

ACADEMIC DIVISION OF ENGINEERING, DESIGN AND ARCHITECTURE			
Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING Credits: 30		CURRICULUM Since: August 2016	
Program: ALTERNATIVE ENERGY			
Description: This curriculum will provide the student an excellent background to understand the needs, the technology and the future of the alternative energy industry. This specialization will benefit from an excellent collaboration with the Puerto Rico Energy Center (PREC), located on the grounds of the School of Engineering of UT. The collaboration aims to develop research, development, and design projects that will have a direct impact on Puerto Rico, an island that is blessed with renewable energy sources such as solar, aeolic (wind), and oceanic. Plan 1 (M.S. degree-Thesis). Plan 1 is an excellent option for full-time students with a strong interest in research.			
Course Code	Course Title	Credits	Requisites
Required Courses (12 crs)			
MEEN 501	Finite Element Analysis	3	
MEEN 601	Advanced Mathematics for Engineers	3	
MEEN 604	Aerodynamics 1: Incompressible Flow	3	
MEEN 641	Sustainable Energy: Solar, Nuclear, Wind, Fuel Cell & Geothermal	3	
Specialization Courses (select 4 courses: 12 crs)			
MEEN 642	Grid Integration & Sustainable Systems	3	
MEEN 643	Energy Management, Practice, Policy & Ethics	3	
MEEN 644	Photovoltaic Energy Conversion	3	
MEEN 645	Wind Energy	3	
MEEN 646	Solar Refrigeration and Air Conditioning	3	
MEEN 648	Advanced Topics in Alternative Energy	3	Permission of the department head.
MEEN 651	Ocean Energy	3	
MEEN 652	Biofuels	3	
*MEEN 611	Composite Materials	3	
*MEEN 616	Introduction to Aeroelasticity	3	
*MEEN 617	Dynamics of Rotating Machinery	3	
*MEEN 623	Multi-Scale Turbulence: Aeronautics	3	MEEN 604
*MEEN 630	Engineering Internship I	1	Permission of the Department Head
*MEEN 631	Engineering Internships II	1	MEEN 630 and Permission
*MEEN 672	Mechanical Vibrations	3	
*MEEN 673	Computational Fluid Dynamics (CFD)	3	
*MEEN 675	MEMS and Energy Harvesting	3	
*MEEN 676	Design Optimization	3	
*MEEN 681	Introduction to Biomechanics	3	
*MEEN 682	Systems Engineering	3	
*MEEN 683	Friction, Wear and Lubrication	3	
*MEEN 684	Advanced Tribology	3	
*MEEN 685	Applied Modern Control	3	
* (Asterisk)	(Course is also available in other specialization areas)		
Degree Requirements (6 crs)			
	MS Thesis	6	Permission of Thesis Advisor

Rev. August, 2016

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Program: ALTERNATIVE ENERGY			
Course Code	Course Title	Credits	Requisites
FIRST YEAR - FIRST SEMESTER			
MEEN 501	Finite Element Analysis	3	
MEEN 601	Advanced Mathematics for Engineers	3	
MEEN 604	Aerodynamics 1: Incompressible Flow	3	
FIRST YEAR - SECOND SEMESTER			
MEEN 641	Sustainable Energy: Solar, Nuclear, Wind Energy Fuel Cell & Geothermal	3	
(MEEN course)	Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
SECOND YEAR – FIRST SEMESTER			
MEEN 697	MS Thesis (Alternative Energy topic counts toward 12-cr minimum for the Alternative Energy Specialization)	3	Permission of Thesis Advisor
(Specialization course)	Any Alternative Energy Specialization Course	3	
(MEEN course)	Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course	3	
SECOND YEAR - SECOND SEMESTER			
MEEN 697	MS Thesis (Alternative Energy topic counts toward 12-cr minimum for the Alternative Energy Specialization)	3	Permission of Thesis Advisor

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Course Code	Course Title	Credits	Requisites
Required Courses (12 crs)			
MEEN 501	Finite Element Analysis	3	
MEEN 601	Advanced Mathematics for Engineers	3	
MEEN 604	Aerodynamics 1: Incompressible Flow	3	
MEEN 641	Sustainable Energy: Solar, Nuclear, Wind Energy Fuel Cell & Geothermal	3	
Specialization Courses (select 5 courses: 15 cr.)			
MEEN 642	Grid Integration & Sustainable Systems	3	
MEEN 643	Energy Management, Practice, Policy & Ethics	3	
MEEN 644	Photovoltaic Energy Conversion	3	
MEEN 645	Wind Energy	3	
MEEN 646	Solar Refrigeration and Air Conditioning	3	
MEEN 648	Advanced Topics in Alternative Energy	3	Permission of the department head.
MEEN 651	Ocean Energy	3	
MEEN 652	Biofuels	3	
*MEEN 611	Composite Materials	3	
*MEEN 616	Introduction to Aeroelasticity	3	
*MEEN 617	Dynamics of Rotating Machinery	3	
*MEEN 623	Multi-Scale Turbulence: Aeronautics	3	MEEN 604
*MEEN 630	Engineering Internship I	1	Permission of the Department Head
*MEEN 631	Engineering Internships II	1	MEEN 630 and Permission
*MEEN 672	Mechanical Vibrations	3	
*MEEN 673	Computational Fluid Dynamics (CFD)	3	
*MEEN 675	MEMS and Energy Harvesting	3	
*MEEN 676	Design Optimization	3	
*MEEN 681	Introduction to Biomechanics	3	
*MEEN 682	Systems Engineering	3	
*MEEN 683	Friction, Wear and Lubrication	3	
*MEEN 684	Advanced Tribology	3	
*MEEN 685	Applied Modern Control	3	
* (Asterisk)	(Course is also available in other specialization areas)		
Degree Requirements (3 crs)			
MEEN 694	Special Project	3	Permission of Advisor

