Degree Type – Bachelor of Science in Manufacturing Engineering (BSMFGE)
Degree Title – Manufacturing Engineering

The Manufacturing Engineering Department will provide a quality engineering education to prepare students for the practice of engineering. A strong laboratory component in the curriculum, with opportunities for industrial internships and research experiences will provide engineering skills that enhance the understanding of the applications of engineering sciences and the realization of the importance of lifelong learning. A strong emphasis on verbal and written communications will be stressed.

STUDENT LEARNING OUTCOMES:

1. **Able to use knowledge of mathematics, basic sciences and engineering to analyze problems in electrical/mechanical/manufacturing engineering.**
2. **Able to design and conduct experiments and interpret the results.**
3. **Able to design electrical/mechanical/manufacturing devices, systems or processes that meet given specifications.**
4. **Able to use computers and software for analysis, design and documentation.**
5. **Able to communicate ideas effectively in graphical, oral and in written media.**
6. **Able to function as a team member to solve engineering problems.**
7. **Understands the professional responsibility of an engineer and how engineering solutions impact safety, economics, ethics, politics, society and cultural issues.**
8. **Understands the need for life long learning to keep abreast of current engineering practice.**
9. **Able to function in multi-disciplinary teams.**
10. **Has proficiency in the areas of: materials and manufacturing processes, process and product engineering, manufacturing productivity and quality, and manufacturing systems engineering.**

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

Mathematics – 3 hours

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

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

Language, Philosophy, and Culture – 3 hours

PHIL 1310 Ethics, Happiness, and the Good Life (Must be Engineering section)

Integrative and Experiential Learning – 6 hours

PHYS 2425 Physics for Scientists and Engineers I one-hour lab
PHYS 2426 Physics for Scientists and Engineers II one-hour lab
Choose one:

CSCI 1380 Computer Science (or CSCI 1387 Honors)
CSCI/CMPE 1370 Engineering Computer Science I (or CSCI 1378 Honors)

Choose corresponding lab from Support Courses:

CHEM 1107 Chemistry for Engineers Lab
CHEM 1111 General Chemistry I Lab

B – MAJOR REQUIREMENTS – 64 HOURS (54 advanced)

1 – Manufacturing Engineering Core – 49 hours (39 advanced)

MANE 1101 Introduction to Manufacturing Engineering
MANE 1204 Manufacturing Engineering Graphics
MANE 2332 Engineering Statistics
MANE 2403 Engineering Mechanics
MANE 3164 Manufacturing Processes Lab
MANE 3364 Manufacturing Processes
MANE 3300 Computer-Aided Design
MANE 3302 Computer-Aided Manufacturing
MANE 3337 Engineering Economics
MANE 3340 Fundamentals of Industrial Engineering
MANE 3351 Manufacturing Engineering Analysis
MANE 3437 Thermal and Fluid Sciences
MANE 4173 Production Design and Mass Customization
MANE 4311 Quality Control
MANE 4365 Tool Design
MANE 4331 Manufacturing Planning and Control
MANE 4340 Operations Research
MANE 4352 Manufacturing Simulation

2 – Senior Design – 6 hours (6 advanced)

MANE 4361 Senior Design I
MANE 4362 Senior Design II

3 – Technical Electives – 9 hours (9 advanced)

Choose any advanced MANE course.

C – SUPPORT COURSES – 25 HOURS (6 advanced)

Choose one:

CHEM 1307 Chemistry for Engineers
CHEM 1311 General Chemistry I

ELEE 2317 Electrical and Electronic Systems
MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
MATH 2414 Calculus II (or MATH 2488 Honors)
MATH 2415 Calculus III
MATH 3341 Differential Equations
MECE 2140 Engineering Materials Lab
MECE 2340 Engineering Materials
MECE 3321 Mechanics of Solids

TOTAL CREDIT HOURS FOR GRADUATION – 131 HOURS

TOTAL ADVANCED HOURS – 60 HOURS

ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:

Graduation requirements

In addition to the graduation requirements listed in the UTRGV 2015-2017 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.