Technical Electives for Electrical Engineering – Fall 2026

Group I: An Electrical Engineering student is required to take two courses from **Group I**.

Course No.	Course Title	Cr	Pre- and Co-requisites
ECE 30300	Engineering Software Design	3	P: ECE20100, ECE 27000
ECE 31000	Motor Engine Control	3	P: ECE 20100, PHYS 25100
ECE 44901	Machine Learning	3	P: ECE 30200, Programming skills in Matlab or Python
ECE 47800	Robotics and Automation	3	P: ECE 36200, PHYS 15200, MA 36300
ECE 46500	Embedded Microprocessors	3	P: ECE 36200
ECE 47400	Introduction to RF Circuit Design	3	P: PHYS 25100, ECE 25500
ECE 48300	Digital Control Systems Analysis and Design	3	P: ECE 30100 or ME 33300
ECE 50600	Biomedical Instrumentation Design	3	Recommended P: Circuits &Electronics, Analog and Digital Signal Processing; Programming in C
ECE 53800	Digital Signal Processing I	3	P: ECE 30100, ECE 30200
ECE 54700	Introduction to Computer Comm. Network	3	P: ECE 30200
ECE 51800	Digital Image Processing	3	P: ECE 22900, ECE 30100
ECE 66100	Computer Vision	3	P: MA 35100

* ECE 39595, ECE 49500 or other ECE 50000-level or above courses in the electrical engineering area can be included in Group I technical elective with the approval of the Electrical Curriculum Committee. Once a course is approved, a student can take it as a regular technical elective with the approval of the advisor.

Group II: Other Technical Electives: An Electrical Engineering student is required to take two courses from **Group II**.

Course No.	Course Title	Cr	Pre- and Co-requisites
ECE 29101+	ECE Internship Experience	3	Instructor Permission
ECE 35800	Introduction to VHDL	3	P: ECE 27000, ECE 22900
ECE 36800	Data Structures	3	P: ECE 23000
ECE 43700	Computer Design and Prototyping	4	P: ECE 35800 & 36200
ECE 48500	Embedded Real-Time Operating Sys.	4	P: ECE 36200, MA 17500 or MA 27500 C: ECE 36800
SE 52000* **or SE 54000***	Engineering Economics or System Architecture	3	P: Senior or graduate standing
SE 53000* **or SE 55000***	Engineering Management or Advanced Manufacturing Systems & Processes	3	P: Senior or graduate standing
CS 32100	Computer Graphics	3	P: CS Department approval
CS 36000	Software Engineering	3	P: CS Department approval
MA 17500	Introductory Discrete Math	3	P: MA 16500 or 15300 & CS 16000, or MA 15300 & EET 26400 with grade of C or better in each course; MA 26100
PHYS 32200	Optics	3	P: PHYS 25100
PHYS 32500	Scientific Computing	3	P: PHYS20500 or ECE30300
PHYS 34200	Modern Physics	3	P: PHYS 25100

* Either of the two courses, but not both.

ECE 39595, ECE 49500, or other 50000-level or above courses offered by ECE, math, or physics departments may be taken by the student as Group II technical electives with the approval of the advisor.

** ECE 49600/49700/49800 requires approval of the Electrical Engineering curriculum committee.

ECE 49600, ECE 49700, and ECE 49800 can be counted as Group II technical electives, with the maximum of 3 credit hours each, upon the approval by the EE curriculum committee.

*** ECE 66100 can be counted as either group 1 or group 2.

\+ Please read the Internship/Co-op guideline posted on ECE website and follow the instructions.

1. A course cannot be counted towards both an undergraduate degree and a graduate degree, with the exception of the students enrolled in the 5 Year BS/MSE Combined Degree Program. For more information, visit the ECE Department website.

2. For students admitted to the 5 year combined BS/MSE program, the additional information of technical electives on graduate-level can be located in the section of 5 Year BS/MSE Programs.

3. Electrical Engineering majors are encouraged to explore the requirements for a minor in Math or Physics. For more information, visit the ECE Department website.

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