

# Tuskegee University

## College of Engineering

### M.S. in Electrical Engineering

Name of Degrees Offered		College	Department
Master of Science in Electrical Engineering		Engineering	Electrical Engineering
Regular Thesis Program <input checked="" type="checkbox"/>	Non-Thesis <input type="checkbox"/>	Non-Degree <input type="checkbox"/> Certificate <input type="checkbox"/> Other <input type="checkbox"/>	
Dr. Gregory Murphy, Head	334-727-8995/8298	<a href="mailto:gvmurphy@mytu.tuskegee.edu">gvmurphy@mytu.tuskegee.edu</a>	
Mrs. Cheryl Jackson, Coordinator	334-727-8298	<a href="mailto:cjackson@mytu.tuskegee.edu">cjackson@mytu.tuskegee.edu</a>	

The Department of Electrical Engineering offers programs of study leading to the B.S. and M.S. degrees in Electrical Engineering. The Department of Electrical Engineering is the largest of six departments in the College of Engineering, Architecture, and Physical Sciences with approximately 200 students in our undergraduate program and approximately 20 students in our graduate programs. Our students also participate in the Ph. D. program in Material Science and Engineering. The programs in the department are accredited through the Southern Association of Colleges and Schools. The program is accredited by EAC/ABET (Engineering Accreditation Commission/Accreditation Board of Engineering and Technology), 111 Market Place, Suite 1050, Baltimore, MD 21202.

**Admission Requirements:**

Based on SAT/ACT results, a student may be required to take Reading 101 and/or Reading 102. Each Reading course yields one-hour credit and must be taken during the first year of enrollment. Additionally, a student may be required to take English 100, a 3 credit hour course. A minimum grade of "C" is required in English 100 and each Reading course. Note: If required; credit does not count towards graduation.

**Core Courses (12 credits): Required for All Students in the Master's program**

- EENG 0538: Communication Theory – 3 credits
- EENG 0540: Power System Analysis – 3 credits
- EENG 0560: Electrical Properties of Materials – 3 credits
- EENG 0586: CMOS Integrated Circuits – 3 credits

**Elective Courses (12 credits): Determined by Student's Major Professor**

Elective courses may be any graduate. level courses offered at Tuskegee University or elsewhere. Approval of the Major Professor is necessary for a student to sign up for electives.

**Transfer Credits**

The student's Advisory Committee may recommend transfer credits for up to 9 hours for graduate courses taken by the student at Tuskegee University as part of another graduate program or at any other institution. Transfer credits may be recommended under both core

University, the student must submit, to the Dean of

Graduate Studies, a completed application for the Candidacy for the degree.

Graduate S  
Seminars

A student pursuing the Master of Science degree in Materials Science and Engineering must present at least two seminars. The first seminar shall be the presentation of the student's research proposal of the Master's thesis. The second or the final seminar shall be his/her Final Oral Examination for the degree. The student is also required to participate in all seminars arranged by the department.

**Research assistantships and fellowships are available for students admitted to the program. Continuation of the financial support depends on student's performance in course work and research and availability of funds.**

List Core Courses with University Catalog number and brief Description

**EENG 0522** SYSTEMS ANALYSIS. 2nd Semester. Lect. 3, Lab 0, 3 credits. The linear graph and matrix approach to general linear systems having two-terminal and multiterminal components. State variable formulations. Prerequisite: EENG 0431 or Permission of Instructor.

	permeability; Energy converting properties of solids. Prerequisites: EENG 0413, PHYS 0402 or Permission of Instructor.
<b>EENG 0568</b>	MICROWAVE MEASUREMENTS. 1st Semester. Lect. 3, Lab 0, 3 credits. Prerequisite: EENG 0334 or Permission of Instructor.
<b>EENG 0570</b>	ELECTROMAGNETIC THEORY 1st Semester. Lect. 3, Lab 0, 3 credits. Static electric fields, Static magnetic fields, Boundary conditions; Boundary value problems, Laplace equation; Maxwell's equations; Plane waves; wave guides; Cavities; special topics; Cavities, plasmas. Prerequisite: EENG 0334 or Permission of Instructor.
<b>EENG 0572</b>	ANTENNAS AND PROPAGATION. 1st Semester. Lect. 3, Lab 0, 3 credits. Introduction; Typical Antenna concepts, gain, directivity, radiation pattern; Wave polarization, Pointing vector; Sources, point source, dipoles, loops, isotropic source and radiated fields; Antenna array, loop and helical antennas; Parabolic reflector antennas. Prerequisite: EENG 0334 or Permission of Instructor.
<b>EENG 0574</b>	ADVANCED ELECTRONICS. Summer. Lect. 3, Lab 0, 3 credits. Nonlinear electronic systems, advanced analysis and design techniques, applications, wave shaping; switching comparators, bistable systems; oscillators; modulation processes, Signal processing; noise reduction and communication systems. Prerequisite: EENG 0330 or Permission of Instructor.
<b>EENG 0578</b>	ELECTRONIC DEVICE DESIGN AND FABRICATION. 1st Semester. Lect. 3, Lab 0, 3 credits. Monolithic IC technology; Bipolar and MOSFET processes and structures; Layout design, fabrication, applications. prerequisite: EENG 0413 or Permission of Instructor.
<b>EENG 0580.</b>	ADVANCED CONTROL THEORY. 2nd Semester. Lect. 3, Lab 0, 3 credits. Classical techniques; State variables; Optimization; Deterministic and Stochastic systems; Noise measurement and filtering; Simulation; Introduction to game theory. Prerequisite: EENG 0431 or Permission of instructor.
<b>EENG 0584</b>	ADVANCED DIGITAL DESIGN. 2nd Semester. Lect. 3, Lab 0, 3 credits. Advanced design of digital logic circuits. Topics include: gate and flip-flop level design using standard integrated circuit chips, i programmable logic array design, system level design using a hardware description language (VHDL), computer aided design tools used to create and verify designs, fault diagnosis and testing. Prerequisite: EENG 040, or Permission of instructor.
<b>EENG 0585</b>	VLSI DESIGN. 1st Semester. 3 credits. Introduction to VLSI layout. The switch and the inverter. Logic design. Stick diagrams. Design-fabrication interface. Delay and power calculations. Memory system. Static RAM, Dynamic RAM, ROMs. Structured design and Test. Prerequisite: EENG 0413.
<b>EENG 0586</b>	CMOS INTEGRATED CIRCUITS. 2nd Semester. Lect. 3, Lab 0, 3 credit. MOS Transistor Models. Feedback and sensitivity in Analog Integrated Circuits. Operational Amplifier Design. Continuous Time and Sampled-Data Active Filters. D/A and A/D converters. Low-power, low-voltage analog integrated circuits. Prerequisites: EENG 0413, EENG 413L or Permission of instructor.
<b>EENG 0587</b>	POWER ELECTRONICS. 2nd Semester. Lect. 3, Lab 0, 3 credits. Polyphase power rectifiers and inverters. Solid-state drivers for rotating machines. Characteristics of high-power solid-state components. Design of switching power supplies. Prerequisites: EENG 0423, EENG 0423L, EENG 0330. EENG 0330L.
<b>EENG 0590</b>	SPECIAL TOPICS. 1st and 2nd Semester. 1-4 credits. Topics of special interest of the faculty and the students. Offered by specific Course Reference Numbers and title. Prerequisite: Permission of Instructor.
<b>EENG 590J</b>	ADVANCED SOLID STATE DEVICES. 1st Semester. Lect. 3, Lab 0, 3 credits. Review of Si and GaAs

concentration, lifetimes, junction and contact para