

| SCHOOL OF ENGINEERING | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------|------------------------------------|
| Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING | | CURRICULUM | |
| Credits: 30 | | | |
| 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 | | | |
| 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 | |
| | | 12 | |
| Specialization Courses (select 4 courses) | | | |
| 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) | | |
| | | 12 | |
| Degree Requirements | | | |
| | MS Thesis | 6 | Permission of Thesis Advisor |
| | | 6 | |

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| Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING Credits: 30 | | PLAN OF STUDY Plan 1 (M.S. degree-Thesis). Plan 1 is an excellent option for full-time students with a strong interest in research | |
| 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 | |
| | | 9 | |
| 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 | |
| | | 9 | |
| 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 | |
| | | 9 | |
| 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 |
| | | 3 | |

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| Course Code | Course Title | Credits | Requisites |
| Required Courses | | | |
| 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 | |
| | | 12 | |
| 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) | | |
| | | 15 | |
| Degree Requirements | | | |
| MEEN 694 | Special Project | 3 | Permission of Advisor |
| | | 3 | |

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| Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING Credits: 30 | | PLAN OF STUDY 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 | |
| | | 9 | |
| 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 | |
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| 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 | |
| | | 9 | |
| 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 |
| | | 3 | |

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| Degree: MASTER OF MECHANICAL ENGINEERING Credits: 30 | | CURRICULUM | |
| 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 3 (M. Eng. degree). Plan 3 caters primarily to working professionals who seek highly specialized knowledge. | | | |
| Course Code | Course Title | Credits | Requisites |
| Required Courses | | | |
| 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 | |
| | | 12 | |
| Specialization Courses (select 6 courses) | | | |
| 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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| SCHOOL OF ENGINEERING | | | |
| Degree: MASTER OF SCIENCE IN MECHANICAL ENGINEERING Credits: 30 | | PLAN OF STUDY Plan 3 (M. Eng. degree). Plan 3 caters primarily to working professionals who seek highly specialized knowledge | |
| Program: Mechanical Engineering | | | |
| 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 | |
| | | 9 | |
| 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 | |
| | | 9 | |
| 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 | |
| | | 9 | |
| SECOND YEAR - SECOND SEMESTER | | | |
| (MEEN course) | Any Aerospace Engineering Specialization, Alternative Energy Specialization, or General Course | 3 | |
| | | 3 | |