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.

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.