

# MECHANICAL ENGINEERING DEPARTMENT - BS Degree Program

SUGGESTED GRADUATION PLAN - 2024-2025

Course Key	
Course #	hrs
Course Title	
Prerequisites	p: prerequisites
	c: concurrent
* GE's fulfilled	
When Offered: FWSS	

	Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6	Semester 7	Semester 8
University Core	First-Year Writing Requirement 3	American Heritage Requirement 3				Bio 100 or MMBio 221 or Cell 120 or MMBio 240 3 *Bio-Science	Civilization 2 Elective *Arts or Letters 3	Remaining Arts or Letters or Civ 1 Elective 3
	Religion Cornerstone Requirement 2	Religion Cornerstone Requirement 2	Religion Cornerstone Requirement 2		Religion Cornerstone Requirement 2	Religion Elective 2	Religion Elective 2	Religion Elective 2
Major Requirements	Math 112 Calculus 1 Math 110, 111 *QR & LL FWSS 4	Math 113 Calculus 2 Math 112 FWSS 4	Math 302 Engr Math 1 Math 113 FW 4	Math 303 Engr Math 2 Math 302 FW 4	MeEn 231 Global Ldrshp *Soc Sci & GCA FWSp 3	Wrtg 316 Tech Writing 1st Yr Writing *ADV WRI FWSS 3	MeEn 475 Integrated Product & Process Design 1 Preqs below F 3	MeEn 476 Product Development Capstone 2 Preqs below W 3
	Phscs 121 Newtonian Mech Math 112 p,c *Phy Sci FWSp 3	Chem 105 General Chemistry Math 110 *Phy Sci FWSS 4	Phscs 123 Waves, Optics, Thermo Phscs 121, Math 112 FWSp 3	EcEn 301 Elem Elec Eng Math 113 FWSp 3	MeEn 321 Thermodynamics Phscs 123, Chem 105 FWSp 3	MeEn 312 Fluid Mech MeEn 321, ME 335 Math 303/334 FWSu 3	MeEn 340 Heat Transfer ME 321 FWSp 3	Technical Elective 3
	MeEn 191 New Student Seminar FW 0.5	MeEn 101 Intro to ME/Statics Phscs 121, Math 112 FWSp 3	CCE 203 Mech of Materials MeEn 101 FW 3	MeEn 275 Comput Methods CS 110 or CS 111 Math 302 or 314 p,c FWSp 3	MeEn 335 Dyn systems MeEn 275, CE 204 EcEn301 Math 303/334 p,c FWSp 3	MeEn 362 Measurements MeEn 330, ME 335 Wrtg 316 p,c FWSu 3	Technical Elective 3	Technical Elective 3
	UNIV 101 BYU Foundations *Civ 1 or A or L FWSS 2		MeEn 204 Dynamics MeEn 101 *Phy Sci FWSp 3	MeEn 250 Materials Science Chem 105 FWSp 3	MeEn 330 Mechatronics EcEn 301, MeEn 275 MeEn 335 p,c FWSp 3	MeEn 372 Mech Sys Des CCE 203, MeEn 250 FWSp 3	Technical Elective 3	
			CS 110 or 111 Programming FWSp 3	MeEn 272 CAD FWSp 3	MeEn 382 Mfg Process MeEn 250, MeEn 272 FWSu 3			
Credits	14.5	16.0	18.0	16.0	17.0	17.0	17.0	14.0 Total:129.5

**Applying to the Program**  
 1. Complete designated courses above or alternate courses listed on me.byu.edu/apply  
 2. Following completion of courses, submit application at me.byu.edu/apply

**Alternate Math Courses Credits**  
 Math 213 - Elem Linear Algebra - FWSS 2  
 Math 314 - Calc of Sev Variables - FWSS 3  
 Math 334 - Differential Equations - FWSS 3

**Technical Elective Courses**  
 - 4 courses (12 hrs) required  
 - At least 2 ME courses  
 - No duplicates of required courses  
 - 3 Credit-hr max in project classes  
**TE list:**

