



## Graduate Course Descriptions Effective Fall 2007

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### Engineering Fundamentals

#### **ENG 5100 - The Engineering Process**

This course introduces the engineering problem solving and design processes. Students will learn about the engineering profession and will complete a design/build/test project.

**Credits:** 4.0

**Lec-Rec-Lab:** (0-3-2)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

#### **ENG 5101 - Introduction to Engineering for Educators I**

Course is aimed at inservice teachers to provide them with an introduction to the engineering profession.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

#### **ENG 5102 - Introduction to Engineering for Educators II**

Course aimed at inservice teachers to provide them with further exposure to engineering applications in math and science.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5101

#### **ENG 5200 - Engineering Applications in the Physical Sciences**

This class will show how engineers use principles from the physical sciences to solve problems and design systems. Key concepts will be linked to the Michigan Curriculum Frameworks for precollege education.

**Credits:** 4.0

**Lec-Rec-Lab:** (0-3-2)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5100 or (ENG 5101 and ENG 5102)

#### **ENG 5201 - Introduction to Engineering in the Physical Science I**

Course aimed at inservice teachers to provide them with exposure to engineering applications in the Physical Sciences.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5100 or (ENG 5101 and ENG 5102)

**ENG 5202 - Introduction to Engineering in the Physical Sciences II**

Course aimed at inservice teachers to provide them with further exposure to engineering applications in the Physical Sciences.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5201

**ENG 5300 - Engineering Applications in the Earth Sciences**

This course will show how engineers use principles from the earth sciences to solve problems and design systems. Key concepts will be linked to the Michigan Curriculum Frameworks for precollege education.

**Credits:** 4.0

**Lec-Rec-Lab:** (0-3-2)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5100

**ENG 5301 - Introduction to Engineering in the Earth Sciences I**

Course aimed at inservice teachers to provide them with exposure to engineering applications in the Earth Sciences.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**ENG 5302 - Introduction to Engineering in the Earth Sciences II**

Course aimed at inservice teachers to provide them with further exposure to engineering applications in the Earth Sciences.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5301

**ENG 5510 - Sustainable Futures I**

Covers introductory and intermediate concepts of Sustainable Development. Explores methods/tools for assessing sustainability (economic, environmental, societal impacts) of current and emerging industrial technologies. Explores relationships between government policies and markets for introducing sustainable technologies into national economies and corporations.

**Credits:** 3.0

**Lec-Rec-Lab:** (3-0-0)

**Semesters Offered:** Fall

**Restrictions:** May not be enrolled in one of the following Class(es): Freshman, Sophomore

**Pre-Requisite(s):** UN 2002

**ENG 5520 - Sustainable Futures II**

Covers sustainability in developed and developing countries. Topics include policy analysis, regulatory impact & cost benefit analyses, trade & markets, laws & regulations, international disasters, GIS applications, green manufacturing, and evolution of environmental policy in U.S. and other countries.

**Credits:** 3.0

**Lec-Rec-Lab:** (3-0-0)

**Semesters Offered:** Spring

**ENG 5530 - Graduate Colloquium in Sustainability**

Introduces students to general and specific issues related to sustainability. Topics include review and discussion of historical readings that define the movement towards sustainability, international issues related to sustainable development, corporate leadership, consumption, and societal issues.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-1-0)

**Semesters Offered:** Fall, Spring

**ENG 5900 - Engineering Internship for Educators**

Students will work in an industry or research internship during summer months with an engineer. At the conclusion of the internship, students will write a paper regarding how they will apply what they have learned in their pre-college classroom.

**Credits:** variable to 6.0; Repeatable to a Max of 6

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate

**Pre-Requisite(s):** ENG 5100 or (ENG 5101 and ENG 5102)

**ENG 5998 - Engineering Design Practicum**

An advanced independent study for students in the Master of Engineering program. In consultation with his/her advisor, the student develops and executes a project demonstrating capabilities in problem solving, communications, and decision making. The practicum can be completed on or off campus.

**Credits:** variable to 4.0; Repeatable to a Max of 4

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Must be enrolled in one of the following Level(s): Graduate; Must be enrolled in one of the following College(s): College of Engineering

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