Syllabus for ELT-490

ELECTRONICS ASSESSMENT/CAREER PLANNING

COURSE DESCRIPTION

This course is an in-depth, student-centered activity that requires electronics engineering technology self-diagnostic assessment, the integration of research in current electronics employment, the development of a comprehensive curriculum vitae, practical career planning, interviewing strategies, and the application of advanced math concepts to electronics engineering technology situations. Students will participate in career-focused activities that include building a curriculum vitae or professional résumé and knowing how to interview successfully. The knowledge and skills acquired in this course are directly applicable to students who are seeking a job, a promotion, or moving to a new skill area.

Prerequisites: Completion of MAT-231: Calculus I, MAT-232: Calculus II, PHY-115: Physics I, PHY-116: Physics II, CHE-121: Chemistry I, ELE-211: DC Circuits, ELE-212: AC Circuits, ELT-306: Solid State Devices and Circuits, ELT-307: Linear and Integrated Circuits, ELD-302: Digital Electronics, ELD-311: Microprocessors, and ELC-201: Electronics Communications Systems.

COURSE TOPICS

- Self-diagnostic assessment of topics pertinent to Electronics Engineering Technology
- Employment trends and opportunities in the electronics technology industry
- Curriculum vitae/professional résumé
- Behavioral interview
- Applied differential equations and advanced problem solving
- Capstone comprehensive assessment instrument related to Electronics Engineering Technology

COURSE OBJECTIVES

After completing this course, you should be able to:

1. Review the TAC/ABET accreditation outcomes, apply them to the needs of electronics technology employment, and draw conclusions about student readiness based on the self-diagnostic assessment.
2. Develop effective professional curricula vitae/résumés based on past and current work learning/experiences related to the EET student outcomes.

3. Demonstrate proficiency in researching employment opportunities in the emerging electronics technology industry.
4. Research, interpret, and critically analyze literature and resources dealing with behavioral-based interviewing.
5. Communicate effectively to peers and other audiences using correct English and including appropriate graphical presentations.
6. Describe ways to function effectively as a leader and team member with an understanding of key issues such as cultural diversity.
7. Develop an inclusive skill inventory vitae that will serve as a bridge to future work and lifelong learning.
8. Develop increased proficiency in solving problems in electronics engineering technology using applied differential equations and advanced mathematical problem solving.
9. Conduct a self-diagnostic assessment of topics pertinent to Electronics Engineering Technology to identify knowledge strengths and potential areas of knowledge improvement.
10. Complete a capstone comprehensive assessment instrument that will allow for confidential feedback of knowledge strengths and potential areas of knowledge improvement.

COURSE MATERIALS

You will need the following materials to complete your coursework. Some course materials may be free, open source, or available from other providers. You can access free or open-source materials by clicking the links provided below or in the module details documents. To purchase course materials, please visit the University's textbook supplier.

- There are no textbooks required for the course.

  Internet resources are included in each module for recommended readings and points to start Web searches for supporting information.

COURSE STRUCTURE

Electronics Assessment/Career Planning is a three-credit online course, consisting of **six** modules. Modules include an overview, topics, learning objectives, study materials, and assignments. Module titles are listed below.

- **Module 1: Self-Diagnostic Assessment of Topics on the SME EET Exam and ABET Outcomes**
  Course objectives covered in this module: CO1, CO9

- **Module 2: Electronics Technology Employment Trends**
  Course objectives covered in this module: CO3, CO5

- **Module 3: Electronics Technology Comprehensive Capstone Comprehensive Assessment Instrument and Feedback**
  Course objectives covered in this module: CO10

- **Module 4: Building a Comprehensive Curriculum Vitae**
  Course objectives covered in this module: CO2, CO5, CO7

- **Module 5: Behavioral Job Interviewing**
  Course objectives covered in this module: CO4, CO5, CO6

- **Module 6: Advanced Math and Continuous Improvement Plan**
  Course objectives covered in this module: CO8

ASSESSMENT METHODS

For your formal work in the course, you are required to complete two documented self-diagnostic assessments of Electronics Technology knowledge, participate in online discussion forums, complete written assignments, and take an online comprehensive capstone exam. It is imperative that each student complete every formal assignment in order to receive a passing grade for the ELT-490 course. See below for details on the assignments.

