

Technical Electives for BSEE

Group I: Electrical Engineering Technical Electives: An Electrical Engineering student is required to take three courses from **Group I**.

Course No.	Course Title	Cr	Pre- and Co-requisites
ECE 30300	Engineering Software Design	3	P: ECE22900
ECE 32400	Introduction to Energy Systems	3	P: ECE 25500, PHYS 25100, C: ECE 20800
ECE 39595	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, CS 22900, 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 54700	Introduction to Computer Comm. Network	3	P: ECE 30200

* ECE 39595, ECE 49500 or other ECE 5XX00 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 35800	Introduction to VHDL	3	P: ECE 27000, CS 22900
ECE 36800	Data Structures	3	P: CS 22900
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	4	P: CS Department approval
MA 17500* or MA 27500*	Introductory Discrete Math or Intermediate 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 5xx-level 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.

Notes:

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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