

Mechanical Engineering Approved Technical Electives

Requirement:

Students must complete 3 technical electives (9 hours total).

Rules & Restrictions:

- Students must meet all Prerequisite requirements for any courses they wish to take as a Technical Elective. Exceptions may be made on a case-by-case basis. MAE 200 and MAE 330 is NOT required for ME majors that wish to take courses like MAE 343 or MAE 371.
- Any MAE course that is not required for your degree program may be taken as a Technical Elective. However, ME majors may not receive credit for MAE 330 as a Technical Electives.
 - If a student completes either MAE 455 or MAE 466 as a core major requirement, the other course may be used to satisfy an elective requirement.
- ME students may only take one of the following: MA 385, ISE 390, or EE 385 for tech elective credit.
- Science or Engineering courses that are cross-listed with courses from the College of Education, the College of Business or the College of Art, Humanities and Social Sciences are no longer allowed to serve as MAE Technical Electives without approval by the MAE Department.
- Engineering Technology (ET) courses cannot be used for electives.
- Other courses may be reviewed by the MAE Department for approval.

Approved Course Code, Title, and Prerequisite(s):

- AES351 - Dynamic Meteorology: Prerequisite(s) AES Department Approval Required
- AES451 - Atmospheric Fluid Dynamics I: Prerequisite(s) AES 351
- AST371 - Intro to Astrophysics: Prerequisite(s) PH 111, MA 201
- CH331 - Organic Chemistry I: Prerequisite(s) CH 123
- CH332 - Organic Chemistry II: Prerequisite(s) CH 331
- CH341 - Physical Chemistry I: Prerequisite(s) CH 123, PH 112/115, MA 201
- CH342 - Physical Chemistry II: Prerequisite(s) CH 341
- CE321 - Intro to Transportation Engineering: Prerequisite(s) MA 171, CE 284
- CE372 - Soil Mechanics & Foundation: Prerequisite(s) MAE 370, MAE 310
- CE380 - Civil Engineering Materials: Prerequisite(s) MAE 370
- CE381 - Structural Analysis I: Prerequisite(s) MAE 370, MAE 272
- CE422 - Traffic Engineering Design: Prerequisite(s) CE 321

- CE441 - Hydraulic Engineering Design: Prerequisite(s) MAE 310
- CE449 - Intro Environmental Engineering: Prerequisite(s) MAE 310, MAE 341
- CE456 - Water Quality Control Processes: Prerequisite(s) CE 449
- CE457 – Hydrology: Prerequisite(s) MAE 310
- CE481 - Structural Analysis II: Prerequisite(s) CE 381
- CE484 - Steel Design: Prerequisite(s) CE 381, MA 244
- CPE486 - Machine Learning for Engineering Applications: Prerequisite(s) MA 244, EE 385 or ISE 390
- CPE487 - Deep Learning for Engineering Applications: Prerequisite(s) CPE 486
- EE307 - Electricity & Magnetism: Prerequisite(s) EE 213
- EE308 - Electromagnetic Engineering: Prerequisite(s) EE 307
- EE310 - Solid State Fundamentals: Prerequisite(s) PH 113
- EE315 - Intro Electronic Analysis & Design: Prerequisite(s) EE 213
- EE382 - Analysis Meth Continuous Time Systems: Prerequisite(s) EE 213, MA 238, MA 244
- EE383 - Analysis Meth Multivariable: Prerequisite(s) EE 382
- EE385 - Random Signals & Noise: Prerequisite(s) MA 201, MA 244
- EE386 - Intro Control/Robotic Systems: Prerequisite(s) EE 382
- ISE327 - Management Systems Analysis: Prerequisite(s) ISE 390
- ISE328 - Intro Systems Engineering: Prerequisite(s) ISE 321, ISE 390
- ISE340 - Operations Research: Prerequisite(s) ISE 390, MA 244
- ISE390 - Prob & Engineering Statistics I: Prerequisite(s) w/ concurrency MA 201
- ISE391 - Probability & Engineering Statistics II: Prerequisite(s) ISE 390
- MA301 - Intro Elementary Number Theory: Prerequisite(s) MA 244
- MA330 - Foundations of Math: Prerequisite(s) MA 244
- MA385 - Intro to Probability & Statistics: Prerequisite(s) MA 201
- MA420 - Intermediate Differential Equations: Prerequisite(s) MA 201, MA 244, MA 238
- MA442 - Algebraic Structures with Applications: Prerequisite(s) MA 244, MA 330
- MA452 - Intro to Real Analysis: Prerequisite(s) MA 330
- MA453 - Intro to Complex Analysis: Prerequisite(s) MA 201, MA 301 or MA 330
- MA456 - Methods of Partial Differential Equations: Prerequisite(s) MA 238, MA 244
- MA458 - Applied Linear Algebra: Prerequisite(s) MA 238, MA 244
- MA460 - Intro Fourier Analysis: Prerequisite(s) MA 238, MA 244
- MA465 - Intro to Math Modeling: Prerequisite(s) MA 238, MA 244
- MA487 - Intro to Math Statistics: Prerequisite(s) MA 244, MA 330
- MAE343 - Compressible Aerodynamics: Prerequisite(s) MAE 284, MAE 330, MAE 341
- MAE371 - Aerospace Structures: Prerequisite(s) MAE 200, MAE 370
- MAE440 - Rocket Propulsion I: Prerequisite(s) MAE 343

- MAE441 - Airbreathing Propulsion: Prerequisite(s) MAE 343
- MAE455 - Design of Thermal Systems: Prerequisite(s) MAE 342, MAE 450
- MAE461 - Vibrations Elastic Systems: Prerequisite(s) MAE 488
- MAE466 - Mech & Design Machine Elements: Prerequisite(s) MAE 364, MAE 370
- MAE469 - Introduction to Astrodynamics: Prerequisite(s) MAE 284, MAE 272
- MAE471 - Adv Aerospace Structures & Materials: Prerequisite(s) MAE 370
- MAE474 - Applied Mechanics of Solids: Prerequisite(s) MAE 370
- MAE480 - Aircraft Stability & Control: Prerequisite(s) MAE 330, MAE 488
- PH301 - Intermediate Mechanics: Prerequisite(s) PH 111, MA 238