICTN 6823 - Information Security Management (3 s.h.)
   - ICTN 6878 - Legal and Ethical Issues in Information Technology (3 s.h.)
   - ITEC 6000 - Statistical Applications in Industry (3 s.h.)
   - ITEC 6060 - Research Methods in Technology (3 s.h.)
   - ITEC 6200 - Technology Project Management (3 s.h.)

2. Concentration (Choose one) - 12 semester hours

   Concentration in Computer Networking Management

   Courses in this concentration emphasize advanced technologies used in the design, implementation, administration, monitoring, optimization, and maintenance of data communication and computer networking systems in industry. A prerequisite for this concentration is Cisco CCNA certification or equivalent coursework. View a Plan of Study for this concentration. The concentration in Computer Networking Management requires 12 s.h. in the following courses:
   - ICTN 6865 - Fundamental Network Security (3 s.h.)
   - ICTN 6875 - Emerging Technology (3 s.h.)
Concentration in Digital Communications Technology

Courses in this concentration emphasize a broad understanding of communication theory and practice in the transmission of digital data, including signal generation, conditioning, transmission, error detection and correction, and the underlying technologies used to retrieve, process, store, and analyze data in organizations. View a Plan of Study for this concentration. The concentration in Digital Communications Technology requires 12 s.h. in the following courses:

- ICTN 6810 - Communication Technology (3 s.h.)
- ICTN 6820 - Networking Technology for Industry (3 s.h.)
- ICTN 6830 - Advanced Networking Technology (3 s.h.)
- ICTN 6840 - Communication Strategies for Industry (3 s.h.)

Concentration in Information Security

Courses in this concentration prepare students to design, deploy, manage, and apply techniques of securing and protecting the integrity and availability of information systems and communication networks in governmental, private, and non-profit organizations. A prerequisite for this concentration is CompTIA Network+, Microsoft Network Essential, Cisco CCNA certification, equivalent course work, or completion of ECU graduate courses ICTN6810 and ICTN6820 prior to taking concentration coursework. View a Plan of Study for this concentration. The concentration in Information Security requires 12 s.h. in the following courses:

- ICTN 6865 - Fundamental Network Security (3 s.h.)
- ICTN 6870 - Advanced Network Security (3 s.h.)
- ICTN 6873 - Network Intrusion Detection and Incident Response (3 s.h.)
- ICTN 6883 - System Integrity for Information Technology (3 s.h.)

Concentration in Web Technologies

Courses in this concentration prepare students to design, analyze, configure, implement, and operate web services, computer networks, multimedia objects, data storage systems, and interactive web components for governmental, private, and non-profit organizations. A prerequisite for this concentration is course work and/or professional experience in the area of software development recommended. Applicants who do not possess these credentials may be required to take supplementary coursework. View a Plan of Study for this concentration. The concentration in Web Technologies requires 12 s.h. in the following courses:

- ICTN 6815 - Network Media Services (3 s.h.)
- ICTN 6825 - Dynamic Web Services (3 s.h.)
- ICTN 6835 - Enterprise Web Services (3 s.h.)
- ICTN 6845 - Web Site Development (3 s.h.)
3. Option (Choose one) – 3/6 semester hours

**Thesis option - 3 semester hours**

- ICTN 7000 – Thesis (3 s.h.)

Thesis option in the MSNT provides students with an opportunity to conduct research in a specific problem in the area of Information and Computer Technology (ICT). Further Guidance in developing thesis research can be found in the *Practitioner’s Guidebook for Developing Successful Research Proposals in Science, Engineering and Technology* by J. Barry DuVall and Te-Shun Chou at: https://myweb.ecu.edu/duvallj/Proposal_e-book_2015_v10.pdf The process of taking the thesis option is as follows.

1. Identify a Thesis Committee Chair.
2. Form a Thesis Committee (minimum of two additional Thesis Committee members); the remaining Thesis Committee members must be approved by the Thesis Committee Chair and the Director of Graduate Studies; at least two Committee Members must be graduate faculty within TSYS.
3. Obtain all the required signatures on the Pre-Thesis Research Approval Form and forward to the Director of Graduate Studies. The Thesis Committee Chair is responsible for ensuring Thesis Committee Members agreement to serve on the committee and Director of Graduate Studies verifies eligibility of the Thesis Committee Members.
4. Register for ICTN 7000 Thesis.
5. Develop and present a thesis proposal to the Thesis Committee for approval. Complete the Approval of Thesis Proposal Form and forward to the Director of Graduate Studies.
6. Conduct research activities:
   - Keep Thesis Committee members advised on progress toward research agenda;
   - Complete thesis draft and submit to committee for review.
7. Defend the thesis to the Thesis Committee:
   - Based on the timeline specified by Graduate School, submit the final draft of thesis to committee for review.
   - Schedule an oral thesis defense. The possible results of the defense would be:
     - **Pass with no revisions**: The thesis is accepted without further review by the committee.
     - **Pass with minor revisions**: The thesis requires minor revisions/corrections and needs to be reviewed by the Thesis Committee Chair within a time defined by the committee chair.
     - **Pass with major revisions**: Part of the thesis content requires major revisions/corrections and needs to be reviewed by the Thesis Committee within a time defined by the committee.
     - **Fail**: The quality of the thesis is not acceptable. The thesis must be rewritten and possibly involved additional research as outlined by the Thesis Committee. Students
must undergo a second oral defense. Students may switch to another option or drop-out from the program if the second attempt fails.

8. Complete the Thesis Signature Form and include in the thesis.

**Practicum option - 3 semester hours**

- ICTN 6900 – Practicum (3 s.h.)

Practicum option in the MSNT provides students with an opportunity to engage in applied industry-based projects in the area of Information and Computer Technology (ICT). The process of taking the practicum option is as follows.

1) Identify a Practicum Committee Chair.

2) Form a Practicum Committee (minimum of two additional Practicum Committee Members); the remaining Practicum Committee Members must be approved by the Practicum Committee Chair and the Director of Graduate Studies.

3) Download the Pre-Practicum Research Approval Form, obtain all the required signatures and forward to the Director of Graduate Studies. Practicum Committee Chair is responsible for ensuring Practicum Committee Members agreement to serve on committee and Director of Graduate Studies verifies eligibility of the committee members.

4) Select a practicum topic and a target organization/industry where the project will take place by identifying an industry-based project approved by the Practicum Committee Chair, and obtaining a written confirmation using the form and forward to the Director of Graduate Studies.

5) Register for ICTN 6900 Practicum.

6) Develop and present a practicum proposal to the Practicum Committee for approval. Complete the Practicum Proposal Approval Form and forward to the Director of Graduate Studies.

7) Complete and document the practicum project.

8) Defend the practicum project report to the committee:
   4. Submit the report to the supervisor for review
   5. Schedule an oral practicum defense. The possible results of the defense would be:
      - **Pass with no revisions**: The practicum is accepted without further review by the committee.
      - **Pass with minor revisions**: The practicum requires minor revisions/corrections and needs to be reviewed by the Practicum Committee Chair within a time defined by the committee chair.
      - **Pass with major revisions**: Part of the practicum content requires major revisions/corrections and needs to be reviewed by the Practicum Committee within a time defined by the committee.
      - **Fail**: The quality of the practicum is not acceptable. The practicum must be rewritten and possibly involved additional research as outlined by the Practicum Committee. Students must undergo a second oral defense. Students may switch to another option or drop-out from the program if the second attempt fails.
6. Complete the Practicum Signature Form and include in the practicum report.

Completing the Practicum. The Practicum provides an alternative to the thesis or comprehensive examination option. During the Practicum semesters, the student: (1) gains hands-on experience in applied research; or (2) designs and implements a proposed solution. The practicum culminates in the completion of a Final Practicum Report and Practicum Oral Defense.

Practicum Committee. The Practicum Committee follows similar procedures as those described for a Thesis Committee. Practicum Proposals are generally no longer than 20 pages and include a description of the research problem, literature review, hypotheses, and methodology (including the research site, subjects, and data-gathering method with instrument(s) appended, and data analysis plan. Where appropriate, a letter of agreement from the administrator of the research site(s) must be appended to the proposal.

