North Central State College

MASTER SYLLABUS
2020-2021

A. Academic Division: Business, Industry, and Technology

B. Discipline: Engineering Technology

C. Course Number and Title: ENGR1010 Introduction to Engineering

D. Course Coordinator: Mike Beebe
Assistant Dean: Toni Johnson, PhD

Instructor Information:

- Name: Click here to enter text.
- Office Location: Click here to enter text.
- Office Hours: Click here to enter text.
- Phone Number: Click here to enter text.
- E-Mail Address Click here to enter text.

E. Credit Hours: 2
Lecture: 1 hour
Laboratory: 2 hours

F. Prerequisites: None

G. Syllabus Effective Date: Fall, 2019

H. Textbook(s) Title: None

I. Workbook(s) and/or Lab Manual: None

J. Course Description: This is an introductory course for engineering technology students. Students will develop a deeper understanding and appreciation of engineering, the problems engineers encounter and the contributions made by engineers from various disciplines. The ethics and responsibilities of the engineer will be discussed. Lab experience includes the following PC applications: operating systems and hardware, word processors, spreadsheets, and engineering graphing. An introduction to basic language programming is included at the end. Emphasis will be placed on using a PC to solve engineering problems and produce results. TAG: OES001 - INTRODUCTION TO ENGINEERING

K. College-Wide Learning Outcomes

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	Communication Speech VALUE Rubric
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Use the computer as a tool to help solve engineering related problems.	4 Labs, 3 Projects, quizzes, Midterm and Final
2. Function on a team in an academic environment.	Project with written report and presentation
3. Analyze and discuss ethics in engineering practices using several scenarios involving an engineer faced with ethical choices.	In class participation and discussion. Written conclusion.
4. Write a simple BASIC language program with inputs, calculations, decisions, and outputs.	4 Labs, Quizzes and Final Exam.
5. Demonstrate hands-on skills related to applications of engineering.	Projects, and Lab throughout the semester.
6. Understand and solve open-ended problems related to engineering.	Final Projects, and Labs throughout the semester.

M. Topical Timeline (Subject to Change):

Week	Topic	Assessment
(Note all lab documents and homework assignment materials are posted on Blackboard)		
1	Identify hardware of a typical PC. 1. Block Diagram 2. Hardware identification a. Motherboard b. Power supply c. Drives d. Memory e. Ports (USB/Serial/Parallel) f. Video g. Sound 3. Microprocessor fetch/execute cycle 4. Disks and using software	Lab: Tear down a PC, identify parts, and rebuild to working condition. Homework: 1. View videos on computer basics, Using Your Mouse, and Windows Desktop and answer questions about video topics. 2. View the Computer Tour video and answer questions about video topics. 3. Read "How USB Ports work" and answer homework questions. 4. 4) Read assignment 4 and answer questions on BIOS, Boot, RAM, ROM and HDDs.

Week	Topic	Assessment
2	Windows, current version(s) 1. Environment & Icons 2. Desktop 3. Explorer 4. Multiple Apps 5. Properties 6. Clipboard 7. Folders 8. Creating folders 9. Renaming files 10. Copy/Cut/Paste Academic use of the internet for research Word Processor 1. Environment & a document 2. Page Setup 3. Fonts and size, super and subscripts 4. Inserting a drawing 5. Printing options 6. Importing files	Windows Lab: Demonstrate proficiency in using Windows Explore and file management. Internet Lab: Demonstrates proficiency in using and internet browser . WWW Search lab: Demonstrate internet research proficiency using search engines and megasearch engines. Word processing lab: Using supplied research paper demonstrate proficiency in format documents, using an equation editor, inserting images and inserting spreadsheet data into a document. Homework: 1. View video on Using the Internet and answer questions. 2. 2) Read the tutorials on word processors and equation editors.
3	Spreadsheet & Charts (Graphs) 1. Cells, rows, columns 2. Text vs. data 3. Formulas & Functions 4. Filters 5. Chart Types & Creation 6. Chart Labels & Titles	Lab: Measurement, data collection and data organization lab. Lab: Hybrid/Diesel Comparison.
4	Continue spreadsheet development.	Lab: Residential Electrical Load Calculations
5	Integration 1. Inserting charts, data into word processor documents 2. Linking	Lab: Solar Isolation lab Lab:Creating Charts using spreadsheet data.
6		Lab: Deconstruct, investigate, analyze and create a bill of materials of a typical manufactured object.
7	Review and Midterm exam	
8	With at least 2 student peers, develop a practical Engineering Preventative Management Solution to a historical Engineering Disaster.	Project 1 with written report and presentation
9	Continue project 1	
10	Research, present and discuss a variety of disciplinary and career options and areas within engineering.	Project with written report and presentation. Research various engineering fields, determine what areas of scientific discipline are required for each field, what degrees and /or certifications may be required, 2-3 prominent engineers or scientists in each field, and salary ranges for each field and attained degree.

Week	Topic	Assessment
11	Research, present and discuss a variety of disciplinary and career options and areas within engineering.	
12	Analyze and discuss ethics in engineering practices using several scenarios involving an engineer faced with ethical choices.	Project with written report and presentation. Choose 2 of several engineering ethics case studies given to the student, analyze the case, discuss various viewpoints, state your course of action and defend it ethically. Homework: research engineering ethics on the ASME and IEEE websites. On the ASME site do "Ethics for Students" and submit the worksheet. Read the IEEE Code of Ethics and the CS/ACM code of Ethics.
13	Analyze and discuss ethics in engineering practices using several scenarios involving an engineer faced with ethical choices.	
14	Intro to Programming 1. QBASIC environment 2. Programming basics & flowcharts 3. Variables 4. Input/Output commands 5. Calculations 6. Decisions 7. Loops (IF THEN, FOR NEXT, DO)	Lab: Develop a flowchart for a given process. Lab: Develop pseudocode for a given process. Lab: A BASIC program. Commands, syntax, pseudocode, flowcharts and troubleshooting. Lab: Program control and looping. Lab: Celsius to Fahrenheit conversions. Lab: Machine control with a Basic Stamp. Homework: Read : What is Programming What is a Programming Language What is Psuedocode Flowcharting
15	Continue programming	

N. Course Assignments:

1. Videos
2. On-line reading assignments
3. Handouts
4. Laboratory exercises

O. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

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Q. Examination Policy:

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R. Class Attendance and Homework Make-Up Policy:

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S. Classroom Expectations:

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T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf

The information can also be found Choose an item.