Consult the Course Calendar for assignment due dates.

Promoting Originality

One or more of your course activities may utilize a tool designed to promote original work and evaluate your submissions for plagiarism. More information about this tool is available in this document.

Discussion Forums

You are required to participate in **four** graded discussion forums. Discussion forums are on a variety of topics associated with the course modules. There is also an ungraded but required introduction forum in Module 1.

Written Assignments

You are required to complete **four** written assignments and three additional written activities. The written assignments include the following:

- Written Assignment 1: Career Research. You are required to research careers available in the

electronics engineering technology industry. You should use this assignment to help yourself focus on the areas that you find most interesting and that you may wish to pursue in your career planning.

- Written Assignment 2: Curriculum Vitae. You are required to construct your own curriculum vitae, one that will make the best first impression on prospective employers (or on your current employer when applying for advancement).

- Written Assignment 3: Response to Interview Questions. You are required to research interviewing and to prepare and practice for your own interview(s). You will submit individual responses to typical behavioral interview questions as a graded written paper.

- Written Assignment 4: Individual Continuous Improvement Plan. You are required to construct and submit their own Individual Continuous Improvement Plan focusing on Math, Science, and Engineering topics.

The additional activities are described below:

- *Comprehensive Self-Diagnostic Assessments of Electronics Technology Knowledge and ABET Student Outcomes.* You are required to complete two self-diagnostic assessments of topics pertinent to Electronics Engineering Technology and the TESU/ABET student outcomes. These self-diagnostic assessments are for your use to determine areas that you should study further in preparation for the capstone exam in module 3 and for future career development.

- *Advanced Math Problem Solving.* You are required to submit your responses to a ten-item math problem solving assignment using advanced mathematical concepts including applied differential equations. This assignment will be used as a refresher of, as well as an extension of, earlier coursework. In solving the problems, you will apply theoretical calculus in the electronics technology field.

📋 *Capstone Comprehensive Assessment Instrument*

You are required to take a capstone comprehensive assessment instrument. It is the EET Outcome Assessment on electrical and electronics engineering technology. The exam is an industry-normed assessment of your knowledge and skills as they relate to electronics engineering technology. Performing well on the exam will provide you with a valuable document to include in your employment portfolio.

The exam is t**hree** hours long and consists of **one hundred twenty** multiple-choice questions. The exam is a comprehensive exam that covers the following electronics engineering technology areas:

- Basic concepts of electricity
- Alternating current (AC) circuit concepts
- Basic circuit analysis methods
- Digital electronics
- Analog electronics

- Microcontrollers and microprocessors
- Instrumentation and measurements
- Practical laboratory skills

Careful coordination of the steps in taking the capstone exam is critical to student success in this course. Several reminders appear on the Course Calendar.

1. The EET Outcome Assessment is an external assessment instrument administered by SME (Society of Manufacturing Engineers). You can take it either online or by paper/pencil format. However, TESU and SME highly recommend that you take the EET Outcome Assessment Instrument online. If you choose paper/pencil method, timing becomes much more critical.

2. In either format, you are required to find a qualified proctor to administer the assessment as the exam paper or online login information will be sent to the proctor from SME directly. Try to identify a proctor by the end of week 1. See the **Guidelines for Choosing a Proctor** at the end of this section.

3. You are responsible for arranging to have an approved exam proctor available at the location of your choice to administer the exam. You must fill out and have your proctor sign the Proctor Form and Agreement. (All documents including the proctor form can be found on the SME Outcomes Assessment page.) The form must be returned to the SME **three weeks** ahead of your planned exam date. This means you should submit it by the end of Week 4.

4. You are also responsible for submitting the EET Exam Order by the end of Week 4 of the course.
    a. If you download and fill this out in hard copy, please scan it and attach it to an e-mail to Lynne Hall. Her email address is lhall@sme.org. Send your payment separately, along with a hard copy of the application, to the mailing address on the Exam Order form.
    b. You may also complete the application and payment process online. First you will need to create a login. Once you have a login, go to the SME Outcomes Assessment page, scroll down, and click "Click here to apply"

    Important: Be sure that on page 2 of your application you have checked the box "SME may release my certification exam score to my instructor/school." If you fail to do this, you will not get credit for taking the exam, which is a requirement for passing this course.

