# ENGR 100: Fundamentals of Engineering

# Syllabus Fall 2019

Stephanie Bostwick

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building #4 office #210

Credits: 5

Class Time: TBD, & Canvas online classroom

Office Hours:

***NWIC MISSION STATEMENT***

*Through education, Northwest Indian College promotes indigenous self-determination and knowledge*

**Course Prerequisites:** MATH 098

# Required Text

None.

# Course Description

Project based introduction to the engineering field. Topics include career opportunities, academic success strategies, analytical problem solving, and applications of mathematics and physics in engineering. Projects introduce engineering software and skills such as computer-aided design (CAD), 3D printing, and laser cutting.

# Course Outcomes

# At the completion of this course students will be able to:

1. Distinguish among different fields of engineering and engineering technology and connection to student identity
2. Solve introductory engineering, math, and science problems by applying analysis strategies
3. Prepare an academic plan leading to an Associate degree and successful transfer in engineering and connection to student personal goals

# Institutional Outcomes

1. Effectively communicate in diverse situations, from receiving to expressing information, both verbally and non-verbally

1. Meet the technological challenges of a modern world
2. Work cooperatively toward a common goal

**Course Requirements and Expectations**

Students who have a valid issue that prevents them from attending class need to notify the instructor prior to the start of class, email messaging is preferred but phone message is acceptable. It is understood in some situations an absence will be unavoidable. In those situations students will be given the opportunity to make up attendance and participation by watching recordings of the class session that has been missed. Embedded in the recorded class session will be participation questions. If those questions are answered and submitted to the instructor within 1 week of the scheduled class session, attendance and participation points will be awarded based on the agreement reached between student and instructor.

Any exceptions to this attendance policy must be approved by the Department Chair and the instructor in writing before the start of the quarter.

***It will not be possible to earn a passing grade if a student misses more than 30% of this class without notifying the instructor.***

**Evaluation & Assessment**

|  |  |
| --- | --- |
| Canvas Homework | 25% |
| Participation | 20% |
| Quizzes | 15% |
| Projects | 15% |
| Midterm Exam | 10% |
| Final Exam | 15% |

Grading will be on a percentage system as detailed below:

* 1. Canvas Homework – Each homework assignment will require the student to read from the weekly material and submit responses via a Word document upload or text entered directly into Canvas. Late assignments will receive a 10% deduction for each late day past the due date. weight – 25%
  2. Participation – Student will participate in several activities via Canvas, in class and outside of class including discussions and meetings. Late assignments will not be accepted without prior permission by the instructor. weight – 20%
  3. Quizzes – There will be weekly quizzes online in Canvas to check student knowledge of the required reading and activities. Quizzes must be taken prior to the Canvas due date. weight – 15%
  4. Projects – There will be 2-3 projects assigned throughout the quarter. Students will have the option to work as a group or individual on each project. Rubrics will be provided for grading and no late projects will be accepted without prior permission by the instructor. weight – 15%
  5. Midterm Exam – Exam will cover content from in-class and online activities covered to-date. See Canvas for exam date. No makeup exams will be allowed without prior permission by the instructor. weight – 10%
  6. Final Exam – Exam will be given on the last day of class and will be cumulative in nature. No makeup exams will be allowed without prior permission by the instructor. weight – 15%

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# Course and Assignment Schedule:

|  |  |  |  |
| --- | --- | --- | --- |
| Tentative Schedule | |  |  |
| **Week** | **Analysis Skills and Concepts** | **Academic Success** | **Career Explorations** |
| 4/1 | Course Overview  Classroom norms | Goal Setting | History of Engineering |
| 4/8 | Spatial Visualization and Sketching  Into to Computer-Aided Design  CAD Project with 3-D Printing | Time Management | Engineering in the 21st Century  Engineering Majors |
| 4/15 | Spatial Skills Practice  CAD Project with 3-D Printing | Note Taking  Learning Styles | Engineering Grand Challenges |
| 4/22 | CAD Project Completion  Estimation, Significant Figures | Academic Success Strategies  Prep for Advising | Electrical and Computer Engineering |
| 4/29 | Solving Problems  Dimensions and Units | Behaviors for Success  Stress Management | Civil and Environmental Engineering |
| 5/6 | **Advising Day** |  | Mechanical Engineering |
| 5/13 | Derived Dimensions  Unit Laws  **Midterm Exam** | Ethics | Computer Science & Engineering |
| 5/20 | Engineering Design Process  Laser Cutter Design Project  Universal Units:  Force, Mass, Weight, Density | Learning Styles |  |
| 5/27 | Universal Units:  Temperature, Pressure  Energy, Power, Efficiency  **No Class – Memorial Day** | Incivility |  |
| 6/3 | Universal Units: Electrical Concepts  Solar Power Project  Intro to Spreadsheets | Civility | Interview Skills |
| 6/10 | **Final Exam Monday 6/10 at 12 PM** |  |  |

**Instructor(s) Discretion:**

Should it be deemed necessary, the instructor(s) of this course reserves the right to make alterations, at any time, to the course materials or what is contained within this syllabus in order to improve the course itself, the learning environment or the opportunity for student success. If such a change is made, it will be made in a timely manner so as not to impede the learning process or interfere, in any way, with student success.