MECHANICAL ENGINEERING
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Mechanical engineering is a broad field with applications in almost all areas of industry including aviation and aerospace, alternative energy, automotive, automated manufacturing and robotics, chemical, computer, electronics, petroleum, nanotechnology, materials, textiles, and heavy equipment and machinery. The Department of Mechanical Engineering offers a Bachelor of Science in Mechanical Engineering (BSME) degree that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

This degree provides a broad, solid education in engineering fundamentals as well as the opportunity for in-depth study in specialized topics. Students completing the program will have rigorous foundation for engineering practice in industry as well as for graduate studies in engineering and other disciplines. The program has well-equipped, accessible laboratories and extensive experimental and computing facilities.

A – GENERAL EDUCATION CORE – 42 HOURS

Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education core requirements.

Required

020 - Mathematics – 3 hours

MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture

030 - Life and Physical Science – 6 hours

PHYS 2425 Physics for Scientists and Engineers I three-hour lecture
PHYS 2426 Physics for Scientists and Engineers II three-hour lecture

040 - Language, Philosophy, and Culture – 3 hours

Choose one:

PHIL 1310 Ethics, Happiness, and the Good Life (Must be Engineering/Computer Science section)
PHIL 2326 Ethics, Technology, and Society

090 - Integrative and Experiential Learning – 6 hours

Choose ENGL from Humanities section, and complete:

PHYS 2425 Physics for Scientists and Engineers I one-hour lab
PHYS 2426 Physics for Scientists and Engineers II one-hour lab
Choose one:
CHEM 1109 Chemistry for Engineers Lab
CHEM 1111 General Chemistry I Lab

B – MAJOR REQUIREMENTS – 79 HOURS (54 advanced)

1 – Mechanical Engineering Core – 64 hours (39 advanced)

ELEE 2317 Electrical and Electronic Systems
MANE 2332 Engineering Statistics
MANE 3164 Manufacturing Processes Lab
MANE 3364 Manufacturing Processes
MECE 1101 Introduction to Mechanical Engineering
MECE 1221 Engineering Graphics
MECE 2140 Engineering Materials Lab
MECE 2301 Statics
MECE 2302 Dynamics
MECE 2335 Thermodynamics I
MECE 2340 Engineering Materials
MECE 2350 Numerical Methods for Engineers
MECE 3115 Fluid Mechanics Lab
MECE 3160 Heat Transfer Lab
MECE 3304 System Dynamics
MECE 3315 Fluid Mechanics
MECE 3320 Measurements and Instrumentation
MECE 3321 Mechanics of Solids
MECE 3336 Thermodynamics II
MECE 3360 Heat Transfer
MECE 3380 Kinematics and Dynamics of Machines
MECE 3449 Mechanical Engineering Analysis I

MECE 3450 Mechanical Engineering Analysis II
MECE 4101 Fundamentals of Engineering
MECE 4350 Machine Elements

2 – Senior Design – 6 hours (6 advanced)

MECE 4361 Senior Design Project I (or MANE 4361)
MECE 4362 Senior Design Project II (or MANE 4362)

3 – Technical Electives – 9 hours (9 advanced)

Students may choose MECE 3100, 33XX, or 43XX course. Students may only receive a maximum of 3 hours of technical elective credit from MECE 3100, MECE 3300, or any other approved non-MECE advanced science or math course. In addition, to receive technical elective credit for MECE 3300, the student must complete 2 terms of internship/co-op and submit a formal report to the department, and to receive technical elective credit for MECE 3100, the student must complete 3 terms/enrollments performing research in the same technical area.

C – SUPPORT COURSES – 8 HOURS

Choose one:

CHEM 1309 Chemistry for Engineers
CHEM 1311 General Chemistry I

MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
MATH 2414 Calculus II (or MATH 2488 Honors)

TOTAL CREDIT HOURS FOR GRADUATION – 129 HOURS
TOTAL ADVANCED HOURS – 54 HOURS

ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:

Admission requirements

Admission into the Lower Division of the Mechanical Engineering Major

Admission to the university, and a 3.0 or better composite GPA in the foundation courses MATH 2413, MATH 2414, CHEM 1309 (or CHEM 1311), CHEM 1109 (or CHEM 1111), PHYS 2425, MECE 1101, and MECE 1221, or a 2.5 or better composite GPA in the foundation courses and a passing score of 70 or above in an exam covering the essential student outcomes of the above listed foundation courses.
Note that while MECE 2340 and MECE 2140 are considered lower division Major courses they can be taken before entrance to the Major is granted.

Progression requirements

Admission into the Upper Division of the Mechanical Engineering Major

Admission to the Lower Division of the Mechanical Engineering Major, and a 3.0 or better composite GPA in MECE 2140, MECE 2340, MECE 2350, MECE 3449, MECE 2301, MECE 2302, and MECE 2335, or a 2.5 or better composite GPA and a passing score of 70 or above in an exam covering the essential student outcomes of the above listed group of lower division courses.
Note that while MECE 3336 and MECE 3450 are considered upper division Major courses they can be taken before entrance to the upper division of the Major is granted.

Graduation requirements

1. A composite GPA of 2.5 or better in Mechanical Engineering coursework is required. Also, all Mechanical Engineering coursework must be passed with a grade of 'C' or better.
2. In addition to the graduation requirements listed in the UTRGV 2018-2019 Undergraduate Catalog, demonstration of proficiency in a language other than English is required at the undergraduate level equivalent to a minimum of six credit hours. Proficiency can be demonstrated by a college credit exam, a placement test approved through the UTRGV Department of Writing and Language Studies, and/or up to six credit hours of college-level language coursework.