

BACHELOR OF SCIENCE MECHANICAL ENGINEERING TECHNOLOGY

2011-2012

CORE REQUIREMENTS

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___	CHEM	101	General Chemistry I	3
___	CHEM	102	General Chemistry II	3
___	ENGL	150	English Composition I	3
___	ENGL	151	English Composition II	3
___	ENGL	218	Technical Writing	3
___	ENGL	250	World Literature I OR	
___	ENGL	251	World Literature II	3
___	COPA	250	Arts & Hum. Experience I	3
___	COPA	251	Arts & Hum. Experience II OR	
___	CINE	302	Cinema	3
___	HIST	150	Intro. to Study of History	3
___	MATH	180	College Algebra	3
___	NSET	101	Intro to Nat. Sci. & Eng. Tech.	3
___	POLS	250	Intro to the Govt. Systems OR	
___	POLS	102	American National Gov	3
___	PSYC	150	Psychological Foundations	3
___	SOC	105	Marriage and the Family OR	
___	SOC	150	Sociological Foundations OR	
___	SOC	111	World Cultures	3

DEPARTMENT GENERAL REQUIREMENTS

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___	CHEM	103	General Chemistry Lab. I	1
___	CHEM	104	General Chemistry Lab. II	1
___	PHYS	101	Physics I	3
___	PHYS	102	Physics II	3
___	PHYS	103	Physics Lab. I	1
___	PHYS	104	Physics Lab. II	1
___	MATH	175	Elementary Statistics	3
___	MATH	185	Trigonometry	2
___	MATH	190	Calculus I	4
___	MATH	210	Calculus II	4
___	MATH	230	Linear Algebra OR	
___	MATH	310	Differential Equations	3

Student's Name _____

Entrance Date _____

DEPARTMENT MAJOR REQUIREMENTS

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___	BIOL	334	Occupational Safety & Health	3
___	ETGR	205	Engineering Tech. Graphics	3
___	EET	102	DC Circuits	3
___	EET	103	AC Circuits	3
___	EET	104	DC Circuits Laboratory	1
___	EET	105	AC Circuits Laboratory	1
___	ET	405	Fund. Of Engr. Examination I	0
___	ET	406	Fund. Of Engr. Examination II	0
___	ET	407	Prof. Prob. In Engr. Tech.	3
___	MET	101	Statics	3
___	MET	102	Dynamics	3
___	MET	212	Properties of Materials	3
___	MET	213	Strength of Materials	3
___	MET	214	Strength of Materials Laboratory	1
___	MET	215	Thermodynamics	3
___	MET	320	Kinematics of Machine Elements	4
___	MET	331	Engr. Des. Using Pro/ENGINEER®	3
___	MET	404	Heat Transfer	3
___	MET	406	Heat Transfer Laboratory	1
___	MET	411	Fluid Mechanics	3
___	MET	412	Fluid Mechanics Laboratory	1
___	MET	416	Mechanical Vibrations	3
___	MET	421	Machine Design: Theory & Proj	4
___	MET	424	Finite Element Analysis (FEA)	3
___	MET	425	FEA with ANSYS®	2
___	ET	204	Programming for Eng. Tech.	3

GENERAL ELECTIVES

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Program Objectives

B.S. in Mechanical Engineering Technology

Upon successful completion of this program, a student will be able to:

1. Use methods of trigonometry and vector analysis to resolve systems of forces and torques that are applied to a body into resultant forces and torques.
 2. Determine the velocity and acceleration of a body from a definition of position with respect to time and be able to determine velocity and position from the definition of acceleration.
 3. Understand the relationship between kinetic energy, potential energy and work and will be able to solve problems using conservation of momentum and moment of momentum.
 4. Determine plane stress, torsional stress, shear stress, and compound stress within a body.
 5. Determine shear stress, bending moment and deflection for simply supported and built-in beams that are subject to point loads and distributed loads and torsional elements.
 6. Understand the properties of steels, ceramics, and plastics and will be able to make appropriate material selections.
 7. Use the ideal gas law and laws relating to isobaric, isothermal, adiabatic, and polytropic processes to solve problems involving the expansion and compression of gases.
 8. Use the first and second laws of thermodynamics for a flowing system to analyze machines based upon the Rankine Cycle, Brayton Cycle, Diesel Cycle, and Vapor Compression Cycle.
 9. Use the differential calculus and graphical techniques, along with "Working Model" software, to determine position, velocity, and acceleration for a variety of kinematic linkages, trochoid motions, and cams.
 10. Analyze spur gears epicyclic gears and hypo-cyclic gears.
 11. Solve heat transfer problems involving conduction, convection and radiation.
 12. Determine pressure losses in piping systems and will understand the laws relating to pumps, fans, and compressors.
 13. Determine amplitude, periodicity and frequency of vibrating systems with and without damping ;also with and without forcing.
 14. Design machine elements such as power screws, brakes, and clutches.
 15. Use the method of Finite Element Analyses to determine forces, moments, displacement and rotation of pin-jointed and rigid-jointed frames and grid structures.
 16. Use the ANSYS® and ALGOR® FEA software to determine levels of stress and displacement in structures and to determine temperature distributions in heated bodies.
 17. Use ProENGINEER® as a design tool.
 18. Design and carry out experiments, analyze data, and make iterative improvements while using safe and technically-correct laboratory techniques.
 19. Apply the fundamental principles of physics, chemistry, materials science, and mathematics to the solution of practical problems in science and technology, including new or unfamiliar problems.
 20. Analyze DC and AC electrical circuits.
 21. Use statistical and time-value-of-money calculations to analyze data and manage technical projects.
 22. Produce clear, precise, and effective technical documents and oral presentations with the help of modern technology such as word processors and presentation software.
 23. Collaborate with each other in laboratory and classroom settings.
 24. Be familiar with the major technical society in their discipline (ASME) and will understand the requirements and benefits of membership.
 25. Understand the requirements and benefits of registration as a professional engineer and will register to take the Fundamentals of Engineering examination prior to graduation.
 26. Understand the ethical implications of their work and will be familiar with the laws and codes governing the professional conduct of those practicing engineering technology.
 27. Have an appreciation of the arts and the humanities, for their own and other cultures.
- Students will understand the contributions, good and bad, of science and technology in the modern world.