Engineering & Creationeering

APP-1200

2022   07/01/2022 to 06/30/2023   Modified 04/22/2022

🖥 Course Description

Creationeering™ is a new paradigm, or worldview, that integrates engineering and business practice for technological entrepreneurship from a biblical basis. In this course, the student will study a survey of the various engineering disciplines through the Creationeering lens. Along with this survey, the students will engage in a number of labs designed to illustrate engineering principles for each discipline. This course will cover the following engineering disciplines: mechanical engineering, materials engineering, aerospace engineering, biological engineering, energy engineering, civil engineering, agricultural engineering, chemical engineering, industrial engineering, systems engineering, electrical engineering, computer engineering, computational engineering, and software engineering.

◎ Rationale

Science, engineering, and entrepreneurship are considered separate concepts and/or disciplines. There are programs at universities that train students in these different areas where Bachelor's, Master's, and even Doctoral degrees can be earned that were developed from industry needs. The focused training of students in each of the distinct disciplines of science, design, engineering, and entrepreneurship leads to an individual's narrow understanding when considering aspects of the other disciplines. Currently, there is no holistic perspective that integrates these notions, let alone integrating a Christian worldview into the mix. Creationeering integrates these perspectives into one discipline.

By taking this course, the students will gain an understanding of the Creationeering model and hence various engineering disciplines. Our prayer is that this course may pique the interest of a number of students and encourage them to pursue higher math and science courses through high school with the possibility of going into engineering.

Prerequisite

Pre-Algebra

📊 Measurable Learning Outcomes

Biblical Integration Outcomes

Creationeering is seeing the Creator through the disciplines and integration of science, engineering, and entrepreneurship. After taking this course, the student will:

1. See God through what He has already created. (Science)
2. See God through what man has created by God's revelation to man. (Engineering)
3. See God throughout all His entrepreneurial endeavors. (Entrepreneurship)

Measurable Learning Outcomes

1. The student will understand the difference between an engineer and a creationeer.
2. The student will understand what each of the branches of engineering is all about.
3. The student will perform a number of labs using simulations and hands-on procedures with various materials.
4. The student will gain real-world knowledge from listening to a number of video testimonies on the different branches of

engineering.

5. The student will gain a better understanding of the job market for the various branches of engineering.
6. The student will gain an appreciation for the engineering disciplines to make a more informed decision on the possibility of studying engineering in college.

📖 Course Resources

See LUOA's [Systems Requirements](#) for computer specifications necessary to operate LUOA curriculum. Also view [Digital Literacy Requirements](#) for LUOA's expectation of users' digital literacy.

This course makes use of third-party digital resources to enhance the learning experience. LUOA staff and faculty have curated these resources. Students can safely access them to complete coursework. Please ensure that internet browser settings, pop-up blockers, and other filtering tools allow for these resources to be accessed. See Technologies and Resources Used in this Course below for a specific list.

Note: Embedded YouTube videos may be utilized to supplement LUOA curriculum. YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, LUOA is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the [Jerry Falwell Library](#).

Materials Required for Purchase

The following materials are required in this course:

- This course has a number of hands-on labs where materials must be Note that these hands-on labs are optional for the student, and alternate labs have been provided should the student choose to not participate in them. To obtain the materials needed for these labs, please read the materials list shown in the introductory lesson titled "About the Labs in this Course."

Scripture Attribution

- Grades 7-12: All Scripture quotations, unless otherwise indicated, are from the ESV® Bible (The Holy Bible, English Standard Version®), copyright © 2001 by Crossway, a publishing ministry of Good News Publishers. Used by permission. All rights reserved. May not copy or download more than 500 consecutive verses of the ESV Bible or more than one half of any book of the ESV Bible.

Technologies and Resources Used in this Course

The following resource(s) are used throughout this course:

- Videos and lab simulations

🏛 Policies

Students are accountable for all information in the [Student Handbook (https://www.liberty.edu/online-academy/wp-content/uploads/2021/11/LUOA-Student-Handbook.pdf)](#). Below are a few policies
that have been highlighted from the Student Handbook.

Course Grading Policies

The student's grades will be determined according to the following grading scale and assignment weights. The final letter grade for the course is determined by a 10-point scale. Assignments are weighted according to a tier system, which can be referenced on the Grades page in Canvas. Each tier is weighted according to the table below. Items that do not affect the student's grade are found in Tier 0.

Grading Scale		Assignment Weights	
A	90-100%	Tier 0	0%
B	80-89%	Tier 1	25%
C	70-79%	Tier 2	35%
D	60-69%	Tier 3	40%
F	0-59%		

In order for students to receive credit for a course, the following conditions have to be met:

- All semester exams and module tests have to be completed.
- All Tier 3 projects or papers have to be completed.
- Fewer than 10 zeros exist in the gradebook for blank submissions in a full credit course and 5 zeros for blank submissions in a semester course.

Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, "1.2.W - Quiz: The American Revolution." These identifiers were placed on the Modules page to help students understand which Resubmission and Honor Code policies apply to that assessment (see the Resubmission Policy and Honor Code Policy below for further details).

- **Lesson:** *Any item on the Modules page designated as a "Lesson"*

  These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an "Assignment"*

  Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a "Quiz"*

  This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a "Test"*

  This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

Resubmission Policy

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson**: Students are automatically permitted two attempts on a Lesson. Students may freely resubmit for their first two attempts without the need for teacher approval.
- **Assignment**: Students should do their best work the first time on all Assignments. However, any resubmissions must be completed before the student moves more than one module ahead of that Assignment. For example, a student may resubmit an Assignment from Module 3 while in Module 4, but not an Assignment from Modules 1 or 2. High School students may not resubmit an Assignment without expressed written permission from the teacher in a comment.
- **Quiz**: Students may NOT resubmit for an increased grade.

- **Test**: Students may NOT resubmit for an increased grade.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request.

Honor Code Policy

Every time a student violates the Honor Code, the teacher will submit an Honor Code Incident Report. The Student Support Coordinator will review the incident and allocate the appropriate consequences. Consequences, which are determined by the number of student offenses, are outlined below:

- **Warning**: This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. Students should view these actions as learning opportunities.
  - **Lessons**: A zero will be assigned for the question only.
  - **Elementary/Middle School Assignment**: The student must redo his or her work; however, the student may retain his or her original grade.
- **1st Offense**:
  - **Lesson, Quiz, or Test**: The student will receive a 0% on the entire assessment.
  - **Assignment**: The student will either:
    - Receive a 0% on the original assignment
    - Complete the Plagiarism Workshop
    - Retry the assignment for a maximum grade of 80%
- **2nd Offense**: The student will receive a 0% and be placed on academic probation.
- **3rd Offense**: The student will receive a 0% and the Director of Faculty will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.

Materials Selection Policy

LUOA curates educational materials that are consistent with the school's philosophy; however, the fallen human condition depicted in literature (as in Scripture itself) is not always pleasant. Valuable works sometimes have objectionable or profane elements. Good books provide four (4) recognized values.

- They build godly attitudes and character traits.
- They deepen our social and cultural awareness.
- They strengthen our use of written language.
- They provide a lifelong source of enjoyment and relaxation.

In order to instill these values in students and fulfill the stated objectives of the school, all LUOA students are expected to read and study good books on a regular basis. Recognizing that materials designed for one level may not be appropriate for another, three (3) levels of criteria are applied:

- Elementary materials must contain no objectionable material,
- Objectionable elements in sixth through eighth-grade materials must be limited and must serve a specific educational purpose, and
- Objectionable content may be included in high school materials but must be outweighed by positive literary, curricular, and/or Christian values.

The curriculum department has approved required educational materials for students.

📅 Schedule

Module 1: Introduction to Creationeering

Week 1: Introduction to Creationeering – Engineering & Intelligent Design

Week 2: Introduction to Creationeering – Design & Logistics, Death, Recycling & Sustainability

Week 3: Introduction to Creationeering – Analysis, Procurement, Logistics, & Assembly

Week 4: Introduction to Creationeering – Performance, Sustainability, & Death/Recycling

Week 5: Introduction to Creationeering – Business, Human Resources, Finances, and Legal

Week 6: Introduction to Creationeering – Sales & Marketing, Management, Leadership, & Learning Styles

Week 7: Introduction to Creationeering – Networking, Teaming, Technical Presentations, & Technical Writing

Week 8: Introduction to Creationeering – Engineering Disciplines, Succeeding as a Student, & Exam

Module 2: Engineering Disciplines and Labs Continued

Week 9: Introduction to Mechanical Engineering

Week 10: Mechanical Engineering Lab & Report

Week 11: Materials Engineering

Week 12: Materials Engineering Lab

Week 13: Aerospace Engineering

Week 14: Aerospace Engineering Lab

Week 15: Biological Engineering

Week 16: Biological Engineering Lab

Week 17: Energy Engineering

Week 18: Energy Engineering Lab and Exam

Module 3: Engineering Disciplines and Labs Continued

Week 19: Civil Engineering

Week 20: Civil Engineering Lab

Week 21: Agricultural Engineering

Week 22: Agricultural Engineering Lab

Week 23: Chemical Engineering

Week 24: Chemical Engineering Lab

Week 25: Industrial Engineering

Week 26: Industrial Engineering Lab

Week 27: Systems Engineering & Exam

Module 4: Engineering Disciplines and Labs Continues

Week 28: Systems Engineering Lab

Week 29: Electrical Engineering

Week 30: Electrical Engineering Lab

Week 31: Computer Engineering

Week 32: Computer Engineering Lab

Week 33: Computational Engineering

Week 34: Computational Engineering Lab

Week 35: Software Engineering

Week 36: Software Engineering Lab and Exam