Final Practicum Report. The Final Practicum Report (excluding cover page, table of contents, acknowledgments, references, and tables) should be at least 20 pages and not more than 40 pages. The Final Practicum Report should contain all of the elements detailed above for the practicum proposal and should be prepared according to APA or other established format guidelines approved by the Practicum Committee.

Practicum Oral Defense. The Practicum Oral Defense follows similar procedures as those outlined for a Thesis defense. After the final version of the Final Practicum Report (with any corrections required by the Practicum Committee) is approved by the Practicum Committee Chair, two copies of the report should be made, each signed by the Practicum Committee members and the Department Chair. One copy should be delivered to the Practicum Committee Chair and one copy the other to the Department's Director of Graduate Studies. Both of the copies of the Final Practicum Report must be delivered by the last day of classes that semester.

Non-thesis option - 6 semester hours

The student’s advisor, the graduate program director, and the department chair must approve the electives and student’s course of study. This option also requires the student to take a comprehensive examination. All non-thesis track students are required to take two elective courses and pass the comprehensive exam. The process of taking non-thesis option is as follows:

1) Discuss with the concentration coordinator to determine two elective courses that align with student’s career path;
2) Obtain approval for the elective courses by completing the Non Thesis Elective Approval Proposal Form and forwarding it to the Director of Graduate Studies for the Department;
3) Finish all the coursework for the master degree program;
4) Review the section on completing the comprehensive examination for more details on the process and the committee structure.
5) Take the comprehensive exam.
Comprehensive Examination

Students are eligible to take the Comprehensive Examination upon completion of all the required core coursework or with approval by their Concentration Coordinator. It is recommended that students take the exam during their last semester in the program.

The format of the Comprehensive Exam is a written exam. It tests the student’s breadth of knowledge in the areas of core and concentration courses; it also features a research write-up. The comprehensive exam is offered in the fall and spring semesters. Students will be notified of the date of an upcoming exam. Students who want to take the exam must notify the Office of Graduate Studies in the Department no later than two weeks prior to the upcoming comprehensive exam.

The possible results of the comprehensive exam are pass and fail. Students must pass the exam to complete their MSNT degree requirements. Students who fail the first attempt will be allowed a second attempt at a later semester. Students may switch to another option or drop-out from the program if the second attempt fails. Students should review the section on completing the comprehensive examination for more details on the process and the committee structure.
11. MASTER OF SCIENCE IN OCCUPATIONAL SAFETY

The Master of Science in Occupational Safety (MSOS) prepares graduates for leadership positions in occupational safety and related fields. An academic experience in the design and management of enterprise-wide safety systems is provided. The focus of this Program is in the core discipline of occupational safety (OS). Foundational principles and overarching academic goals of the MSOS program include ensuring effective communications skills, the ability to think critically and problem solving, and to develop applied research skills. The coursework includes analysis of occupational safety and health problems, accompanying problem-solving and decision making techniques, and the application of established principles of accident prevention, control, and reduction in occupational settings.

11.1. Specific Admissions Requirements

- A baccalaureate degree from a regionally accredited institution.
- Minimum overall GPA of 2.7 on a 4.0 scale on all undergraduate work.
- An appropriate score on either the GRE or board certifications such as CSP, CIH, or CPE.

11.2. Program of Study

Minimum degree requirement is 36-39 semester hours as follows:

1. Foundational/transitional courses – semester hours
   - SAFT 6001 - Regulatory Aspects of Occupational and Environmental Safety (3 s.h.)
   - SAFT 6002 - Technical Aspects and Field Audits in Occupational Safety (3 s.h.)

2. Required courses - 21 semester hours
   - SAFT 6040 - Critical Thinking and Research Methods in Occupational Safety (3 s.h.)
   - SAFT 6250 - Occupational Ergonomics (3 s.h.)
   - SAFT 6290 - Fire Protection and Prevention and Emergency Management (3 s.h.)
   - SAFT 6310 - Risk Management and Workers' Compensation (3 s.h.)
   - SAFT 6402 - Applied Safety Management (3 s.h.)
   - SAFT 6410 - Systems Safety and Risk Analysis (3 s.h.)
   - SAFT 6805 - Occupational Safety Monitoring and Control (3 s.h.)

3. Options (Choose one) - 9-12 semester hours

The program offers two options: Practicum option and Thesis option. Students enrolled in the program may choose either one of the options, based on their qualification and approval of the program’s admission committee or the program coordinator.

Practicum option - 9 semester hours (View a Plan of Study for the Practicum option)
   - SAFT 6995 - Practicum in Occupational Safety (3 s.h.)
   - Approved electives (6 s.h.)
Thesis option - 12 semester hours (View a Plan of Study for the thesis option)

- BIOS 7021 - Biostatistics for Health Professionals I (3 s.h.)
  or
  ITEC 6000 - Statistical Applications in Industry (3 s.h.)
- SAFT 7000 - Thesis (6 s.h.)
- Approved elective (3 s.h.)

9. **Approved Electives** – Elective courses from CMGT, ITEC, PSYC, SAFT or other areas are selected as approved by the program coordinator. Students who are deficient in the foundational regulatory and technical aspects of occupational safety may be required to take additional courses. Program prerequisites include chemistry with lab and statistics. MS in Occupational Safety provides a research focus by allowing students to take six credit hours of SAFT 7000 as electives. This allows students to pursue independent industry-based research. Students desiring to pursue this option should consult faculty and identify a thesis topic and advisor in the first semester. Further Guidance in developing thesis research can be found in the Practitioner’s Guidebook for Developing Successful Research Proposals in Science, Engineering and Technology by J. Barry DuVall and Te-Shun Chou at: https://myweb.ecu.edu/duvallj/Proposal_e-book_2015_v10.pdf

The process of taking the thesis option is as follows.

1. Identify a Thesis Committee Chair.
2. Form a Thesis Committee (minimum 2 additional committee members); the remaining committee members must be approved by the Thesis Committee Chair and the Director of Graduate Studies; at least two committee members must be graduate faculty within TSYS.
3. Obtain all the required signatures on the Pre-Thesis Research Approval Form and forward to the Director of Graduate Studies. The Committee Chair is responsible for ensuring committee members agreement to serve on committee and Director of Graduate Studies verifies eligibility of the committee members.
4. Register for SAFT 7000 Thesis.
5. Develop and present a thesis proposal to the Thesis Committee for approval. Complete the Approval of Thesis Proposal Form and forward to the Director of Graduate Studies.
6. Conduct research activities:
   - Keep Thesis Committee advised on progress toward research agenda;
   - Complete thesis draft and submit to Thesis Committee for review.
7. Defend the thesis to the committee:
   - Based on the timeline specified by Graduate School, submit the final draft of thesis to committee for review.
   - Schedule an oral thesis defense. The possible results of the defense would be:
     - **Pass with no revisions**: The thesis is accepted without further review by the committee.
     - **Pass with minor revisions**: The thesis requires minor revisions/corrections and needs to be reviewed by the committee chair within a time defined by the committee chair.
• **Pass with major revisions**: Part of the thesis content requires major revisions/corrections and needs to be reviewed by the committee within a time defined by the committee.

• **Fail**: The quality of the thesis is not acceptable. The thesis must be rewritten and possibly involved additional research as outlined by the committee. Students must undergo a second oral defense. Students may switch to another option or drop-out from the program if the second attempt fails.

8. Complete the [Thesis Signature Form](#) and include in the thesis.
12. ACCELERATED BACHELOR’S/MASTER’S OF SCIENCE IN NETWORK TECHNOLOGY

The accelerated bachelor/master of science in network technology program is initiated while on-campus undergraduates are completing the bachelor of science in information computer technology and is intended for outstanding undergraduates in that program. For this accelerated program, graduate student course work begins in the students’ senior year of undergraduate study and be completed with one academic year of study beyond the bachelor’s degree. Bachelor of science in information computer technology on-campus students may apply for the accelerated program after completion of a minimum of 80 eligible undergraduate credit hours, and students can begin taking graduate courses after completion of a minimum of 95 eligible undergraduate credit hours.

