

## Administrative Master Syllabus

### Course Information

|                                      |   |
|--------------------------------------|---|
| <b>Course Title</b>                  | Introduction to Engineering   |
| <b>Course Prefix, Num. and Title</b> | ENGR 1201   |
| <b>Division</b>                      | Math & Physical Sciences  |
| <b>Department</b>                    | Physics & Engineering   |
| <b>Course Type</b>                   | Academic General Education Course (from ACGM, but not WCJC Core)  |
| <b>Course Catalog Description</b>    | An introduction to the engineering profession with emphasis on technical communication and team-based engineering design. |
| <b>Pre-Requisites</b>                | MATH 1314 College Algebra or equivalent academic preparation  |
| <b>Co-Requisites</b>                 | None  |

### Semester Credit Hours

|  |       |
|--|-------|
| <b>Total Semester Credit Hours (SCH): Lecture Hours:</b> | 2:2:0 |
| <b>Lab/Other Hours</b>                                   |       |
| <b>Equated Pay Hours</b>                                 | 2     |
| <b>Lab/Other Hours Breakdown: Lab Hours</b>              | 0     |
| <b>Lab/Other Hours Breakdown: Clinical Hours</b>         | 0     |
| <b>Lab/Other Hours Breakdown: Practicum Hours</b>        | 0     |
| <b>Other Hours Breakdown</b>                             | 0     |

### Approval Signatures

| Title                   | Signature            | Date      |
|-------------------------|----------------------|-----------|
| <b>Department Head:</b> | <i>Rocio Doherty</i> | 11/29/23  |
| <b>Division Chair:</b>  |                      | 12-5-2023 |
| <b>VPI:</b>             |                      |           |

## **Additional Course Information**

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

1. Introduction to engineering
2. Overview of the engineering fields
3. Teamwork and team building
4. Introduction to the engineering design process
5. Communication of technical information
  - a. Data collection and recording
  - b. Effective written reports and presentations
6. Design testing and data analysis
7. Engineering codes of ethics
8. Impact of engineering on society

### **Course Learning Outcomes:**

**Learning Outcomes – Upon successful completion of this course, students will:**

1. Describe the engineering profession and engineering ethics, including professional practice and licensure.
2. Use technical communication skills to explain the analysis and results of introductory laboratory exercises in engineering and computer science.
3. Explain the engineering analysis and design process
4. Analyze data collected during laboratory exercises designed to expose students to the different engineering disciplines.
5. Describe the impact engineering has had on the modern world.
6. As part of the team, design a simple engineering device, write a design report, and present the design.
7. Demonstrate computer literacy

### **Methods of Assessment:**

Class work/discussions, homework assignments, quizzes, team projects, exams, and/or presentations.

### **Required text(s), optional text(s) and/or materials to be supplied by the student:**

Kosky, Balmer, Keat & Wise, *Exploring Engineering: An Introduction to Engineering and Design, 4th edition, Elsevier Science (recommended but not required)*

Students must have computer access to the WCJC website, their WCJC student email and online accounts. WCJC has open computer labs, with internet access, on all campuses for students to use.

### **Suggested Course Maximum:**

30

List any specific or physical requirements beyond a typical classroom required to teach the course.

None

**Course Requirements/Grading System:** Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

|                                      |                   |
|--------------------------------------|-------------------|
| Team projects                        | 20 - 55%          |
| Coursework (homework, quizzes, etc.) | 15 -30%           |
| Exam average                         | 15 -30%           |
| Final (at least 50% comprehensive)   | 15 -25%           |
|                                      | 100% course total |

The overall course grade is assigned as specified by the college:

A = 90–100

B = 80–89

C = 70–79

D = 60–69

F = below 60

### Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course** – Attach the Core Curriculum Review Forms
  - Critical Thinking
  - Communication
  - Empirical & Quantitative Skills
  - Teamwork
  - Social Responsibility
  - Personal Responsibility
- WECM Course** – If needed, revise the Program SCANS Matrix and Competencies Checklist