5. You are responsible for paying the $80 EET Exam Fee to the Society of Manufacturing Engineers (SME).

6. After you take the exam and received the result, submit it via **SME EET Exam Result** link as evidence of completion of the capstone exam requirement.

The following are the only calculators that you are permitted to use for the exam:

- Hewlett Packard: HP 33S or 35S
- Casio: FX 115MSor FX 115MSPlus
- Texas Instruments: T1 30X IIS
- Texas Instruments: T1 36X Solar

Guidelines for Choosing a Proctor

The following links include guidelines for choosing a proctor. All choices are subject to the approval of the Society of Manufacturing Engineers. *Please note that SME exam is not administered by our university's Office of Testing Administration.*

- Active Duty Military Students
- Civilian Students

GRADING AND EVALUATION

Your grade in the course will be determined as follows:

- **Self-Diagnostic Assessments (2)**—5%.
- **Online discussions (4)**—30%
- **Written assignments 1-3 (3)**—45%
- **Advanced math problems**—10%
- **Written assignment 4 – Individual Continuous Improvement Plan**—10%
- **Capstone comprehensive assessment instrument**—Mandatory for this course, but 0% of grade

Overall course evaluation will be based on the rubric created from TESU and ABET guidelines and approved student outcomes of the EET Program. (See the Rubrics area of the course Web site.) All 12 student outcomes described in the rubric will be evaluated for each student. The following five student outcomes will be evaluated in detail by the specific course objectives.

1. Student Outcome 1: Demonstrate a fundamental mastery of the knowledge, skills, and modern/appropriate techniques and tools required for the electronics and/or related fields.

2. Student Outcome 2: Demonstrate an ability to understand and apply current concepts in the areas of mathematics, science, engineering, and technology to problems / issues encountered, using proper application of principles and applied procedures or methodologies.

3. Student Outcome 7: Demonstrate proficiency in oral, written, and graphical communications in a technical and non-technical setting utilizing Standard English.

4. Student Outcome 9: Demonstrate the need for and commitment to engage in self-directed continuing professional development and lifelong learning in one's discipline.

5. Student Outcome 12: Demonstrate a commitment to quality, timeliness, and continuous improvement in professional activities.

The remaining seven Student Outcomes will also be evaluated in this course, but at a more fundamental

level based on the student's individual performance in the class.

All activities will receive a numerical grade of 0–100. You will receive a score of 0 for any work not submitted. Your final grade in the course will be a letter grade. Letter grade equivalents for numerical grades are as follows:

A	=	93–100	C+	=	78–79
A–	=	90–92	C	=	73–77
B+	=	88–89	C–	=	70–72
B	=	83–87	D	=	60–69
B–	=	80–82	F	=	Below 60

To receive credit for the course, you must earn a letter grade of C or better (for an area of study course) or D or better (for a course not in your area of study), based on the weighted average of all assigned course work (e.g., exams, assignments, discussion postings, etc.).

STRATEGIES FOR SUCCESS

First Steps to Success

To succeed in this course, take the following first steps:

- Read carefully the entire Syllabus, making sure that all aspects of the course are clear to you and that you have all the materials required for the course.
- Take time to read the entire Online Student Handbook. The Handbook answers many questions about how to proceed through the course and how to get the most from your educational experience at Thomas Edison State University.
- Familiarize yourself with the learning management systems environment—how to navigate it and what the various course areas contain. If you know what to expect as you navigate the course, you can better pace yourself and complete the work on time.
- If you are not familiar with Web-based learning be sure to review the processes for posting responses online and submitting assignments before class begins.

Study Tips

Consider the following study tips for success:

- To stay on track throughout the course, begin each week by consulting the Course Calendar. The Calendar provides an overview of the course and indicates due dates for submitting assignments, posting discussions, and scheduling and taking examinations.
- Check Announcements regularly for new course information.

ACADEMIC POLICIES

To ensure success in all your academic endeavors and coursework at Thomas Edison State University, familiarize yourself with all administrative and academic policies including those related to academic integrity, course late submissions, course extensions, and grading policies.

For more, see:

- University-wide policies
- Undergraduate course policies and regulations
- Graduate academic policies
- Nursing student policies
- Academic code of conduct