Up to 12 credit hours of graduate courses may be counted towards completion of both the undergraduate degree and master’s degree. Students are required to take both ITEC 6000 and ITEC 6060 when starting the accelerated program. Up to two additional 6000-level courses that are approved by the program coordinator may be counted toward both degrees. The minimum GPA at the time of admission and entry to the program is a 3.3 major GPA and a 3.0 overall GPA. Students with less than a 3.3 overall GPA must also submit a GRE score to be considered. Students are formally admitted to the master’s program after all requirements for the undergraduate degree are completed.

This graduate program has a large selection of options for the students to choose from, including summer offerings for student selecting to begin the accelerated program in the summer. Students are encouraged to work with their graduate faculty advisor to identify courses that match not only their program and concentration requirements but also to round out their undergraduate degree program. Students applying to the accelerated program will go through the regular graduate application process with the following exceptions:

- On the online graduate application form students will indicate that they are applying to an “Accelerated program”.
- A supplemental form will be completed with a faculty advisor listing the graduate courses to be counted towards both degrees, the intended date of completion of the undergraduate degree requirements, and the intended semester of assistantship eligibility.
- Personal statement should address applicant’s specific interest in network technology graduate education and the accelerated program.
13. PH.D. IN TECHNOLOGY MANAGEMENT

East Carolina University is one of five universities collaborating to provide an online PhD program in technology management. The degree is awarded through Indiana State University and is designed to prepare scholars for leadership positions in education, industry, government, and business. The program consists of a minimum of 90 semester hours beyond the baccalaureate. Students are required to successfully complete preliminary and comprehensive examinations, design and conduct original research, and defend a doctoral dissertation. An individualized program of study and applied research internship is also required.

The program involves five areas of required study: technical core (15 s.h.), research core (27 s.h.), technical specialization (30 s.h.), internship (6 s.h.), and cognates (12 s.h.). Additional courses may be required to address deficiencies. ITEC 7050 is a prerequisite to all distance learning programs. Design of each candidate’s program of study is dependent on their goals and background experiences. Four technical specializations are currently available:

- Digital Communications Systems
- Construction Management
- Manufacturing Systems
- Quality Systems
- Human Resource Development

ECU provides the lead on specializations in digital communication and manufacturing systems. Students identify a “home university” based on their technical specialization and/or geographic location. Students seeking further information regarding this degree program are encouraged to visit the program site at: http://www.indstate.edu/technology/consortphd
14. GRADUATE CERTIFICATES

Graduate Certificates provide students with advanced training in high-demand, technology intensive fields. These programs are structured to achieve this objective through 12-15 semester hours of advanced course work. The certificate programs are online based and permit students to be advised, complete courses, collaborate on projects, conduct research, and complete the degree via the Internet. Students typically spend 10-15 hours per week in preparing for and participating in each course. Most of the students in the certificate programs are working professionals who are pursuing the degree for career advancement. Courses are scheduled to allow completion of the certificate program in approximately 18 months or less in a sequence over the fall, spring, and summer semesters to allow program entry in any semester.

14.1. Specific Admissions Requirements

- A baccalaureate degree from a regionally accredited institution.
- Minimum overall GPA of 2.5 on a 4.0 scale on all undergraduate work.

14.2. Graduate Certificate - Computer Network Professional

The computer network professional certificate program prepares graduates for employment in the computer networking industry. The skills developed in the course work lead to successful careers as network administrator, data communication manager, communication specialist, etc. The program is structured to achieve this objective through 12 semester hours of advanced course work. The computer network professional certificate program is offered online via the Internet. Students in the program are required to have fully functional computer hardware and full Internet connectivity. View a Plan of Study for this certificate.

Required courses:

- ICTN 6810 - Communication Technology
- ICTN 6820 - Networking Technology for Industry
- ICTN 6830 - Advanced Networking Technology
- ITEC 6060 - Research Methods in Technology

14.3. Graduate Certificate - Cyber Security Professional

The cyber security professional certificate program prepares graduates for employment in various levels of information technology industry. The skills included in the course work are required to be successful in such positions as information security specialist, network security analyst, and information security manager. The program is structured to achieve this objective through 12 s.h. of advanced course work. The cyber security professional certificate program is offered online via the Internet. Students in the program are required to have fully functional computer hardware and full Internet connectivity. Due to the nature of the advanced skills, the prerequisites of this program include the knowledge of basic data communication, computer networking, and computer operation as evidenced by one of the following: COMPTIA Network+ certification or Cisco CCNA certification or equivalent course work. View a Plan of Study for this certificate.

Required courses:

- ICTN 6823 - Information Security Management
- ICTN 6865 - Fundamental Network Security
14.4. Graduate Certificate - Lean Six Sigma Black Belt

The lean six-sigma black-belt (LSSBB) certificate program prepares graduates for employment in industry in a variety of jobs related to quality and process improvement. Skills developed in the course work can lead to successful careers as a lean six-sigma facilitator, continuous improvement manager, project leader, and similar positions. The program is structured to achieve this objective through internet-based, online advanced course work. In some cases, remedial undergraduate courses or additional graduate courses may be required to complement the certificate requirements. View a Plan of Study for this certificate. Minimum certificate requirement is 12 semester hours of credit as follows. Students must complete the following for 12 semester hours:

- ITEC 6005 - Lean Enterprise
- ITEC 6110 - Quality Planning and Analysis
- ITEC 6112 - Design of Experiments for Products and Processes
- ITEC 6501 - Enterprise Process Improvement Project

Graduate student working on the LSSBB certificate should be aware that courses may have prerequisites that may be waived by the program coordinator based on student’s background. External transfer hours are not accepted in the certificate program. For students who choose to pursue this certificate jointly with the MSTS degree with a concentration in either manufacturing systems or quality systems, a maximum credit of 9 semester hours is allowed to be used toward the certificate. The certificate program requires the undertaking of an industrial or business process project (ITEC 6501 - Enterprise Process Improvement Project) where certified savings or revenue increase should be shown. Students are responsible for finding and structuring the project.

14.5. Graduate Certificate - Website Developer

The website developer certificate program prepares graduates for employment as website developers and managers. The skills learned in this certificate program are required to be successful in jobs with titles such as web master, web designer, etc. The program is structured to achieve this objective through 12 semester hours of advanced course work. The website developer certificate program is offered online via the Internet. Students in the program are required to have fully functional computer hardware and full Internet connectivity. Additional details regarding platforms are available by contacting Department of Technology Systems in the College of Engineering and Technology. View a Plan of Study for this certificate. Required courses for this certificate are:

- ICTN 6815 - Network Media Services
- ICTN 6825 - Dynamic Web Services
- ICTN 6845 - Web Site Development
- ITEC 6060 - Research Methods in Technology
15. THESIS, PRACTICUM & COMPREHENSIVE OPTIONS

15.1. Program Options

Students have the opportunity to develop a program that meets their particular needs and interests. These options include a thesis; practicum, or comprehensive examination with approved electives.

- **Thesis Option.** The thesis option is intended primarily for those who are interested in continuing their education in doctoral-level programs. This option gives graduate students the research experience often required to be successful in pursuit of admission to and completion of a Ph.D. program.

- **Practicum Option.** The practicum option allows the graduate student to acquire special skills by coordinating formal course work with an industry mentored practicum in an organizational setting. The practicum experience is typically designed for those graduate students who are currently employed in their industry of study. The content of the practicum is established jointly by the cooperating organization, the practicum committee chair, and the graduate student. A comprehensive project report is required in which the student analyzes and integrates practicum experiences with relevant research and coursework.