**Int Product & Process Design Prerequisites**  
 475 Prereqs: MeEn 330, MeEn 335, MeEn 372, MeEn 382  
 476 Prereqs: MeEn 312, MeEn 362, MeEn MeEn 340, MeEn 475

**Professional Program Courses**

**Major Requirements**

<https://www.me.byu.edu/technical-electives>

# BYU Mechanical Engineering Technical Elective Offerings

## Every Fall

ME EN 412	Applications of Fluid Dynamics
ME EN 415	Flight Vehicle Design
ME EN 425	Internal Combustion Engines
ME EN 431	Design of Control Systems
ME EN 450	Engineering Materials: Selection for Design
ME EN 494R	Global Engineering Outreach Projects
ME EN 495R	Mentored Coursework in Mechanical Engineering*
ME EN 497R	Mentored Projects in Mechanical Engineering
ME EN 505	Applied Engineering Math
ME EN 507	Linear Finite Element Methods
ME EN 510	Compressible Fluid Flow
ME EN 512	Intermediate Fluid Dynamics
ME EN 537	Robotics - Kinematics, Dynamics, and Control
ME EN 538	Compliant Mechanisms
ME EN 552	Neuromechanics of Movement
ME EN 554	Kinetics of Materials
ME EN 555	Introduction to Biomechanical Engineering
ME EN 561	Fundamentals of Acoustics
ME EN 570	Computer-Aided Engineering Software Development
ME EN 573	Design of Medical Devices
ME EN 576	Product Design
ME EN 595R	Special Topics in Mechanical Engineering

## Every Winter

ME EN 351	Fundamentals of Biomedical Engineering
ME EN 422	Applied Thermodynamics
ME EN 426	Gas Turbine and Jet Engine Design
ME EN 431	Design of Control Systems
ME EN 437	Kinematics
ME EN 456	Composite Material Design
ME EN 461	Introduction to Acoustics
ME EN 472	Mechanical Systems Design Applications
ME EN 473	Interdisciplinary Electro-Mechanical Innovation (app. only)
ME EN 494R	Global Engineering Outreach Projects
ME EN 495R	Mentored Coursework in Mechanical Engineering*
ME EN 497R	Mentored Projects in Mechanical Engineering
ME EN 501	Stress Analysis and Design of Mechanical Structures
ME EN 508	Structural Vibrations
ME EN 534	Dynamics of Mechanical Systems
ME EN 536	Autonomous Aircraft Flight Dynamics and Controls
ME EN 541	Computational Fluid Dynamics and Heat Transfer
ME EN 553	Mechanical Behavior of Materials
ME EN 575	Optimization Techniques in Engineering
ME EN 578	Systems Engineering and CAD Applications
ME EN 595R	Special Topics in Mechanical Engineering

## Even Fall

ME EN 535	Mechanical Vibrations
ME EN 558	Metallurgy
ME EN 572	Design for Additive Manufacturing

## Even Winter

ME EN 515	Aerodynamics
ME EN 521	Intermediate Thermodynamics
ME EN 556	Materials Modeling: Simulations

## Every Summer

ME EN 495R	Mentored Coursework in ME*
ME EN 497R	Mentored Projects in ME
ME EN 595R	Special Topics in ME

## Odd Fall

None

## Odd Winter

ME EN 522	Combustion
ME EN 531	Aerospace Structural Dynamic Testing
ME EN 540	Intermediate Heat and Mass Transfer
ME EN 550	Microelectromechanical Systems
ME EN 557	Materials in Extreme Environments
ME EN 577	Uncertainty Quantification

## Every Spring

ME EN 423	Global Perspectives on Energy
ME EN 479	Singapore Design and Development
ME EN 495R	Mentored Coursework in ME*
ME EN 497R	Mentored Projects in ME
ME EN 579	Global Prod. Dev. (every other)
ME EN 595R	Special Topics in ME

\*Must be 3 credits