Syllabus for
EGR 101—Introduction to Engineering
2 Credit Hours
Summer 2017

I. COURSE DESCRIPTION

An introduction to the profession of engineering. Topics include problem solving, engineering design of simple electrical and mechanical systems, introduction to the use of computers in engineering, and introduction to economics and ethics of engineering practice.
Course fee: $55.

II. COURSE GOALS

The purpose of this course is to enable the student to do the following:
A. Synthesize optimal engineering solutions during mechanical and electrical design competitions.
B. Understand the art of engineering and the process of personal development needed to ensure that his or her behavior and attitudes support his or her goal of becoming a professional engineer.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

A. Terminal Objectives
As a result of successfully completing this course, the student will be able to do the following:
1. Discuss various disciplines of engineering.
2. Discuss elements of creative problem solving.
3. Discuss how to develop engineering skills.
4. Discuss engineering as a career.
5. Discuss engineering economies, management, and ethics.
6. Discuss engineering design process.
7. Discuss the use of computers in engineering.

B. Unit Objectives
As a result of successfully completing these units, the student will be able to do the following:
1. Unit 1 Engineering Disciplines: Introduction to the engineering profession and strategies for student success.
2. Unit 2 Creativity: Personal development and creative problem-solving.
4. Unit 4 Electrical Design Projects: Digital and audio systems development.
5. Unit 5 Computers: Introduction to computers and their role in solving engineering problems.
6. Unit 6 The Business of Engineering: Patents, entrepreneurialism, management, economics, and ethics.
IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Materials
1. Textbook
2. Other
   None

B. Optional Materials
1. Textbooks
   None
2. Other
   None

V. POLICIES AND PROCEDURES

A. University Policies and Procedures
1. Attendance at each class or laboratory is mandatory at Oral Roberts University. Excessive absences can reduce a student’s grade or deny credit for the course.
2. Students taking a late exam because of an unauthorized absence are charged a ($15) late exam fee.
3. Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others’ materials, whether it is in the form of print, electronic, video, multimedia, or computer software. Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU’s Honor Code: “I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments.” Plagiarism is usually defined as copying someone else’s ideas, words, or sentence structure and submitting them as one’s own. Other forms of academic dishonesty include (but are not limited to) the following:
   a. Submitting another’s work as one’s own or colluding with someone else and submitting that work as though it were his or hers;
   b. Failing to meet group assignment or project requirements while claiming to have done so;
   c. Failing to cite sources used in a paper;
   d. Creating results for experiments, observations, interviews, or projects that were not done;
   e. Receiving or giving unauthorized help on assignments.

By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.
4. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.
5. Students are to be in compliance with University, school, and departmental policies regarding Whole Person Assessment requirements. Students should
consult the Whole Person Assessment handbooks for requirements regarding general education and the students’ majors.

a. The penalty for not submitting electronically or for incorrectly submitting an artifact is a zero for that assignment.

b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. Department Policies and Procedures

1. A fee of $15.00 is assessed for all late exams. The university’s late exam policy applies to all exams taken without notifying the professor prior to the regularly scheduled exam time and to all exams taken late without an administrative excuse.

2. Any student whose unexcused absences total 33% or more of the total number of class sessions receives an F for the course grade.

C. Course Policies and Procedures

1. Evaluation Procedures

   a. Work conducted during each of the six units will contribute equally to the final grade.

   b. Instructors determine the evaluation procedure for their unit. Participation in discussions and projects are strongly encouraged.

   c. Homework and computer programs are due as announced. No late assignments are accepted.

   d. Required WPA artifacts are to be promptly submitted by the student for assessment purposes. Failure to do so will result in a 5% reduction in the student’s final grade.

2. Whole Person Assessment Requirements

   As assigned

VI. COURSE CALENDAR

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<thead>
<tr>
<th>Date</th>
<th>Professor</th>
<th>Topic</th>
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<tr>
<td></td>
<td>Halsmer</td>
<td>Course Introduction</td>
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<td></td>
<td>Halsmer</td>
<td>Introduction to the Engineering Profession</td>
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<td></td>
<td>Halsmer</td>
<td>Personal Development and Creativity/ Electrical Circuits</td>
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<td>Leland</td>
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Leland Robotics Project
Leland Robotics Project

Ma Robotics Project

Ma Robotics Project
Ma Robotics Project

**Fall Break (no class)**

**Fall Break (no class)**

Ma Robotics Project

Revival

Machine Shop Training
Machine Shop Training

Leland Reports and Presentations

**Robotics Design Contest during Engineering Seminar**

Leland Robotics Presentation I
Leland Robotics Presentation II
Leland Robotics Presentation II I

Matson CFD/SolidWorks
Matsson Wind Tunnel

Matsson **Thanksgiving Break (No Thursday class)**

Gregg Developing Engineering and Physics
This course contributes to the ORU student learning outcomes as indicated below:

**Significant Contribution** – Addresses the outcome directly and includes targeted assessment.

**Moderate Contribution** – Addresses the outcome directly or indirectly and includes some assessment.

**Minimal Contribution** – Addresses the outcome indirectly and includes little or no assessment.

**No Contribution** – Does not address the outcome.

The Student Learning Glossary at http://ir.oru.edu/doc/glossary.pdf defines each outcome and each of the proficiencies/capacities.

<table>
<thead>
<tr>
<th>OUTCOMES &amp; Proficiencies/Capacities</th>
<th>Significant Contribution</th>
<th>Moderate Contribution</th>
<th>Minimal Contribution</th>
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<tr>
<td>1  Outcome #1 – Spiritually Alive</td>
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<td>Proficiencies/Capacities</td>
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<td>1A Biblical knowledge</td>
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<td>1B Sensitivity to the Holy Spirit</td>
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<td>1C Evangelistic capability</td>
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<td>1D Ethical behavior</td>
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<td>2  Outcome #2 – Intellectually Alert</td>
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<td>Proficiencies/Capacities</td>
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<td>2A Critical thinking</td>
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<td>2B Information literacy</td>
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<td>2C Global &amp; historical perspectives</td>
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<td>2D Aesthetic appreciation</td>
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<td>2E Intellectual creativity</td>
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<td>3  Outcome #3 – Physically Disciplined</td>
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<td>Proficiencies/Capacities</td>
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<td>3A Healthy lifestyle</td>
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<td>3B Physically disciplined lifestyle</td>
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<td>4  Outcome #4 – Socially Adept</td>
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<td>Proficiencies/Capacities</td>
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<td>4A Communication skills</td>
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<td>4B Interpersonal skills</td>
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<td>4C Appreciation of cultural &amp; linguistic differences</td>
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<td>4D Responsible citizenship</td>
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<td>4E Leadership capacity</td>
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