- **Comprehensive Examination with Approved Electives Option.** This option consists of elective courses selected under graduate faculty advisement. The choice of electives is intended to provide the student with a broad interdisciplinary background, complementing the student’s own academic training and interests. A comprehensive examination covering material from the concentration or focus area courses is required under this option. NOTE: This option is only available with the MS in Network Technology or MS in Technology Management programs of study.

15.2. Program of Study Changes.

For students in the MS in Network Technology, MS in Occupational Safety, or MS in Technology Management programs, requests for changes to an approved Program of Studies (e.g. changes to courses, electives, concentration, etc.) must be initiated by the student and be supported by the student's Graduate Faculty Advisor, the Program Coordinator and the Director of Graduate Studies for the Department; this is accomplished by the student completing the Request for Change(s) to Approved Graduate Program form.

15.3. Changes between Practicum, Thesis and Comprehensive Examination Options.

As with any change in the student’s program of study, once course work has started, the graduate student must initiate a request for change. For students in the MS in Network Technology, or MS in Technology Management programs, the following guidelines are in place regarding option change requests:

1. **Comprehensive Examination Option** – For those students who initially select the comprehensive exam option for their Program of Study, they are allowed to take the comprehensive examination only twice. If the student fails to pass on both attempts, then the student will not receive a degree with that concentration or focus area. Students not opting to take a second attempt at the comprehensive exam
may request to change options via the Request for Change process outlined above. Included in that change request the student must indicate what option they wish to change to.

2. **Practicum Option** – For those students who initially select the practicum option for their Program of Study, they are allowed to report out their practicum findings only twice. If the student fails to pass on both attempts, then the student will not receive a degree with that concentration or focus area. Students not opting to take a second attempt may request to change options via the Request for Change process outlined above. Included in that change request the student must indicate what option they wish to change to.

3. **Thesis Option** – For those students who initially select the thesis option for their Program of Study, they are allowed to defend their thesis only twice. If the student fails to pass on both attempts, then the student will not receive a degree in that concentration or focus area. Students not opting to take a second attempt at defending their thesis may request to change options via the Request for Change process outlined above. Included in that change request the student must indicate what option they wish to change to.

For students in the MS in Occupational Safety program, the following guidelines are in place regarding option change requests:

1. **Practicum Option** – For those students who initially select the practicum option for their Program of Study, they are allowed to report out their practicum findings only twice. If the student fails to pass on both attempts, then the student will be considered to have failed that degree completion requirement. Students not opting to take a second attempt at defending their thesis may request to change options via the Request for Change process outlined above. Included in that change request the student must indicate that they are requesting to change to the thesis option.

2. **Thesis Option** – For those students who initially select the thesis option for their Program of Study, they are allowed to defend their thesis only twice. If the student fails to pass on both attempts, then the student will be considered to have failed that degree completion requirement. Students not opting to take a second attempt at defending their thesis may request to change options via the Request for Change process outlined above. Included in that change request the student must indicate that they are requesting to change to the practicum option.
16. COMPLETING A THESIS

16.1. Thesis Overview

The thesis will be based on independent research as agreed to by the student’s Thesis Committee and will follow a format that is compatible with the requirements of the Graduate School. The Thesis Committee must have a minimum of three committee members (a chair and two other faculty members from the department who are members of the graduate faculty). Before the thesis research is begun, students must present their Thesis Committee with a written thesis proposal. There is also to be an oral defense of the thesis proposal. The Graduate School must also receive a copy of the Pre-Thesis Research Approval Form.

The writing of a thesis report requires careful planning to effectively execute the completion of a final document in a timely and orderly fashion. There are several steps to completing a thesis report that include producing the proposal, carrying out the research, and writing the thesis report. The thesis is deposited electronically with the graduate school and the department gets a hard copy with binding of the thesis.

16.2. General Guidelines for Writing a Thesis Proposal

As for the thesis, this requirement consists of a student research project and document intended to replicate the technological research process, from its beginning to its end. The thesis is completed in consultation with a minimum of a three-person committee, including a Thesis Committee Chair and at least two Graduate Faculty Members; all must have current standing as Graduate Faculty at ECU. There are no length stipulations for the thesis document. It should, however, be a scholarly product acceptable to the academic community. An example of a thesis document would include the following chapters:

1. **Introduction** - An introductory chapter stating the research problem;
2. **Literature Review and Research Questions/Hypotheses** - A chapter containing a description of the theoretical context for the exploration of the research problem, a synthesis of literature reviewed, and research hypotheses;
3. **Methodology** – A chapter including a description of the research methods (e.g., survey, analysis of secondary data, field research), the sample or data source, the measurement of variables contained in the hypotheses, and the methods of data analysis;
4. **Research Findings** – A chapter detailing the study’s research findings with reference to appended tables or other forms of documentation;
5. **Summary and Conclusions** - A chapter providing a summary of the work and a discussion of the implications of the findings for future research;
6. **References** cited;
7. **Appendices** - including necessary Graduate School forms.

The thesis document and references sections should be prepared according to APA or other approved format style guidelines. The Thesis Committee should be consulted on style and formatting specifics. The thesis also must include a typed electronic Title Page, as prescribed by the Graduate School, and any necessary University
& Medical Center Institutional Review Board or IRB forms (See below and http://www.ecu.edu/irb/ for IRB forms and instructions). More specifics as well as forms and other guidance can be found at: http://www.ecu.edu/cs-acad/gradschool/current.cfm.

Thesis Committee Composition

When the graduate student is ready to begin the thesis process, she/he should consult with the Program Coordinator to choose a Thesis Committee Chair. Further guidance on Thesis Committee Chair requirements can be found in the ECU Faculty Manual, Part II, Section IV, Graduate School Organization. Aside from the Thesis Committee Chair, the student selects two more Thesis Committee Members. To qualify to serve on the Thesis Committee, members must meet the following:

1. One of the additional Thesis Committee Members must be a graduate faculty member in the Department of Technology Systems;
2. The Third Thesis Committee Member must be a Graduate Faculty member at ECU and may come from another department at ECU; and
3. Both two of these Thesis Committee Members (department or outside) must have Associate or (full) Graduate Faculty standing with the ECU Graduate School. The Thesis Committee Chair should check with the Director of Graduate Studies to ensure that all Thesis Committee Members qualify.

The Thesis Committee may have more than three Thesis Committee Members if the student desires. These External Thesis Committee members serve as consultants/Ex-Officio members, and therefore do not have to meet the above criteria. Upon forming of the Thesis Committee, the student then must complete a Thesis Committee Composition Form, including their tentative working title and the signatures of all committee members, and return it to the Director of Graduate Studies. The latter then records the members and inserts the completed form in the student’s file; the Director of Graduate Studies also will record a digital version of the form for his/her records and forward a copy to the student and the Thesis Committee Chair. ECU Graduate School Academic Policies and Forms can be found at: http://www.ecu.edu/cs-acad/gradschool/Academic-Policies-and-Forms.cfm

Completing IRB Paperwork (as required). Concurrent to or immediately following the forming of his/her Thesis Committee, the student must complete the necessary paper work required by the University’s IRB Office, which grants them permission to proceed with their research See http://www.ecu.edu/irb/ for IRB forms and instructions; in most cases, students fill out forms related to exempt research status. This procedure is required of all student theses, regardless if a student interviews human subjects or not. A copy of the IRB approval must be forwarded to the department’s Director of Graduate Studies and must be included in the Appendix of every student’s completed thesis. The Graduate School will not approve any Thesis without an IRB form.

Preparing Thesis Proposal. Working with the Thesis Committee, the student prepares a thesis proposal. There are no length stipulations for the proposal, but they generally include: an introduction providing a clear definition of the technical problem or issue to be investigated; a preliminary literature review; a research methodology including the student’s intended research design and overarching research questions; and section describing the significance of the study. Upon approval of the Thesis Committee Chair, the student then is ready for a thesis proposal defense in which he/she makes a brief presentation to his/her Thesis
Committee. At least two weeks prior to the scheduled defense, each member of the Thesis Committee should receive a copy of the proposal and a copy should be forwarded to the department’s Director of Graduate Studies; the latter should display it in the department office for review by the faculty and other graduate students.