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Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING Credits: 30		PLAN OF STUDY Since: August 2016 Plan 2 (M.S. Degree-Special Project). Plan 2 is ideal to conduct design and development in an area of particular interest	
Program: ALTERNATIVE ENERGY			
Course Code	Course Title	Credits	Requisites
FIRST YEAR - FIRST SEMESTER			
MEEN 501	Finite Element Analysis	3	
MEEN 601	Advanced Mathematics for Engineers	3	
MEEN 604	Aerodynamics 1: Incompressible Flow	3	
FIRST YEAR - SECOND SEMESTER			
MEEN 641	Sustainable Energy: Solar, Nuclear, Wind Energy Fuel Cell & Geothermal	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
SECOND YEAR – FIRST SEMESTER			
(MEEN course)	Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
(MEEN course)	Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course	3	
SECOND YEAR - SECOND SEMESTER			
MEEN 694	Special Project (Alternative Energy topic counts toward 12-cr minimum for the Alternative Energy Specialization)	3	Permission of Advisor

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Course Code	Course Title	Credits	Requisites
Required Courses (12 crs)			
MEEN 501	Finite Element Analysis	3	
MEEN 601	Advanced Mathematics for Engineers	3	
MEEN 604	Aerodynamics 1: Incompressible Flow	3	
MEEN 641	Sustainable Energy: Solar, Nuclear, Wind Energy Fuel Cell & Geothermal	3	
Specialization Courses (select 6 courses: 18 crs)			
MEEN 642	Grid Integration & Sustainable Systems	3	
MEEN 643	Energy Management, Practice, Policy & Ethics	3	
MEEN 644	Photovoltaic Energy Conversion	3	
MEEN 645	Wind Energy	3	
MEEN 646	Solar Refrigeration and Air Conditioning	3	
MEEN 648	Advanced Topics in Alternative Energy	3	Permission of the department head.
MEEN 651	Ocean Energy	3	
MEEN 652	Biofuels	3	
*MEEN 611	Composite Materials	3	
*MEEN 616	Introduction to Aeroelasticity	3	
*MEEN 617	Dynamics of Rotating Machinery	3	
*MEEN 623	Multi-Scale Turbulence: Aeronautics	3	MEEN 604
*MEEN 630	Engineering Internship I	1	Permission of the Department Head
*MEEN 631	Engineering Internships II	1	MEEN 630 and Permission
*MEEN 672	Mechanical Vibrations	3	
*MEEN 673	Computational Fluid Dynamics (CFD)	3	
*MEEN 675	MEMS and Energy Harvesting	3	
*MEEN 676	Design Optimization	3	
*MEEN 681	Introduction to Biomechanics	3	
*MEEN 682	Systems Engineering	3	
*MEEN 683	Friction, Wear and Lubrication	3	
*MEEN 684	Advanced Tribology	3	
*MEEN 685	Applied Modern Control	3	
* (Asterisk)	(Course is also available in other specialization areas)		

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Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING
Credits: 30

PLAN OF STUDY**Since: August 2016**

Plan 3 (M. Eng. degree). Plan 3 caters primarily to working professionals who seek highly specialized knowledge

Program: ALTERNATIVE ENERGY

Course Code	Course Title	Credits	Requisites
FIRST YEAR - FIRST SEMESTER			
MEEN 501	Finite Element Analysis	3	
MEEN 601	Advanced Mathematics for Engineers	3	
MEEN 604	Aerodynamics 1: Incompressible Flow	3	
FIRST YEAR - SECOND SEMESTER			
MEEN 641	Sustainable Energy: Solar, Nuclear, Wind Energy Fuel Cell & Geothermal	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
SECOND YEAR – FIRST SEMESTER			
(Specialization course)	Any Alternative Energy Specialization Course	3	
(Specialization course)	Any Alternative Energy Specialization Course	3	
(MEEN course)	Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course	3	
SECOND YEAR - SECOND SEMESTER			
(MEEN course)	Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course	3	