

MECHANICAL ENGINEERING CURRICULUM SHEET | Fall 2015

FRESHMAN (35)

FALL			SPRING		
ENCP 101*	Intro. to Engineering I	3	EMCH 111*	Graphics & Visualization	
CHEM 111 &L*	SCI: General Chemistry I & Lab	4	CHEM 112 &L*	General Chemistry II & Lab	
ENGL 101*	CMW: Critical Reading & Comp.	3	ENGL 102*	CMW: Rhetoric & Composition	
MATH 141*	ARP: Calculus I	4	MATH 142*	ARP: Calculus II	
ELECTIVE	AIU: Aest. & Intr. Understanding	3	PHYS 211 &L*	SCI: Essentials of Physics I & lab	
		17			

SOPHOMORE (31)

FALL			SPRING		
EMCH 200*	Statics	3	EMCH 290*	Thermodynamics Fund.	
EMCH 201*	Intro. to App. Num. Methods	3	EMCH 260*	Intro. to Mechanics of Solids	
MATH 241*	Vector Calculus	3	ELCT 220*	Circuits I	
PHYS 212 &L*	Essentials of Physics II & lab	4	EMCH 361	EMCH Lab I	
STAT 509*	Statistics for Engineers	3	MATH 242*	Elem. Differential Equations	
		16			

JUNIOR (30)

FALL			SPRING		
EMCH 310	Dynamics	3	EMCH 332	Kinematics & Dynamics	
EMCH 327	Design Mech. Elements	3	EMCH 354	Heat Transfer	
EMCH 330	Mechanical Vibrations	3	EMCH 363	EMCH Lab III	
EMCH 360	Fluids	3	EMCH 371	Engineering Materials	
EMCH 362	EMCH Lab II	3	EMCH 394	Thermo. Sys. Des. & Anal.	
		15			

SENIOR (30)

FALL			SPRING		
EMCH 377	Manufacturing Processes	3	EMCH 428	Mechanical Design II	
EMCH 427	Mechanical Design I	3	EMCH ELCT	EMCH Elective	
EMCH ELCT	EMCH Elective	3	EMCH ELCT	EMCH Elective	
ELECTIVE	Technical Elective	3	ELECTIVE	VSR: Values, Ethics, Soc.Res.	
ELECTIVE	GSS: Social Science	3	ELECTIVE	GHS: Historical Thinking	
		15			

ADDITIONAL REQUIREMENTS (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

CMS Effective, Engaged, and Persuasive Communication: Spoken Component

PHIL 325 (CMS/VSR overlay) or SPCH 140

INF Information Literacy

USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

GFL Global Citizenship and Multicultural Understanding: Foreign Language

Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).

VSR Values, Ethics, and Social Responsibility

PHIL 325 (CMS/VSR overlay), HIST 108 (VSR/GHS overlay), PHIL 211, 320, 321, 322

* Indicates a lower division course to be completed before junior level courses.



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Technical Elective (3 hours)

Choose from any EMCH elective or from a list of acceptable technical elective courses that is maintained in the department office and on its website.

Mechanical Engineering Electives (9 hours)

Design/Manufacturing

- EMCH 507-Computer Aided Design
- EMCH 508-Finite Element Analysis
- EMCH 509-Computer Aided Manufacturing
- EMCH 516-Control Theory in ME
- EMCH 521-Concurrent Engineering
- EMCH 522-Design for Manufacture & Assembly
- EMCH 527-Design Of Mechanical Systems
- EMCH 528-Product Safety Engineering
- EMCH 529-Sustainable Design & Dev.
- EMCH 535-Robotics in Mechanical Engineering

Aerospace Engineering

- EMCH 508-Finite Element Analysis
- EMCH 516-Control Theory in ME
- EMCH 522-Design for Manufacture & Assembly
- EMCH 532-Intermediate Dynamics
- EMCH 544-Compressible Fluid Flow
- EMCH 554-Inter. Heat Transfer
- EMCH 560-Inter. Fluid Mechanics
- EMCH 571-Mechanical Behavior of Materials
- EMCH 575-Adaptive Material Sys. & Structures
- EMCH 577- Aerospace Structures I
- EMCH 578-Intro to Aerodynamics
- EMCH 584-Adv. Mechanics of Materials
- EMCH 585-Nature of Composite Materials
- EMCH 592-Introduction Combustion

Engineering Materials

- EMCH 571-Mechanical Behavior of Materials
- EMCH 572-Physical Metallurgy
- EMCH 575-Adaptive Material Sys. & Structures
- EMCH 585-Nature of Composite Materials

Thermal-Fluid Systems

- EMCH 497-Design Thermal Systems
- EMCH 544-Compressible Fluid Flow
- EMCH 554-Inter. Heat Transfer
- EMCH 560-Inter. Fluid Mechanics
- EMCH 592-Introduction Combustion
- EMCH 594-Solar Heating
- EMCH 597-Thermal Environmental Eng.

Mechanics of Solids

- EMCH 308-Finite Element Stress Anal.
- EMCH 532-Intermediate Dynamics
- EMCH 584-Adv. Mechanics of Materials
- EMCH 586-Exp. Stress Analysis

Nuclear Engineering

- EMCH 552-Intro. Nuclear Engineering
- EMCH 553-Nuclear Fuel Cycle
- EMCH 555-Inst. for Nuclear Engineering
- EMCH 556-Intro to Risk Analy. & Reactor Safety
- EMCH 557-Intro to Radiation Shielding
- EMCH 558-Intro to Nuclear Reactor Systems
- EMCH 573-Intro to Nuclear Materials

Other Approved EMCH Electives

- EMCH 441-Automotive System Fundamentals
- EMCH 460-Special Problems
- EMCH 501-Engineering Analysis I
- EMCH 502-Engineering Analysis II
- EMCH 561-Current Topics
- EMCH 580-Mechanics of Solid Biomaterials

Curriculum Notes

C or better is required in ENGL 101, 102, MATH 141, 142, CHEM 111, PHYS 211 & Lab, EMCH 200.