**Thesis Oral Defense.** When the thesis document is in a form judged by the Thesis Committee Chair to be suitable, the student partakes in an oral defense of his/her thesis. At least two weeks prior to the scheduled defense, each member of the Thesis Committee should receive a copy of the most up-to-date version of the thesis for their review. At least one week prior to the defense, a copy of the thesis should be forwarded to department’s Director of Graduate Studies, who should display it in the department office for review by the faculty and other graduate students. At this time, the Thesis Committee Chair should also announce the time and date of the student’s thesis defense to the department and invite the department faculty and graduate students to the defense. The Thesis Defense will be a one-hour session in which the student makes a polished 25-30 minute presentation of their work and then answers questions from the Thesis Committee and the audience regarding their research.

### 16.3. Graduate Thesis Committee Members

There are several roles beyond that of the Graduate Faculty Advisor (GFA) that support specific graduate activities within the Department; many of those involve membership on various types of graduate level committees. Each of these committee roles should complement and support the completion of program requirements with the goal of leading graduate students toward a successful completion of their respective programs.

ECU requires a minimum of three associate or full graduate faculty (including the Thesis Committee Chair) to serve on a student’s thesis committee. Graduate teaching faculty and external members may serve as a fourth member (or more) of the graduate student’s advisory committee but cannot replace the required minimum of three. A student’s thesis committee may appoint external members; however, the Director of Graduate Studies for the Department is required to inform the Graduate School of the external member and provide a current CV or resume at the time the committee is formed. Graduate student desiring external members to be on their Thesis Committee should work with their Thesis Committee Chair on identifying appropriate external committee members and making necessary notifications. The various committee roles are further outlined in the following sections supporting the requirements for graduate degree programs having thesis and practicum elements to them.

**Thesis Committee Chair or Co-Chair:** Each student conducting thesis research will have a Thesis Committee consisting of a Thesis Committee Chair and a minimum of two other Thesis Committee Members. The Thesis Committee Chair must be a member of the ECU Graduate faculty with a terminal degree and is designated as having full Graduate Faculty status. Two individuals may serve as Thesis Committee Co-Chair’s. If Co-Chair’s are assigned, then they collectively assume the duties of the Thesis Committee Chair. Further guidance on Thesis Committee Chair requirements can be found in the ECU Faculty Manual, Part II, Section IV, Graduate School Organization. Students should work with their GFA to identify an appropriate Thesis Committee Chair;
once identified, the Thesis Committee Chair can assist the student in finalizing their committee members. The role of the Thesis Committee Chair includes the following:

- Recommend Thesis Committee members and external members to serve on the Thesis Committee. If changes in the Thesis Committee membership are desired, they must be approved by the Thesis Committee Chair.
- Supervise the formulation/writing of the student's thesis proposal.
- Schedule an oral defense of the thesis proposal no earlier than two weeks after the Thesis Committee members have received a copy of the thesis proposal. The oral defense should not be scheduled until:
  a. the proposal is in a form acceptable to the Thesis Committee Chair; and
  b. the Thesis Committee Chair feels the student can successfully defend the proposal.
- Direct the student in carrying out the approved study and supervise the writing of the thesis.
- Schedule a final oral examination to defend the thesis; this should not be scheduled until:
  a. the thesis has been approved by the Thesis Committee Chair; i.e., it meets minimum the standards of fidelity to the prospectus, conformity to style, readability, and accuracy of data presentation and analysis; and
  b. the Thesis Committee Chair feels the student is prepared to defend the thesis.
- Typically, the Thesis Committee Chair will approve the chapters of the proposal (and the thesis) before it is given to the Thesis Committee Members to read. However, each Thesis Committee may decide how closely committee members will monitor and provide feedback on the writing of individual chapters and whether the document is read chapter-by-chapter or in its totality. The Thesis Committee Chair and Thesis Committee should agree on this procedure as soon as possible after the formulation of the entire Thesis Committee.

Thesis Committee Member: Each student conducting thesis research will have a Thesis Committee consisting of a Thesis Committee Chair and a minimum of two other Thesis Committee Members. A Thesis Committee Member must be a member of the ECU Graduate faculty and have the status of either full Graduate Faculty member or Associate Graduate Faculty member. Further guidance on Thesis Committee Member requirements can be found in the ECU Faculty Manual, Part II, Section IV, Graduate School Organization. The role of the Thesis Committee Member includes the following:

- Assist in the formulation/writing of the student's thesis proposal.
- Review thesis proposal prior to oral defense and attend scheduled oral defense of the thesis proposal.
- Assist the student in carrying out the approved study and the writing of the thesis.
- Review final draft of Thesis and attend scheduled final oral examination of student defending their thesis.

External Thesis Committee Member: Each student conducting thesis research will have a Thesis Committee consisting of a Thesis Committee Chair and a minimum of two other Thesis Committee Members. Beyond the three required committee members, a student’s thesis committee may include External Thesis Committee members. The Director of Graduate Studies for the Department is required to inform the Graduate School of the external thesis committee members and provide a current CV or resume for each external member. Graduate students desiring external members to be on their Thesis Committee should work with their Thesis
Committee Chair on identifying appropriate external committee members and making necessary notifications. The role of the External Thesis Committee Member includes the following:

- Provide specialized support and guidance to the graduate student and the Thesis Committee.
- Assist in the formulation/writing of the student's thesis proposal.
- Review thesis proposal prior to oral defense and attend scheduled oral defense of the thesis proposal.
- Assist the student in carrying out the approved study and the writing of the thesis.
- Review final draft of Thesis and attend scheduled final oral examination of student defending their thesis.
17. COMPLETING A PRACTICUM

17.1. Practicum Overview

Completing a Practicum option provides students with an opportunity to engage in applied industry-based projects. The practicum will be based on an independent project as agreed to by the student’s Practicum Committee. The Practicum Committee must have a minimum of three committee members (a chair, an on-site supervisor from industry and another faculty member from the department. Before the practicum project is begun, students must present their Practicum Committee with a written practicum proposal and have the Pre-Practicum Research Approval Form completed and signed. There is also to be an oral and written Practicum Report to be presented by the student. The conducting a practicum project requires careful planning to effectively execute the completion of a final document in a timely and orderly fashion.

17.2. Graduate Practicum Committee Members

Practicum Committee Chair: Each student conducting a practicum will have a Practicum Chair; the Practicum Chair is also the instructor of record for the course. Students should work with their GFA to identify an appropriate Practicum Committee Chair; once identified, the Practicum Committee Chair can assist the student in finalizing their committee members. The role of the Practicum Committee Chair includes the following:

- Approve Practicum Committee Members to serve on the Practicum Committee. If changes in the Practicum Committee membership are desired, they must be approved by the Practicum Chair.
- Evaluate proposed practicum onsite activities and make appropriate recommends to the graduate student and on-site supervisor to help ensure a safe and successful practicum experience.
- Provide liaison between the on-site supervisor, the graduate student, and the practicum committee where appropriate.
- Supervise the formulation/writing of the student’s Practicum proposal.
- Direct the student in carrying out the approved activity and closely supervise the writing of the Practicum report.
- Schedule a final oral examination to defend the Practicum. This should not be scheduled until:
  a. the Practicum report meets minimum standards of conformity to style, readability, and accuracy of data presentation and analysis; and
  b. the Practicum Committee Chair feels the student is prepared to present the Practicum.

Practicum Committee Member: Each student conducting Practicum research will have at least one other Practicum Committee Member faculty member from the Department. The role of the Practicum Committee Member(s) includes the following:

- Assist in the formulation/writing of the student's Practicum proposal.
- Assist the student in carrying out the approved activity and the writing of the Practicum report.
- Review final draft of Practicum report and attend scheduled final oral presentation.

