

# Bachelor of Science in Mechanical Engineering

## 2014 - 2015 Catalog

### The University of Texas-Pan American

This document provides a list of the UTPA courses required for the major and their equivalent UTRGV courses.

A significant number of courses have changed their course prefix, number, and title.

For any additional information, please visit the Academic Advising Center.

<b>UTPA Courses</b>	<b>Course Equivalents at UTRGV</b>
<b>A – GENERAL EDUCATION CORE – 43 HOURS</b>	
<b>Natural Science – 6 hours</b>	
PHYS 2401 Physics Science and Engineering I	PHYS 2425 Physics for Scientists and Engineers I
PHYS 2402 Physics Science and Engineering II	PHYS 2426 Physics for Scientists and Engineers II
<b>Mathematics – 3 hours</b>	
MATH 1460 Calculus I (or MATH 1487 Honors) three-hour lecture	MATH 2413 Calculus I (or MATH 2487) three-hour lecture
<b>Humanities</b>	
<b>Philosophy and Modern/Classical Language Literature – 3 hours</b>	
PHIL 2390 Professional Ethics	PHIL 2320 Professional Ethics
PHIL 2393 Engineering Ethics	PHIL 2326 Professional Ethics: Engineering
<b>Social Science</b>	
<b>Other Social Sciences – 3 hours</b>	
ECON 2301 Macroeconomics	ECON 2301 Principles of Macroeconomics
<b>B – MAJOR REQUIREMENTS – 77 HOURS (48 advanced)</b>	
<b>a – Mechanical Engineering Core – 68 hours (48 advanced)</b>	
ELEE 3307 Electrical and Electronic Systems	ELEE 2317 Electrical and Electronic Systems
MANE 3364/3164 Manufacturing Processes	MANE 3364/3164 Manufacturing Processes
MECE 1101 Introduction to Mechanical Engineering (or ENGR 1101)	MECE 1101 Introduction to Mechanical Engineering (or Recommended substitution: ENGR 1206 Introduction to Engineering Design)
MECE 1221 Engineering Graphics	MECE 1221 Engineering Graphics
MECE 2303 Statics	MECE 2301 Statics
MECE 2304 Dynamics	MECE 2302 Dynamics
MECE 2335 Thermodynamics I	MECE 2335 Thermodynamics I
MECE 2340/2140 Engineering Materials and Lab	MECE 2340/2140 Engineering Materials and Lab
MECE 2450 Numerical Methods and Statistics for Engineers	Recommended substitution: MECE 2350 Numerical Methods for Engineers
MECE 3304 System Dynamics	MECE 3304 System Dynamics
MECE 3315/3115 Fluid Mechanics and Lab	MECE 3315/3115 Fluid Mechanics and Lab
MECE 3320 Measurements and Instrumentation	MECE 3320 Measurements and Instrumentation
MECE 3321 Mechanics of Solids	MECE 3321 Mechanics of Solids
MECE 3336 Thermodynamics II	MECE 3336 Thermodynamics II
MECE 3360/3160 Heat Transfer	MECE 3360/3160 Heat Transfer
MECE 3380 Kinematics and Dynamics of Machines	MECE 3380 Kinematics and Dynamics of Machines
MECE 3449 Engineering Analysis I	MECE 3449 Mechanical Engineering Analysis I
MECE 3450 Engineering Analysis II	MECE 3450 Mechanical Engineering Analysis I
MECE 4101 Engineering Fundamentals	MECE 4101 Fundamentals of Engineering
MECE 4350 Machine Elements	MECE 4350 Machine Elements
MECE 4361 Senior Design I (or MANE 4361)	MECE 4361 Senior Design Project I (or MANE 4361 Senior Design I)
MECE 4362 Senior Design II (or MANE 4362)	MECE 4362 Senior Design Project II (or MANE 4362 Senior Design II)
<b>b – Advanced Mechanical Engineering Electives – 9 hours (9 advanced)</b>	
MECE 3385 Mechanical Vibrations	MECE 3385 Mechanical Vibrations
MECE 4304 Automatic Control Systems	MECE 4304 Automatic Control Systems
MECE 4305 Vehicle Systems Modeling	MECE 4305 Vehicle Systems Modeling and Control
MECE 4315 Compressible Fluid Flow	MECE 4315 Compressible Fluid Flow
MECE 4316 Intro to Acoustics	MECE 4316 Introduction to Acoustics

MECE 4320 Intro to Mechatronics  
MECE 4322 Intro to Finite Elements  
MECE 4323 Intro to Combustion Engr  
MECE 4324 Thermal Systems Design  
MECE 4325 Composite Matrl Design  
MECE 4326 Intro to Ceramics Engr  
MECE 4327 Intermed Materials Engr  
MECE 4328 Polymer Engineering  
MECE 4329 Intro to Nanotechnology  
MECE 4330 Intro to Phys Metallurgy  
MECE 4333 Topics In Mechanical Eng  
MECE 4360 Solar Energy  
MECE 4365 Air Conditioning Design  
MECE 4380 Intro to Comp Biomech  
MECE 4381 Exp Orthopedic Biomechanics  
MECE 4382 Intro to Nonlinear Dynamics  
MECE 4383 Intro to Micro/Nano Structures  
**C – SUPPORT COURSES– 9 HOURS**  
MATH 1460 Calculus I one-hour lecture  
MATH 1470 Calculus II  
*Choose one:*  
CHEM 1301/1101 Chemisty I and Lab  
CHEM 1307/1101 Chemisty I and Lab

MECE 4320 Introduction to Mechatronics  
MECE 4322 Introduction to Finite Elements  
MECE 4323 Introduction to Combustion Engineering  
MECE 4324 Thermal Systems Design and Optimization  
MECE 4325 Composite Material Design  
MECE 4326 Introduction to Ceramics Engineering  
MECE 4327 Intermediate Materials Engineering  
MECE 4328 Polymer Engineering  
MECE 4329 Introduction to Nanotechnology  
MECE 4330 Introduction to Physical Metallurgy  
MECE 4333 Topics in Mechanical Engineering  
MECE 4360 Solar Energy  
MECE 4365 Heating, Air Conditioning, and Refrigeration Design  
MECE 4380 Introduction to Computational Biomechanics  
MECE 4381 Experimental Orthopaedic Biomechanics  
MECE 4382 Introduction to Nonlinear Dynamics  
MECE 4383 Introduction to Micro and Nano Structures  
  
MATH 2413 Calculus I one-hour lecture  
MATH 2414 Calculus II  
  
CHEM 1311/1111 General Chemistry I and Lab  
CHEM 1307/1111 Chemistry for Engineers and Lab

**TOTAL CREDIT HOURS FOR GRADUATION – 127 HOURS**  
**TOTAL ADVANCED HOURS – 57 HOURS**