SCIENCE OF ENGINEERING (ESC)

ESC 111, INTRODUCTION TO ENGINEERING, 3 Credits
Describes different fields of engineering; Performs calculations and synthesize results; Develops critical thinking skills and apply to engineering problems; Applies engineering specific technical and soft skills.
Equivalent to: MIME 101

ESC 340, INTRO TO EXPERIMENTATION, 4 Credits
Theory and application of instrumentation and measurement techniques are covered. Course topics include fundamentals of sampling theory, error and uncertainty analysis, signal conditioning, sensor fundamentals, and data analysis. Laboratory exercises provide experience utilizing data acquisition hardware and software, as well as a variety of sensors for measuring parameters from mechanical and electrical engineering systems.
Prerequisite: CS 162 with C or better and ENGR 202 [C] and PH 213 [C] and ST 314 [C]

ESC 350, ENGINEERING MATERIALS, 4 Credits
An introduction to materials and their structures and properties. The physical and chemical phenomena responsible for the electrical, mechanical, and thermal behavior of solids will be studied.
Prerequisite: PH 213 with C or better and CH 232 [C]

ESC 401, RESEARCH, 1-16 Credits
Equivalent to: ESE 401
This course is repeatable for 4 credits.

ESC 497, MIME CAPSTONE DESIGN, 4 Credits
Product design; selection and replacement of major tools, processes, and equipment; paperwork controls; subsystem revision; system or plant revision; selection and training of personnel; long-run policies and strategy. CROSSLISTED as ESC 497/ESE 497. (Writing Intensive Course)
Attributes: CWIC – Core, Skills, WIC
Prerequisite: (ENGR 390 with C or better or BA 360 with C or better) and IE 425 [C] and (ME 312 [C] or ME 312H [C]) and (ME 331 [C] or ME 331H [C]) and ESE 355 [C] and ESE 360 [C] and (ST 314 [C] or ST 314H [C]) and WR 327 [C]
Equivalent to: ESE 497, MIME 497

ESC 498, MIME CAPSTONE DESIGN, 4 Credits
Product design; selection and replacement of major tools, processes, and equipment; paperwork controls; subsystem revision; system or plant revision; selection and training of personnel; long-run policies and strategy. (Writing Intensive Course)
Attributes: CWIC – Core, Skills, WIC
Prerequisite: ESE 497 with C or better or IE 497 with C or better or ME 497 with C or better or MIME 497 with C or better
Equivalent to: ESE 498, IE 498, ME 498

ESC 499, SPECIAL TOPICS, 4 Credits
This course is repeatable for 16 credits.