Practicum On-Site Supervisor: For each practicum committee the student will identify an On-Site Supervisor to assist with the practicum experience. The Practicum On-Site Supervisor does not have to be an ECU faculty
member or have any affiliation with ECU other than to support the graduate student with their practicum. The following minimum expectations are asked of the On-Site Supervisor:

- Provide on-site supervision for the proposed practicum.
- Provide appropriate space and access to the graduate student for the purpose of completing the proposed practicum.
- Make clear to the graduate student what the expectations are regarding their conduct and resource access while on-site.
18. COMPLETING A COMPREHENSIVE EXAMINATION

18.1. Comprehensive Examination Overview

The comprehensive examination is an assessment that covers a broad base of material from the graduate student’s program of study; it’s a final assessment to evaluate the student’s knowledge and capacities to earn a given graduate degree program. Currently, in the Department of Technology Systems, only the Master of Science in Network Technology and the Master of Science on Technology Management programs offer a comprehensive examination option. The exact content of the comprehensive exam varies by program, and concentration or focus area; however, all comprehensive exams follow a similar written format.

The comprehensive examination tests the student’s breadth of knowledge in the areas of focus area or concentration courses. Students will be notified of the date of an upcoming comprehensive exam by the Department; the comprehensive exam is currently offered only in the spring or fall semester. Students who want to take the comprehensive exam must notify the Office of Graduate Studies in the Department no later than two weeks prior to the upcoming comprehensive exam of their intent to take the exam.

The possible results of the comprehensive exam are pass and fail. Students who choose the comprehensive examination option must pass the exam to complete their respective degree program. Students who fail the first attempt at the comprehensive exam will be allowed a second attempt at a later semester. Students should refer to Section 15.3 of this Guide for more details regarding switching to another program option.

A Comprehensive Examination Committee consisting of three committee members (a chair and two another graduate faculty members from the department) will be formed each semester for each program concentration/focus area. The Committee will be chaired by the student’s Concentration Coordinator or Focus Area Coordinator. The contents of the comprehensive examination will be developed and assessed by the Committee.

18.2. Comprehensive Examination Committee Members

Comprehensive Examination Committee Chair: Each student taking a comprehensive examination will have a Comprehensive Examination Committee Chair. The Committee will be chaired by the student’s concentration Coordinator (MSNT) or Focus Area Coordinator (MSTM). The role of the Comprehensive Examination Committee Chair includes the following:

- Recruit at least two other Committee Members to serve on the Comprehensive Examination Committee and notify the Department’s Office of Graduate Studies of the members involved.
- Supervise the creation of the student’s comprehensive examination.
- Direct the student in carrying out the comprehensive exam and closely supervise the evaluation process.
- Provide direct liaison between the committee and the student throughout the process.
- Provide direct liaison between the committee and the Department’s Office of Graduate Studies throughout the process.
Using the attached Comprehensive Exam Form, submit final results of the comprehensive examination to the Department’s Office of Graduate Studies within (5) business days of exam completion.

Comprehensive Examination Committee Member: Each student taking comprehensive examination option will have at least two other Comprehensive Examination Committee Graduate Faculty members from the Department (Graduate Teaching Faculty or higher). The role of the Comprehensive Examination Committee Member(s) includes the following:

- Assist in the Committee Chair with the formulation/writing of the student's Comprehensive Examination assessment.
- Review student’s final submission of comprehensive examination and make appropriate evaluations to the exam responses in a timely manner; timely manner here is considered within (5) business days from exam response submission.
Master’s Pre-Thesis Research Approval Form

Before beginning master’s thesis research, and at least one semester before defending a thesis, this check list must be completed by the master’s candidate in conjunction with the thesis director. Please NOTE: Student is required to provide a copy to all committee members; all thesis research must be approved by the thesis director and the Unit Graduate Program Director. All students whose thesis projects involve human subjects must have their proposed research approved by the University and Medical Center Institutional Review Board (UMCIRB) before beginning the studies involving those subjects. Likewise, all students whose projects involve animals must have their proposed research approved by the Institutional Animal Care and Use Committee (IACUC) before beginning those studies. A copy of the appropriate approval must be included in the Appendix of the completed thesis. The Graduate Program Director completes and submits this form to Marquerite Latham (bpsom@ecu.edu).

NOTE: You may have to select “enable editing” in order to fill in this form.

Date: 

Student Name: 

Phone Number: 

Email Address: 

Degree Program/Dept.: 

Banner ID: 

Working Title of Thesis Research:

Mentor/Director of Master’s or Doctoral work:

1. [ ] Graduate or Associate Graduate
   (Type or print name and Banner ID Here)

All Graduate Student Advisory Committees must have at least three ECU Graduate or associate Graduate Faculty members (some ECU Programs may require more, please check with your Graduate Program Director), which includes the mentor/director. Requests for External members need to be submitted by the Graduate Program Director, as defined in the Faculty Manual [Faculty Manual, Part II, Section IV, subsection F]

Tentative Graduate Student Advisory Committee members:
If so, please list:

2. [ ] Graduate or Associate Graduate
DEPARTMENT OF TECHNOLOGY SYSTEMS GRADUATE PROGRAM GUIDE

3. [Type or print name and Banner ID Here]
   ☑ Graduate or Associate Graduate

4. [Type or print name and Banner ID Here]

   ☐ External Member  ☑ Graduate Teaching Faculty
   ☐ Associate/Full time Graduate

5. [Type or print name and Banner ID Here]

   ☐ External Member  ☑ Graduate Teaching Faculty
   ☐ Associate/Full time Graduate

Has your proposed research been reviewed and approved by your director?

Does your research involve human subject?

   Has it been approved by the UMCIRE?
   If not, when will it be reviewed for approval?

Does your research involve animals?

   Has it been approved by the IACUC?
   If not, when will it be reviewed for approval?

Does your research involve potential biohazards such as recombinant DBA, viral vectors, infectious agents, human blood products, etc.?

   Has it been approved by the Biosafety Committee?
   If not, when will it be reviewed for approval?

---

**Approvals:**

Thesis Director Signature

Date

Unit Graduate Program Director Signature

Date

**Acknowledgement of Receipt by Graduate School:**

Dean of the Graduate School or designee

Date
Approval of Thesis Proposal Form

Student Name: _____________________________
Banner ID: ____________________
Program Concentration: _____________________________
Thesis Title: __________________________________________________________
________________________________________________________________________

By signature below, I approve the thesis proposal, and agree to supervise the proposed work upon its completion.

Approvals:

Thesis Committee Chair

Thesis Committee Member

Thesis Committee Member

Thesis Committee Member

Thesis Committee Member

Director of Graduate Studies
Thesis Signature Form

TITLE

by

Your Name Here

APPROVED BY:

THESIS COMMITTEE CHAIR: ________________________________________________
(Name, Degree Here)

THESIS COMMITTEE MEMBER: ______________________________________________
(Name, Degree Here)

THESIS COMMITTEE MEMBER: ______________________________________________
(Name, Degree Here)

CHAIR OF DEPARTMENT
OF TECHNOLOGY SYSTEMS: ______________________________________________
Tijjani Mohammed, PhD

DEAN OF THE
GRADUATE SCHOOL: _____________________________________________________
Paul J. Gemperline, PhD
Pre-Practicum Research Approval Form

Before beginning practicum research, this form must be completed by the master’s candidate in coordination with the Practicum Committee Chair. All practicum research must be approved by the Practicum Committee Chair and the Graduate Program Director. All practicum projects involving human subjects must have their proposed research approved by the University and Medical Center Institutional Review Board (UMCIRB) before beginning the studies involving those subjects. Likewise, all students whose projects involve animals must have their proposed research approved by the Institutional Animal Care and Use Committee (IACUC) before beginning those studies. A copy of the appropriate approvals must be submitted with this form, or with an updated form when it is known that the research requires the involvement of such subjects and must be included in the Appendix of the completed practicum report.

