

Mechanical Engineering (Nuclear Track) Degree Requirements (2020-2021)

The minimum total semester credit hours (credits) required for a BS degree in Mechanical Engineering is **126**.

General Education Core Courses

42 credits

Communication (6 credits): ENGL 1301 and ENGL 1302

Mathematics (3 credits): MATH 2413*

Life and Physical Sciences (6 credits): CHEM 1311 and PHYS 2325

Language, Philosophy, and Culture (3 credits): choose one from ENGL 2322, 2323, 2327, 2328; UNIV 1301, 1302

Creative Arts (3 credits): choose one from ARTS 1301, DRAM 1310, MUSI 1306, or MUSI 2310

American History (6 credits): HIST 1301, 1302

Government/Political Science (6 credits): PLSC 2305, 2306

Social and Behavioral Sciences (3 credits): Choose one from ECON 2301, LEAD 1301, PSYC 1301, or SOCI 1301

Component Area Option (6 credits): CHEM 1111, COMM 1315, MATH 2413*, PHYS 2125

* Three credits of MATH 2413 fulfill the Mathematics requirement, one credit is assigned to the Component Area Option.

Computer Use: Mechanical Engineering (Nuclear Track) students obtain skills in using computers in ENGR 1204 and MENG 3348.

Mechanical Engineering (Nuclear Track) Description

The track combines broad engineering disciplines with those specific to the nuclear power industry. A degree in mechanical engineering with the nuclear track prepares graduates for work at power plants, fuel enrichment facilities, government regulatory agencies, and the design and manufacture of components and systems associated with handling nuclear materials. The program also prepares students for graduate work in nuclear engineering. Students in this track take specialized courses in nuclear physics, nuclear power fundamentals, radioactive waste management, radiation protection, reactor engineering, and nuclear power laboratory practice.

Mechanical Engineering (Nuclear Track) Lower Division Required Courses **23 Credits**

MATH 2414 – Calculus II

MATH 2415 – Calculus III

PHYS 2326 – University Physics II

PHYS 2126 – University Physics II Laboratory

ENGR 1204 – Engineering Graphics

ENGR 2301 – Engineering Mechanics: Statics

ENGR 2302 – Engineering Mechanics: Dynamics

ENGR 2305 – Fundamentals of Circuit Analysis

Mechanical Engineering (Nuclear Track) Upper Division Required Courses **61 Credits**

MATH 3301 – Introduction to Probability I

MATH 3320 – Differential Equations

PHYS 3310 – Modern Physics

ENGR 3303 – Introduction to Material Science

ENGR 3375 – Introduction to Thermodynamics

ENGR 3332 – Mechanics of Materials

ENGR 3354 – Introduction of Fluid Mechanics

ENGR 3390 – Engineering Programming

MENG 3206 – Mechanical Engineering Laboratory I

MENG 3348 – Computer-Aided Mechanical Engineering Design

MENG 3351 – Heat Transfer

MENG 3356 – Fluid Mechanics II

MENG 3364 – Mechanical Design I

MENG 3376 – Thermodynamics II

MENG 4205 – Thermo-fluid and Mechanical Systems Laboratory

MENG 4478 – Senior Design

NENG 3301 – Introduction to Nuclear Power

NENG 4211 – Nuclear Engineering Laboratory

NENG 4311 – Radioactive Materials Processing and Waste Management

NENG 4321 – Nuclear Reactor Engineering

NENG 4331 – Radiation and Radiation Protection

DEGREE PLAN: BS in Mechanical Engineering (Nuclear Track)

Freshman Year

Fall		Hours	Spring		Hours
ENGL 1301	Composition I	3	ENGL 1302	Composition II	3
HIST 1301	History of the U.S. to 1877	3	HIST 1302	History of U.S. Since 1877	3
MATH 2413	Calculus I	4	COMM 1315	Intro. to Public Speaking	3
CHEM 1311	General Chemistry I	3	MATH 2414	Calculus II	4
CHEM 1111	General Chemistry I Lab	1	PHYS 2325	University Physics I	3
ENGR 1204	Engineering Graphics	<u>2</u>	PHYS 2125	University Physics I Lab	<u>1</u>
		16			17

Sophomore Year

Fall		Hours	Spring		Hours
PLSC 2305	American National Politics	3	MATH 3301	Introduction to Probability I	3
	Creative Arts Course	3	MATH 3320	Differential Equations	3
MATH 2415	Calculus III	4	ENGR 3303	Introduction to Materials Science	3
PHYS 2326	University Physics II	3	ENGR 2302	Engr. Mechanics: Dynamics	3
PHYS 2126	University Physics II Lab	1	ENGR 2305	Fund. of Circuit Analysis	<u>3</u>
ENGR 2301	Engr. Mechanics: Statics	<u>3</u>			15
		17			

Junior Year

Fall		Hours	Spring		Hours
ENGR 3332	Mechanics of Materials	3			
ENGR 3354	Intro. to Fluid Mechanics	3	MENG 3348	Comp.-Aided ME Design	3
ENGR 3375	Intro. to Thermodynamics	3	MENG 3351	Heat Transfer	3
MENG 3206	Mechanical Engr. Lab I	2	MENG 3364	Mechanical Design I	3
NENG 3301	Intro. to Nuclear Power Sys.	3	MENG 3376	Thermodynamics II	3
PHYS 3310	Modern Physics	<u>3</u>	NENG 4331	Rad. & Rad. Protection	<u>3</u>
		17			15

Senior Year

Fall		Hours	Spring		Hours
ENGR 3390	Engineering Programming	3	MENG 3356	Fluid Mechanics II	3
MENG 4205	T/F and Mech. Sys. Lab	2	MENG 4478	Senior Design	4
NENG 4311	Rad. Mat'ls. & Waste Mgmt.	3	NENG 4211	Nuclear Engineering Laboratory	2
NENG 4321	Nuclear Reactor Engineering	3		Language, Philosophy and Culture Course	3
	Social and Behavioral Science Course	<u>3</u>	PLSC 2306	State and Local Politics	<u>3</u>
		14			15

Total degree plan hours: 126