Mechanical Engineering, BSME

Bachelor of Science in Mechanical Engineering Degree Program Requirements

Core Curriculum 42 Credit Hours		
Communication (Select Two)		6
Mathematics		3
MATH 2413	Calculus with Analytic Geometry I	
Life and Physical Sciences		6
PHYS 2325	University Physics I	
PHYS 2326	University Physics II	
Language, Philosophy, and Culture (Select One)		3
Creative Arts (Select One)		3
American History (Select Two)		6
Government/Political Science		6
POSC 2305	American Government	
POSC 2306	Texas Government	
Social and Behavioral Science		3
CHEG 2308	Eco Anal Technical Application	
Component Area Option One		3
CVEG 2304	Global Development Issues	
Component Area Option Two (Select One)		3
College and Support Area Requirements		
MATH 2320	Differential Equations	3
MATH 2413	Calculus with Analytic Geometry I	1
MATH 2414	Calculus with Analytic Geometry II	4
MATH 3302	Probability and Statistics	3
MATH 4317	Advanced Math for Engineers	3
CHEM 1112	General Chemistry Lab II	1
CHEM 1403	Chemistry for Engineers	4
OR		
CHEM 1303 & CHEM 1304	General Inorganic Chemistry I and General Inorganic Chemistry II	
PHYS 2125	University Physics Lab I	1
PHYS 2126	University Physics Lab II	1
CVEG 2301	Engineering Mechanics I	3
MCEG 2302	Engineering Mechanics II	3
ELEG 1304	Computer Applications in Engineering	3
ELEG 2315	Introduction to Electrical Engineering	3
MCEG 1101	Intro Engr Cs Tech	1
MCEG 1102	Introduction to Mechanical Engineering Drawing and Design Lab I	1
MCEG 2301	Thermodynamics I	3
MCEG 4247	Senior Design and Professionalism-1	2
MCEG 4248	Senior Design and Professionalism II	2
Major Requirements		
MCEG 2303	Materials Science and Engineering	3
MCEG 3101	Measurement and Instrumentation Laboratory	1
MCEG 3301	Heat Transfer	3
MCEG 3102	Thermal Science Laboratory	1
MCEG 3302	Thermodynamics II	3
MCEG 3303 & MCEG 3103	Manufacturing Processes and Manufacturing Processes Laboratory	4

MCEG 3304	Machine Design I	3
MCEG 3305	Kinematic Design and Analysis	3
MCEG 3306	Fluid Mechanics	3
MCEG 4304	Machine Design II	3
MCEG 4306	Dynamic Systems and Controls	3
MCEG 4309	Finite Element Analysis and Design	3
CVEG 2332	Mechanics of Materials	3
Technical Electives		**6**
Total Hours		**126**

Mechanical Engineering Suggested Technical Electives

Technical electives must be 3000 level or above. At least one technical elective must be taken in the department. Internship and co-op courses are not suitable for technical electives.

MCEG 3307	Automatic Controls	3
MCEG 3319	Introduction to Robotics	3
MCEG 4308	Design Thinking and Device Development	3
MCEG 4316	Special Topics	3
MCEG 4318	Gas Dynamics	3
CHEG 4313	Process Modeling and Simulation	3
CHEG 4315	Bioengineering	3
CVEG 3304	Structural Analysis	3
CVEG 3301	Environmental Engineering	3
CVEG 4303	Water Resources Engineering	3
CVEG 4304	Systems Engineering	3
ELEG 3303	Physical Principles of Solid State Devices	3
MATH 3307	Linear Algebra	3
MATH 4306	Numerical Analysis	3

Technical Electives through Five-Year BS/MS Degree Plan Option

Students may, upon approval to the Five-Year BS/MS Degree Plan Option (see College of Engineering Academic Programs and Degree Plans (https://catalog.pvamu.edu/academicprogramsanddegreeplans/roygperrycollegeofengineering/#collegerequirementstext)), apply up to six semester credit hours of graduate courses toward technical electives requirements.

Bachelor of Science in Mechanical Engineering Degree Sequence

Core: https://catalog.pvamu.edu/universitycorecurriculum/ (https://catalog.pvamu.edu/universitycorecurriculum/)

Freshman

Fall - Semester 1	Hours	Spring - Semester 2	Hours
Mathematics Core	4	MATH 2414	4
MATH 2413		Life and Physical Sciences Core	3
ELEG 1304	3	PHYS 2325	
MCEG 1101	1	PHYS 2125	1
MCEG 1102	1	Communication Core	3
Component Area Option Two Core	3	CHEM 1403	4
Communication Core	3	CHEM 1112	1
Total	**15**	**Total**	**16**

Total Hours: 31

Sophomore

Fall - Semester 1	Hours	Spring - Semester 2	Hours
American History Core	3	MATH 2320	3
CVEG 2301	3	MCEG 2301	3
Government/Political Science Core	3	MCEG 2302	3

POSC 2305 or 2306		CVEG 2332	3
MCEG 2303	3	MATH 3302	3
Life and Physical Sciences Core	3	Social and Behavioral Science Core	3
PHYS 2326		CHEG 2308	
PHYS 2126	1		
Total	**16**	**Total**	**18**

Total Hours: 34

Junior

Fall - Semester 1	**Hours**	**Spring - Semester 2**	**Hours**
MCEG 3304	3	MCEG 3302	3
MCEG 3101	1	Government/Political Science Core	3
MATH 4317	3	POSC 2306 or 2305	
MCEG 3305	3	MCEG 3303	3
MCEG 3306	3	MCEG 3103	1
Creative Arts Core	3	MCEG 4304	3
		ELEG 2315	3
Total	**16**	**Total**	**16**

Total Hours: 32

Senior

Fall - Semester 1	**Hours**	**Spring - Semester 2**	**Hours**
MCEG 4309	3	MCEG 4306	3
MCEG 4247	2	MCEG 4248	2
Component Area Option One Core	3	American History Core	3
CVEG 2304		Technical Elective	3
MCEG 3102	1	Language, Philosophy, and Culture Core	3
MCEG 3301	3		
Technical Elective	3		
Total	**15**	**Total**	**14**

Total Hours: 29

Total Semester Credit Hours 126

Marketable Skills

Marketable skills, as defined by the Texas Higher Education Coordinating Board's 60x30TX Plan (http://www.60x30tx.com/), include interpersonal, cognitive, and applied skill areas, are valued by employers, and can be either primary or complementary to a major. Marketable skills are acquired by students through education, including curricular, co-curricular, and extracurricular activities.

BSME Mechanical Engineering

Degree Skills

1. Ability to address complex technical challenges by applying core principles of mathematics, science, and engineering
2. Ability to design machines, devices, and components that meet specified customer requirements with consideration of public health & safety as well as economic and environmental impact
3. Ability to work effectively toward engineering solutions both independently and as part of a team

Co-curricular and Extracurricular Skills

1. Ability to define objectives and assume leadership roles in accomplishing organizational goals
2. Ability to effectively collaborate with team members and efficiently implement available resources to develop competitive machines for national design contests
3. Ability to successfully interface with external partners, including technical advisors and corporate sponsors