Student Name: _____________________________  Banner ID: _____________________________

Program and Concentration/Focus Area: ____________________________ (MSTM/MSNT)

Concentration or Focus Area: ____________________________

Estimated Dates of Practicum Completion: ____________________________

Practicum Committee Members

Practicum Committee Chair: ____________________________

Practicum Committee Member: ____________________________

Onsite Supervisor (Committee Member): ____________________________

Title of Proposed Practicum: ____________________________

Brief Description of Proposed Practicum: ____________________________

Questions regarding research:

1. Has your proposed research been reviewed and approved by your director? YES / NO

2. Does your research involve human subjects? YES / NO
   • If YES, then has it been approved by the UMCIRB? YES / NO
   • If NO, when will it be reviewed for approval? _____________ (date)

3. Does your research involve animals? YES / NO
   • If YES, has it been approved by the IACUC? YES / NO
   • If NO, when will it be reviewed for approval? _____________ (date)
4. Does your research involve potential biohazards such as recumbent DNA, viral vectors, infectious agents, human blood products etc.? YES / NO

- If YES, has it been approved by the by the Biosafety Committee? YES / NO
- If not, when will it be reviewed for approval? ________________ (date)

It is anticipated that the proposed practicum will require approximately __________ hours of on-site activities and will be conducted at the following location: __________________________________________

The timeframe for these onsite activities will begin/end: _______________________________ (dates)

**Graduate Student:** agrees that this practicum will be performed as a requirement for degree listed above and under the supervision of the Practicum Committee Chair and the onsite supervisor. The Student Agrees to (1) complete all planned project activities as approved by both the Practicum Committee Chair, the committee, and the On-site Supervisor and will do so in the proscribed manner following the standards of professional practice set by the on-site supervisor; (2) once all on-site activities are complete, the student will contact both the Practicum Committee Chair, committee member(s), and the On-site Supervisor that all activities are complete and report on the practicum results.

**Signature:** _______________________________     **Date:** ________________

(Graduate Student’s Signature)

**On-site Supervisor** agrees to: (1) provide on-site supervision for the proposed practicum; (2) provide appropriate space and access to the graduate student for the purpose of completing the proposed practicum; (3) make clear to the graduate student what the expectations are regarding their conduct and resource access while on-site. When appropriate, advise the Practicum Committee Chair on the graduate student progress on-site.

**On-site Supervisor’s Signature:** _______________________________     **Date:** ________________

(Onsite Supervisor’s Signature)

**On-Site Supervisor’s Phone:** _______________________________     **Email:** _______________________________

(Onsite Supervisor’s Phone)                    (On-Site Supervisors Email)

**Practicum Committee Chair:** agrees to (1) evaluate proposed practicum onsite activities and make appropriate recommends to the graduate student and on-site supervisor to help ensure a safe and successful practicum experience; and (2) provide liaison between the on-site supervisor, the graduate student, and the practicum committee where appropriate.

**Practicum Chair’s Signature:** _______________________________     **Date:** ________________

(Practicum Chair’s Signature)

**Director of Graduate Studies Signature:** _______________________________     **Date:** ________________

NOTE: This practicum may be terminated at any time by the on-site supervisor or the University upon written notification to all parties involved.
Practicum Reporting Form

Student Name: _____________________________  Banner ID: _____________________________

Program and Concentration/Focus Area: _____________________________ (MSTM/MSNT)

Concentration or Focus Area: ________________________________________________

Dates of Practicum Completion: _____________________________________________

Report Attempt: __________________________ (First Attempt/Second Attempt)

Committee Members

Practicum Committee Chair: ________________________________________________

Practicum Committee Member: _____________________________________________

Onsite Supervisor (Committee Member): ________________________________

PASS/FAIL: By signature below, it is recognized that the above-named student successfully reported the results of their practicum. Based on the three committee signatures below, a student must have at least the chair and one other committee member indicate PASS for the student to have passed this attempt at reporting the practicum results.

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicum Committee Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practicum Committee Member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onsite Supervisor (Committee Member)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graduate Director

Based on the collective committee recommendation above, this Practicum reporting attempt is considered:

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director of Graduate Studies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Comprehensive Examination Form

Student Name: _____________________________  Banner ID: _____________________________

Program and Concentration/Focus Area: _____________________________ (MSTM/MSNT)

Concentration or Focus Area: _____________________________________________

Dates of Comprehensive Examination: _______________________________________

Examination Attempt: __________________________ (First Attempt/Second Attempt)

Committee Members

Comprehensive Examination Committee Chair: _____________________________

Comprehensive Examination Committee Member: _____________________________

Comprehensive Examination Committee Member: _____________________________

PASS/FAIL: By signature below, it is recognized that the above-named student successfully completed the comprehensive examination. Based on the three committee signatures below, a student must have at least two of the three committee members indicate PASS for the student to have passed this attempt at the Comprehensive Examination.

<table>
<thead>
<tr>
<th>Name of Committee Member</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>_________________________</td>
<td></td>
</tr>
</tbody>
</table>

Graduate Director

Based on the collective committee recommendation above, this comprehensive exam attempt is considered:

<table>
<thead>
<tr>
<th>Name of Committee Member</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>_________________________</td>
<td></td>
</tr>
</tbody>
</table>

Director of Graduate Studies

Date
Dept. of Technology Systems
Approval of Non-Thesis Elective Courses Form

Student Name: _____________________________
Banner ID: ____________________
MSNT Concentration: ___________________________________

I am requesting that the following two courses, which will be used as elective courses for my MSNT degree.

**Elective Course 1:**

<table>
<thead>
<tr>
<th>Course Prefix</th>
<th>Course Number</th>
<th>Course Title</th>
</tr>
</thead>
</table>

**Elective Course 2:**

<table>
<thead>
<tr>
<th>Course Prefix</th>
<th>Course Number</th>
<th>Course Title</th>
</tr>
</thead>
</table>

By signature below, I approve the elective courses of the student for non-thesis option.

**Approvals:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Coordinator</td>
<td></td>
</tr>
<tr>
<td>Director of Graduate Studies</td>
<td></td>
</tr>
<tr>
<td>Department Chair</td>
<td></td>
</tr>
</tbody>
</table>
## Dept. of Technology Systems
### Program of Study
#### MS in Technology Management

**Name:**

**Banner ID:**

**ECU Email:**

**Catalog:**

**Phone:**

**Other Email:**

**Intended Graduation Date:**

**On-Campus:**

**DE:**

**Admission Term:**

**Grad Program Advisor:**  Dr. Kanchan Das

**Declared Track:**

- [ ] Non-Thesis (33 s.h.)
- [ ] Practicum (30 hours)
- [x] Thesis (30 hours)

**Checksheet updated:**  November 7, 2018

### Core (15 hrs)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisite</th>
<th>Substitution</th>
<th>Semester Offered</th>
<th>Completion Sem/Yr</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEC 6060</td>
<td>Research Methods in Technology</td>
<td></td>
<td></td>
<td>Fall, Spring</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6000</td>
<td>Statistical Application in Technology Mgmt</td>
<td></td>
<td></td>
<td>Fa, Sp, Su</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6011</td>
<td>Technological Ethics, Diversity, and Leadership</td>
<td></td>
<td></td>
<td>Fall</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6200</td>
<td>Technology Project Mgmt</td>
<td></td>
<td></td>
<td>Fa, Sp, Su</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6406</td>
<td>Capital Project Cost Analysis for Technology</td>
<td></td>
<td></td>
<td>Spring</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

- **Options** (Choose one of the following):
  - [ ] Non-Thesis option – 6 approved electives (18 s.h.) and comprehensive exam
  - [ ] Practicum option - 4 approved electives (12 s.h.) plus 3 hours practicum
  - [x] Thesis option - 3 approved electives (9 s.h.) plus 6 hours thesis

**Comprehensive Exam Date:**

**Completion Date:**

### Practicum option - 4 approved electives (12 s.h.) plus 3 hours practicum

The student works on an industry project, writes a formal report, and gives a public presentation on the outcomes of the practicum. A practicum proposal and the subsequent work must be approved by the student's practicum committee.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisite</th>
<th>Substitution</th>
<th>Semester Offered</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEC 6100</td>
<td>Practicum in Industrial Technology</td>
<td>P/C: ITEC 6060</td>
<td>As needed</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### Thesis option - 3 approved electives (9 s.h.) plus 6 hours thesis

