

# B.S. in Mechanical Engineering

## Approved List of Technical Electives

CS	3260	3.0	Numerical Methods for Computational Science.....	(ME 1020 and MTH 2350)
EE	4130/Lab	4.0	Continuous Control Systems.....	(ME 3210, EE 4130Lc)
ISE	2211	3.0	Statistics for Engineers.....	(EGR 1010)
ISE	4400	3.0	Engineering Economy.....	(MTH 2300 or EGR 1010)
PHY	3220	3.0	Applied Optics.....	(PHY 2410)
ME	3320	3.0	Thermodynamics II.....	(ME 1020, ME 3310 and Note 3)
ME	4010	3.0	Computational Methods for Mechanical Engineering.....	(ME 3210 and ME 3360)
ME	4080	3.0	Design Optimization.....	(ME 3210)
ME	4120	3.0	Finite Element Analysis.....	(ME 3120 and MTH 2350)
ME	4121/Lab	4.0	Industrial Controls and Automation.....	(ME 4121Lc, ME 1020 and ME 3210)
ME	4150	3.0	Mechanical Design II.....	(ME 4140)
ME	4160	3.0	Advanced CAD.....	(ME 1040, ME 2210, and ME 3120)
ME	4170	3.0	Mechanics of Composites.....	(ME 1020 and ME 3120)
ME	4180	3.0	Additive Manufacturing.....	(ME 2700)
ME	4190	3.0	Introduction to Engineering Lubrication.....	(MTH 2350, MTH 2320, and ME 3350)
ME	4210	3.0	Mechanical Vibration.....	(ME 3210)
ME	4220	3.0	Mechanical Systems Modeling and Design.....	(ME 3210)
ME	4240	3.0	Vehicle Engineering.....	(ME 2210)
ME	4250	3.0	Kinematics and Design - Mechanism.....	(ME 2210)
ME	4260	3.0	Introduction to Robotics.....	(MTH 2350 or MTH 2530; junior or senior standing)
ME	4330	3.0	Compressible Fluid Flow.....	(ME 3350)
ME	4340	3.0	Simulation of Thermal-Fluids Problems with Advanced Engineering Software.....	(ME 3360)
ME	4350	3.0	Mechanics of Viscous Fluids.....	(ME 3350)
ME	4360	3.0	Principles of Internal Combustion Engines.....	(ME 3320, ME 3350, and MTH 2350)
ME	4430	3.0	Aeronautics.....	(ME 3350)
ME	4440	3.0	Aerospace Propulsion.....	(ME 3350)
ME	4490	3.0	Aerospace Structures.....	(ME 3120)
ME	4520	3.0	Hydropower.....	(ME 3350)
ME	4530	3.0	Energy Conversion.....	(ME 3310)
ME	4540	3.0	Solar Thermal Engineering.....	(ME 3360)
ME	4550	3.0	Geothermal Energy.....	(ME 3360)
ME	4560	3.0	Wind Power.....	(ME 3350)
ME	4570	3.0	Energy Materials.....	(ME 2700, (ME 3310 or ME 3750), and Note 3)
ME	4580	3.0	Fuel Cell Science and Technology.....	(ME 2700 and (ME 3310 or ME 3750))
ME	4590	3.0	Advances in Clean Coal Technology.....	(ME 3360)
ME	4680	3.0	Experimental Nanomaterials and Nanoscience.....	(CHM 1210/1210L and PHY 2400/2400L)
ME	4700	3.0	Structure and Properties of Materials II.....	(ME 2700, MTH 2320, and MTH 2350)
ME	4720	3.0	Engineering Polymers.....	(ME 2700)
ME	4730	3.0	Engineering Ceramics.....	(ME 2700)
ME	4740	3.0	Materials Selection and Failure Analysis.....	(ME 2700, ME 3120 and (ME 4620))
ME	4750	2.0	Materials Characterization.....	(ME 2600, ME 2700, and Note 3)
ME	4770	3.0	Mechanical Behavior of Metals.....	(ME 2700 and ME 3120)
ME	4820	3.0	Corrosion.....	(ME 2700 and (ME 3310 or ME 3750))
ME	4830	3.0	Computational Materials Science.....	(ME 2700)
ME	4850	3.0	Nano-Scale Science and Engineering.....	(ME 2700 and (ME 3310 or ME 3750))
ME	4860	3.0	Metal Forming.....	(ME 2700, ME 3120 and Note 3)
ME	4870	3.0	Machining.....	(ME 2210 or BME 3212 or ISE 3212)
ME	4880	3.0	Powder Processing Materials.....	(ME 2700 and (ME 3310 or ME 3750))
ME	4990	1-3.0	Independent Study.....	(Department Permission)
ME	3/4940	1-3.0	Co-op/Internship.....	(1 <sup>st</sup> /2 <sup>nd</sup> year courses complete & Advisor Approval)

### NOTES:

- 1) Required courses for a student's degree cannot be double counted as electives
- 2) Courses taken as track courses cannot be doubled counted as TE course.
- 3) A grade of "C" or better is required in the following courses: ME 3120 and ME 3310 in order to satisfy the designated prerequisites