**Lincoln University**

**Engineering Program/Department of Chemistry & Physics**

**Master Syllabus\_ENS100**

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| --- | --- | --- | --- |
| **Course Title:** | Inquiring Minds Want to Design: Introduction to Engineering | **Course number:** | ENS100 |
| **Credit Hours** | 3 | **Prerequisite (s):** | MAT098 |
| **Term:** |  | **Co-Requisite (s)** |  |
| **Course Method** | Lecture | **Meeting day and Time:** |  |
| **Instructor:** |  | **Classroom/lab/ Studio Location:** |  |
| **Office location:** |  | **e-mail:** |  |
| **Office Hours:** |  | **Phone Extension:** |  |

**COURSE DESCRIPTION:** This is a conceptual and introductory course in engineering process and career opportunities. Emphasis is placed on the design and creative process rather than intense mathematics modeling, using examples from different engineering disciplines. The engineering profession and its relation to current national, social, industrial, ethical, and international issues and problems will be discussed. Global energy issues such as the production and consumption of energy, alternative energy resources and engineering solutions will be used to connect engineering to our everyday lives and society. Students will learn how to develop the tools necessary to be successful in school and in industry by using theory and solving real world challenges. Speakers from different branches of engineering will present on a typical day in their lives. This course is designed for engineering majors.

**REQUIRED TEXT:** CK-12 Engineering. Available at <http://www.ck12.org/book/Engineering%253A-An-Introduction-for-High-School/> (Download for FREE)

**REQUIRED MATERIALS:** None

**Assessment Criteria & Alignment**

|  |  |  |  |
| --- | --- | --- | --- |
| CSLOs | PSLOs | ILOs | Direct and Indirect Assessment Methods |
| CSLO 1 | 1,2 | 1 | Rubric evaluation of Design challenges & engineering note book |
| CSLO 2 | 1 | 1 | Rubric evaluation of Group project & presentation |
| CSLO 3 | 1 | 1 | Rubric evaluation of Design challenges & engineering note book |
| CSLO 4 | 1,4 | 1,5 | Rubric evaluation of Design challenges & engineering note book |

**Course Student Learning Outcomes (CSLO):**

Upon successful completion of this course the student will:

**CSLO 1:** Define the strategies necessary to succeed in school & an engineering program

**CSLO 2:** Record engineering problems in a neat, organized format

**CSLO 3:** Recall the types of jobs done in the field of engineering

**CSLO 4:** Relate the impact of industry upon the social, cultural, ethical, and environmental forces

**CSLO 5:** Work in teams to plan and carryout investigations and analyze and interpret data

**Program Student Learning Outcomes (PSLO):**

**PSLO 1** apply mathematics, science and engineering principles.

**PSLO 2** design and conduct experiments, analyze and interpret data

**PSLO 4** function on multidisciplinary teams.

**Institutional Learning Outcomes (ILO):** (List only those assessed with this course.)

**ILO #1**: **Listen and effectively communicate** ideals through written, spoken and

visual means.

**ILO #5**: **Think critically** via classifying, analyzing, comparing, contrasting, hypothesizing, synthesizing, extrapolating and evaluating ideas. Apply and evaluatequantitative reasoning through the disciplines of mathematics, computational science, science and laboratory science.

**Calculation of Final Grades**:

|  |  |
| --- | --- |
| **Course Requirements** | **Percentages** |
| 1. Exams, Quizzes | 30% |
| 1. Design challenges & engineering note book | 40% |
| 1. Group project & presentation | 30% |
| **Total** | 100% |

**GRADING SCALE:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grade | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |
| GPA Points | 4.0 | 3.7 | 3.3 | 3.0 | 2.7 | 2.3 | 2.0 | 1.7 | 1.3 | 1.0 | 0.0 |
| % | 100-93 | 92.9-90 | 89.9-88 | 87.9-82 | 81.9-80 | 79.9-78 | 77.9-72 | 71.9-70 | 69.9-67 | 66.9-60.1 | 60 and under |

**SCHEDULE OF LEARNING topics covered**

|  |  |
| --- | --- |
| **Class Meets:**  **•ASSIGNMENT SELECTION & SCHEDULE MAY BE SUBJECT TO CHANGE•** | |
| **Week 01:** | Engineering design process |
| **Week 02:** | Engineering practice |
| **Week 03:** | Success in engineering school |
| **Week 04:** | Dimension, units and error analysis |
| **Week 05:** | Statics |
| **Week 06:** | Dynamics |
| **Week 07:** | Strengths of materials |
| **Week 08:**  **Midterm** | **Mid-term Week** |
| **Week 09:** | Fluid-Thermal sciences |
| **Week 10:** | Electrical sciences |
| **Week 11:** | Global energy/engineering grand challenges |
| **Week 12:** | Global energy/ engineering grand challenges |
| **Week 13:** | Global energy/ engineering grand challenges |
| **Week 14:** | Project presentations |
| **Week 15:** | **Final Exams** |

#### **University ATTENDANCE POLICY:**

Lincoln University uses the class method of teaching, which assumes that each student has something to contribute and something to gain by attending class. It further assumes that there is much more instruction absorbed in the classroom than can be tested on examinations. Therefore, students are expected to attend all regularly scheduled class meetings and should exhibit good faith in this regard.

<http://www.lincoln.edu/registrar/2014Catalog.pdf>

**STUDENTS WITH DISABILITIES STATEMENT:**

Lincoln University is committed to non-discrimination of students with disabilities and therefore ensures that they have equal access to higher education, programs, activities, and services in order to achieve full participation and integration into the University.  In keeping with the philosophies of the mission and vision of the University, the Office of Student Support Services, through the Services for Students with Disabilities (SSD) Program, provides an array of support services and reasonable accommodations for students with special needs and/or disabilities as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990.  The Services for Students with Disabilities Program seeks to promote awareness and a campus environment in which accommodating students with special needs and/or disabilities is natural extension of the University’s goal.

Any student with a documented disability should contact the Office of Student Support Services.

<http://www.lincoln.edu/studentservices/index.html>

**UNIVERSITY ACADEMIC INTEGRITY STATEMENT:**

Students are responsible for proper conduct and integrity in all of their scholastic work. They must follow a professor's instructions when completing tests, homework, and laboratory reports, and must ask for clarification if the instructions are not clear. In general, students should not give or receive aid when taking exams, or exceed the time limitations specified by the professor. In seeking the truth, in learning to think critically, and in preparing for a life of constructive service, honesty is imperative. Honesty in the classroom and in the preparation of papers is therefore expected of all students. Each student has the responsibility to submit work that is uniquely his or her own. All of this work must be done in accordance with established principles of academic integrity.

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**POLICY ON ELECTRONIC DEVICES IN CLASSROOM:**

Cellphone and other electronic devices use is not permitted at any time during class (unless instructed to do so by the instructor). Cellphones and other electronic device must be put away out of sight during the entire class. Failure to put away phones completely out of sight will lead to immediate dismissal from class and you will be marked absent for the day.