

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE Dept/Division: Engineering Alpha Designator/Number: ME- 530 Graded CR/NC

Contact Person: Asad Salem Phone: 696-3207

NEW COURSE DATA:

New Course Title: Renewable Energy

Alpha Designator/Number:

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Title Abbreviation:

R	e	n	e	w	a	b	i	e		E	n	e	r	g	y																			
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(Limit of 25 characters and spaces)

Course Catalog Description:

Basic principles and technical details of various renewable energy technologies for the sustainable future. Process design, energy analysis, engineering economics and environmental assessment of renewable energy systems.
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(Limit of 30 words)

Co-requisite(s): None First Term to be Offered: Spring-2016

Prerequisite(s): Graduate Status Credit Hours: 3

Course(s) being deleted in place of this addition (must submit course deletion form): _____

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____	Date _____
Registrar _____	Date _____
College Curriculum Chair _____	Date _____
Graduate Council Chair _____	Date _____

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College: CITE

Department/Division: ENGINEERING

Alpha Designator/Number: ME-530

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Asad Salem

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "**Not Applicable**" if not applicable.

Not Applicable

3. REQUIRED COURSE: If this course will be required by another department(s), identify it/them by name. Enter "**Not Applicable**" if not applicable.

None

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "**Not Applicable**" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "**Not Applicable**" if not applicable.

None

6. COURSE OBJECTIVES: (May be submitted as a separate document)

Please refer to the attached syllabus

7. COURSE OUTLINE (May be submitted as a separate document)

Please refer to the attached Syllabus

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

1. Duffie, J. A. & W. A. Beckman. 2006. Solar Engineering of Thermal Processes, 3rd ed. John Wiley & Sons, Inc.
2. Boyle, G. 2004. Renewable energy: Power for a sustainable future. Oxford University Press, Oxford, UK.
3. Demirbas, A. 2010. Bio-refineries – for biomass upgrading facilities. Springer publishers.

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

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10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Mid-term exam 50%

Assignments including Projects: 25%

Final Exam: 25%

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

None

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

1. Duffie, J. A. & W. A. Beckman. 2006. Solar Engineering of Thermal Processes, 3rd ed. John Wiley & Sons, Inc.
2. Boyle, G. 2004. Renewable energy: Power for a sustainable future. Oxford University Press, Oxford, UK.
3. Demirbas, A. 2010. Bio-refineries – for biomass upgrading facilities. Springer publishers.
4. RETScreen International. 2006. Users' guide. Natural Resources Canada, Ottawa, Canada.
5. Sims, R. 2002. The Brilliance of Bioenergy. James and James Publications, London, UK.
6. Frank Rosillo-Calle, Sarah Hemstock, Peter de Groot and Jeremy Woods. 2006. The Biomass Assessment Handbook, James and James Publications, London, UK.
7. Journals related to Renewable energy engineering
 - a. Biomass and Bioenergy
 - b. International Journal of Renewable Energy Engineering
 - c. Bio-resource Technology
 - d. Bio-resources
 - e. Bio-Products, Bio-Fuels & Bio-Refinery (BioPFR)
 - f. Renewable and Sustainable Energy Reviews
 - g. Energy Conversion Management
 - h. Solar Energy
 - i. Applied Energy
8. CIGR Handbook of Agricultural Engineering Volume V: Biomass Engineering. ASABE Publications, MN, USA.

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Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:

Course Number and Title:

Catalog Description:

Prerequisites:

First Term Offered:

Credit Hours:

Department: Weisberg Division of Engineering

Course Number and Title: ME 530 Renewable Energy

Catalog Description:

Basic principles and technical details of various renewable energy technologies for the sustainable future. Process design, energy analysis, engineering economics and environmental assessment of renewable energy systems.

Prerequisite: Graduate Status

First year Offered: Spring 2016

Credit Hours: 3

Course Title/Number	ME 530: Renewable Energy
Semester/Year	
Days/Time	
Location	EL 101
Instructor	Dr. Asad Salem
Office	EL 108
Phone	304-696-3207
E-Mail	salema@marshall.edu
Office/Hours	
University Policies	<p>By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802</p> <p>Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment</p>

Catalog Course Description:

Basic principles and technical details of various renewable energy technologies for the sustainable future. Process design, energy analysis, engineering economics and environmental assessment of renewable energy systems.

Prerequisite: Graduate Standing

Required Text:

1. Duffie, J. A. & W. A. Beckman. 2006. **Solar Engineering of Thermal Processes**, 3rd ed. John Wiley & Sons, Inc.
2. Boyle, G. 2004. **Renewable energy: Power for a sustainable future**. Oxford University Press, Oxford, UK.
3. Demirbas, A. 2010. **Bio-refineries** – for biomass upgrading facilities. Springer publishers.

References:

4. RETScreen International. 2006. Users' guide. Natural Resources Canada, Ottawa, Canada.
5. Sims, R. 2002. The Brilliance of Bioenergy. James and James Publications, London, UK.
6. Frank Rosillo-Calle, Sarah Hemstock, Peter de Groot and Jeremy Woods. 2006. The Biomass Assessment Handbook, James and James Publications, London, UK.
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 - e. Bio-Products, Bio-Fuels & Bio-Refinery (BioPFR)
 - f. Renewable and Sustainable Energy Reviews
 - g. Energy Conversion Management
 - h. Solar Energy
 - i. Applied Energy