UMBC UGC New Course Request: ENME311 Engineering for Elementary School Teachers

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COURSE INFORMATION:

Course Number(s)	ENME 311
Formal Title	Engineering for Elementary School Teachers
Transcript Title (≤24c)	Elementary Engineering
Recommended Course Preparation	
Prerequisite	MATH 132
Credits	3
Repeatable?	☐ Yes X No
Max. Total Credits	3
If yes, how many total credits?	
Grading Method(s)	X Reg (A-F) ☐ Audit ☐ Pass-Fail

PROPOSED CATALOG DESCRIPTION:

This course focuses on the engineering principles and design concepts necessary for teaching engineering in the elementary school. Emphasis is placed on the design process and the integration of mathematics and science into the problem solving process. Through a hands-on engineering design challenges, students work in teams to apply their knowledge of science and mathematics; use their inquiry and problem-solving skills; and tap their creativity as they design.

RATIONALE FOR NEW COURSE:

It has become clear that many elementary school teachers lack the necessary preparation to deliver science, technology, engineering and mathematics (STEM) content effectively. This course focuses on the integration of STEM disciplines and the study of engineering principles to prepare teachers to deliver the content effectively. The course will be delivered once/year and will be limited to students seeking K-8 teaching certification. The course is offered at the 300-level to insure that students have the proper mathematics and science preparation to be successful.

ATTACH COURSE OUTLINE (mandatory):

Department of Mechanical Engineering
ENME 311 Engineering for Elementary School Teachers

Course Objectives:

In this course we will focus on learning different engineering concepts and fields that can be taught to grades 1-5.

Description of Engineering is Elementary

Engineering is Elementary aims to foster engineering and technological literacy among children. EiE is creating a research-based, standards-driven, and classroom-tested curriculum that integrates engineering and technology concepts and skills with elementary science topics. EiE lessons not only promote K-12 science, technology, engineering, and mathematics (STEM) learning, but also connect with literacy and social studies.

Storybooks featuring children from a variety of cultures and backgrounds introduce students to an engineering problem. Students are then challenged to solve a problem similar to that faced by the storybook character.

Through a hands-on engineering design challenge, students work in teams to apply their knowledge of science and mathematics; use their inquiry and problem-solving skills; and tap their creativity as they design.

Class Schedule: Tuesday's 4:30pm-7pm ITE 243

Course Instructor: Jamie Gurganus/Dr. Anne Spence
ITE 202; Phone: 410-433-8439
E-mail: jgurganus@umbc.edu

Office Hours: Wednesday 10-11am
Friday 10-11am or by appointment

Materials needed: Engineering Design notebook with dividers

Assessment:
Projects- 40%
Homework – 15%
Exams -20%
Final Exam/ Project: 20%

Participation: 5%

Academic Integrity:

By enrolling in this course, each student assumes full responsibility of as a participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty. Academic misconduct could result in disciplinary action that may include, but is not limited to a grade of zero on the particular work, a grade of F in the class, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory. See also http://www.umbc.edu/provost/AcademicIntegrity/Honorcode.htm