University of Texas at El Paso
Aerospace and Mechanical Engineering Dept.
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2023 B.S. in Mechanical Engineering Degree Plan

Year			Semester I	Hrs			Semester II	Hrs
Freshman	MECH	1305	Graphic and Design Fundamentals +	3	MECH	1321	Mechanics I – Statics + (MATH 1411+ , PHYS 2320/2120 or PHYS 2420+)	3
	RWS	1301	Rhetoric & Composition I +	3	HIST	1301	History of US to 1865 +	3
	MATH	1411	Calculus I +	4	RWS	1302	Rhetoric & Composition 2 + (RWS 1301+)	3
	PHYS	2320/2120 or 2420	Physics I (MATH 1411 is CO requisite)	4	MATH	1312	Calculus II + (MATH 1411+)	3
	CS	1310	Component Area (CS 1310, CS 1320, EL 1301, or UNIV 1301)+	3	CHEM CHEM	1305 1105	Chemistry I +	4
				17				**16**
Sophomore	MECH	2322	Mechanics of Materials + (MECH 1321+)	3	MECH	2340	Mechanics II – Dynamics + (MECH 1321+)	3
	MATH	2313	Calculus III + (MATH 1312+)	3	MECH	2311	Introduction to Thermo-Fluid Science + (MATH 1312+)	3
	MECH	2331	Mat'ls and Manufacturing Processes + (CHEM 1305+)	3	MECH	2103	Engineering Computations (MATH 1312+)	1
			Design and Manufacturing Studio + (MECH 1305+) (see NOTE 8)	1	MECH	2342	Electro-Mechanical Systems + (MATH 1312+)	3
	HIST	1302	History of US since 1865	3	CE	2326	Engineering Economics +	3
			Science Elective + (see NOTE 1)	4	MATH	2326	Differential Equations	3
				17				**16**
Junior			Laboratory Experience (see NOTE 2)	1			Laboratory Experience (see NOTE 2)	1
	MECH	3352	Engineering Analysis II)(MATH 2326+)	3	POLS	2310	Introduction to Politics +	3
	MECH	3312	Thermodynamics (MECH 2311+)	3	MECH	3345	System Dynamics (MECH 2340+, MECH 2342+)	3
	MECH	3314	Fluid Mechanics (MECH 2311+)	3	MECH	3334	Mechanical Design (MECH 2322+, MECH 2331+)	3
	COMM	1302	Business and Professional Communication +	3			Language, Philosophy, and Culture	3
	MATH		Math Elective (see NOTE 3)	3			Science/Math Elective + (see NOTE 4)	3
				16				**16**
Senior			Design Elective Solid Mechanics Area (see NOTE 5)	3	MECH	4366	Senior Design (CE 2326 +,MECH 3334, see NOTE 7)	3
			Design Elective Thermal Fluid Area (see NOTE 5)	3			Design Elective Any Area (see note 5)	3
	MECH	4315	Heat Transfer (MECH 3312, MECH 3314)	3			Design Elective Any Area (see note 5)	3
			Computational Elective (see note 6)	3	POLS	2311	American Government and Politics	3
			Design Elective Electro-Mechanical (see NOTE 5)	3			Creative Arts	3
				15				**15**
Total 128 Credit hrs								

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Design and Manufacturing Studio			
MECH	2131	Manufacturing Laboratory (MECH1305 +)	1
MECH	2132	Additive Manufacturing Laboratory (MECH 1305 +)	1
MECH	2133	Metal Casting Laboratory (MECH 1305 +)	1
MECH	2134	Intelligent Manufacturing (MECH 1305 +)	1
Laboratory Experience			
MECH	3123	Solid Mechanics Lab (MECH 2322+)	1
MECH	3113	Thermo-fluid Lab (MECH 2311+)	1
MECH	3135	Eng. Drawings & Inspection Lab (MECH 1305+)	1

Design Elective Solid Mechanics Area			
MECH	4336	Principles of Engineering Design (MECH 3334)	3
MECH	4338	Capstone Design Projects (MECH 3334, MECH 3352)	3
MECH	4340	Mechanical Design II (MECH 3334)	3
MECH	4395	Special Topics in Solid Mechanics Area (MECH 3334)	3
MECH	4370	Pre-Professional Experience	3
AERO	3323	Aerospace Structure I	3
AERO	4313	Aerospace Structure II	3

Design Elective Thermal Fluid Area			
MECH	4316	Thermal System Design (MECH 4315)	3
MECH	4390	Renewable Energy (MECH 3312+, MECH 3314+)	3
MECH	4394	Special Topics in Thermal Fluid Area (MECH 3312+)	3
AERO	3312	Aerodynamics I (MECH 2311+)	3
AERO	4331	Aerodynamics II	3
AERO	4322	Aerospace Propulsion	3

Design Elective Electro-Mechanical Area			
MECH	4144	Instrumentation Lab (MECH 3352+), Co-requisite (MECH 4243)	1
MECH	4243	Elect. Instrumentation (MECH 3352+)	2
MECH	4332	Mechanical Computational Applications in Vision and Robotics (MECH 3345)	3
MECH	4334	Mechanical Systems Control (MECH 3345)	3
MECH	4345	Communications and Mechanical Sensor Protocols (MECH 3345)	3
MECH	4346	Mechatronics (MECH 3345)	3
MECH	4393	Special Topics in Electro-Mechanical (MECH 3345)	3
AERO	3343	Systems Modelling and Controls	3
Computational Elective			
MECH	4326	Finite Element Analysis (MECH 3352, MECH 3334)	3
MECH	4328	Intro to LabVIEW (MECH 3352)	3
MECH	4330	Dynamic Systems Simulation (MECH 3345, MECH 3352)	3
MECH	4392	Special Topics in Computation	3

Notes: Prerequisites listed in parentheses, +Grade of C or better required

1. Must be either CHEM 1306 with CHEM 1106, BIOL 1107 with 1305, or PHYS 2321/2121 or 2421 or by advisor's permission.
2. From the department-approved list of Design and Project Experience I and II courses
3. Selected from MATH 3323, 3335, 4336, STAT 3320. By completing 3 of these electives, you may be eligible for a Mathematics minor; interested students should consult the Department of Mathematics.
4. Approved courses are BIOL 1306, PHYS 2325, PHYS 3351, PHYS 4348, or any course listed in NOTE 3 (not already taken).
5. From the department-approved list of Design Electives
6. From the department-approved list of Computational Electives
7. Must be in the last full semester and have a 2.0 GPA or better in major.
8. From the department-approved list of Design and Manufacturing Studio courses
9. Students who will be engaged with internship/job training/co-operative work-study in a private or federal science and/or engineering organization! A maximum of 3.0 credit hours can be counted towards a technical elective for graduation requirements. This course will

be available as MECH 4370 "Pre Professional Experience" From Spring 2012. Approval from the Department is necessary for MECH 4370. An application form is available online or in the Departmental office.

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