The student conducts a thesis research, writes a formal report, and presents a seminar based on the research. A research proposal and the subsequent thesis must be approved by the student's thesis committee composed of three Technology Systems graduate faculty.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Substitution</th>
<th>Semester Offered</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEC 7000</td>
<td>Thesis</td>
<td>As needed</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 7000</td>
<td>Thesis</td>
<td>As needed</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### Approved Elective Pick List – 9-18 s.h. depending on option

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Substitution</th>
<th>Semester Offered</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDIS 6815</td>
<td>Logistical Security &amp; Safety Mgmt</td>
<td>P/C: ITEC 6060</td>
<td>Fall OY</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IDIS 6825</td>
<td>Transportation Logistics Mgmt</td>
<td>P/C: ITEC 6060</td>
<td>Spring EY</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IDIS 6535</td>
<td>Supply Chain Logistics Mgmt</td>
<td>P/C: ITEC 6060</td>
<td>Fall EY</td>
<td>3</td>
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<tr>
<td>IDIS 6545</td>
<td>Global Logistics Mgmt</td>
<td>P/C: ITEC 6060</td>
<td>Spring OY</td>
<td>3</td>
<td></td>
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<tr>
<td>ITEC 6003</td>
<td>Production Planning &amp; Inventory Mgmt</td>
<td>P/C: ITEC 6060</td>
<td>Spring OY</td>
<td>3</td>
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<tr>
<td>ITEC 6005</td>
<td>Lean Enterprise</td>
<td></td>
<td>Summer</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6110</td>
<td>Quality Planning &amp; Analysis</td>
<td>P/C: ITEC 6000</td>
<td>Fall</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6112</td>
<td>Design of Experim'ts for Products &amp; Processes</td>
<td>P/C: ITEC 6000</td>
<td>Spring</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>P/C</td>
<td>Semester</td>
<td>Credits</td>
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<tr>
<td>------------</td>
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</tr>
<tr>
<td>ITEC 6407</td>
<td>Computer Integrated Mfg &amp; Automation</td>
<td>P/C: ITEC 6060</td>
<td>Fall EY</td>
<td>3</td>
<td></td>
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<tr>
<td>SAFT 6250</td>
<td>Occupational Ergonomics</td>
<td>P/C: SAFT 6040</td>
<td>Fall</td>
<td>3</td>
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<tr>
<td>SAFT 6402</td>
<td>Applied Safety Mgmt</td>
<td>P/C: SAFT 6001</td>
<td>Spring</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6903</td>
<td>Special Topics in Technology</td>
<td></td>
<td>When offered</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Notes: OY = ODD Years; EY = EVEN Years.

**APPROVAL OF PROGRAM OF STUDY:**

________________________________________  _____________________________
Graduate Faculty Advisor                    Date
**Program Requirements (12 s.h.)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisite</th>
<th>Approved Substitution</th>
<th>Semester Offered</th>
<th>Completion Sem/Yr</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEC 6000</td>
<td>Statistical Applications in Industry</td>
<td></td>
<td></td>
<td>Fa, Sp, Su</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6060+</td>
<td>Research Methods in Technology</td>
<td></td>
<td></td>
<td>Fa, Sp, Su</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITEC 6200</td>
<td>Technology Project Management</td>
<td></td>
<td></td>
<td>Fa, Sp, Su</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ICTN 6823+</td>
<td>Information Security Mgmt</td>
<td>P/C:ITEC6060</td>
<td></td>
<td>Su</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ICTN 6878+</td>
<td>Legal &amp; Ethical Issues in IT</td>
<td></td>
<td></td>
<td>Sp</td>
<td>3</td>
<td></td>
</tr>
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</table>

**Concentration Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisite</th>
<th>Semester Offered</th>
<th>Completion Sem/Yr</th>
<th>Credit</th>
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<tbody>
<tr>
<td>ICTN 6865+</td>
<td>Fundamental Network Security</td>
<td>P/C:ITEC6060</td>
<td>Fa</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ICTN 6875+</td>
<td>Emerging Technology</td>
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<td>Su</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ICTN 6880+</td>
<td>Adv Topics in Info Infrastructure Design</td>
<td>P:ITEC6060, ITEC6200</td>
<td>Fa</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ICTN 6885+</td>
<td>Network Mgmt Technology</td>
<td>P:ITEC6060, ITEC6200</td>
<td>Sp</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

+ indicates that course must be completed prior to taking the comprehensive examination

**Program Prerequisites (If Applicable):**

<table>
<thead>
<tr>
<th>Semester Offered</th>
<th>Completion Sem/Yr</th>
<th>Credit</th>
<th>Grade</th>
</tr>
</thead>
</table>

**APPROVAL OF PROGRAM OF STUDY:**

Graduate Faculty Advisor: ____________________________  Date: ____________________________
### Program Requirements (12 s.h.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisite</th>
<th>Approved Substitution</th>
<th>Semester Offered</th>
<th>Completion Sem/Yr</th>
<th>Credit</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEC 6000</td>
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<td></td>
<td>Fa, Sp, Su</td>
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<td>3</td>
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</tr>
<tr>
<td>ITEC 6060+</td>
<td></td>
<td></td>
<td>Fa, Sp, Su</td>
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<td>ITEC 6200</td>
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<td>Fa, Sp, Su</td>
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</tr>
<tr>
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<td>P/C:ITEC6060</td>
<td>Su</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ICTN 6878+</td>
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<td>Sp</td>
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### Concentration Courses:

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### APPROVAL OF PROGRAM OF STUDY:

Graduate Faculty Advisor: ___________________________ Date: ___________________________
### Program Requirements (12 s.h.)

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Graduate Faculty Advisor

Date
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### APPROVAL OF PROGRAM OF STUDY:

Graduate Faculty Advisor: ___________________________  Date: ___________________________
# Dept. of Technology Systems Program of Study

## MS – Occupational Safety (Practicum Option)

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**Practicum Option**

| SAFT6995 Practicum in Occupational Safety | | | | | 3 | |

* * Required Approved Electives (6 s.h.)

**Program Prerequisites (If Applicable):**

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### APPROVAL OF PROGRAM OF STUDY:

__________________________  __________________________
Graduate Faculty Advisor     Date
Dept. of Technology Systems
Program of Study
MS – Occupational Safety (Thesis Option)

Program Requirements (12 s.h.)

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Practicum Option

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Note: Program requires completion of either BIOS7021 or ITEC6000

APPROVAL OF PROGRAM OF STUDY:

Graduate Faculty Advisor

Date

Dept. of Technology Systems
# Program of Study

## Graduate Certificate – Computer Network Professional

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**Notes:** The 12hrs of this grad cert courses can also apply directly into the MSNT Digital Communications Technology concentration;

**APPROVAL OF PROGRAM OF STUDY:**

Graduate Faculty Advisor: ___________________________  Date: ___________________________
# DEPARTMENT OF TECHNOLOGY SYSTEMS GRADUATE PROGRAM GUIDE

## Dept. of Technology Systems

### Program of Study

Graduate Certificate – Cyber Security

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# Dept. of Technology Systems

## Program of Study

### Graduate Certificate – Lean Six-Sigma Black-Belt (LSSBB)

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<th>Credits</th>
<th>Grade</th>
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## Program Prerequisites (If Applicable):

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<tr>
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## APPROVAL OF PROGRAM OF STUDY:

Graduate Faculty Advisor

Date
### Program of Study

#### Graduate Certificate – Website Developer

<table>
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<th>Program Requirements (12 s.h.)</th>
<th>Prerequisite</th>
<th>Approved Substitution</th>
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Notes: The 12hrs of this grad cert courses can also apply directly into the MSNT Web Technologies concentration;

### APPROVAL OF PROGRAM OF STUDY:

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Graduate Faculty Advisor ___________________________ Date ___________________________