



OFFICE OF THE REGISTRAR
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Memo To: Academic Council
From: UMR Campus Curriculum Committee Meeting
RE: November 1, 2005 meeting

The UMR Campus Curricula Committee recommends to the Academic Council that the curriculum changes on the following DC forms be approved.

Approved DC forms:

DC 0162, SoMEER, Mining & Nuclear Engineering. New Graduate Minor in Explosives Engineering. This form was approved at the September 2005 meeting. It was approved effective Spring 2006 but the department has students graduating in December 05 that are wanting the minor so they asked the effective term to be changed to Fall 2005. The committee voted to change the effective term to Fall 2005.

DC 0164, School of Engineering, Computer Engineering, approved effective Spring 2006. A proposal to add six new emphasis areas: Computers and Architecture, Integrated Circuits and Logic Design, Embedded Computer Systems, Computational Intelligence, Networking and Software Engineering, Security and Reliability.

DC 0169, College of Arts and Sciences, Biological Sciences, approved effective Fall 2006. A proposal to modify the current curriculum for the BA and BS in Biological Sciences by reducing Biol 251 from 4 to 3 credits, and adding one hour of free elective.

DC 0170, College of Arts and Sciences, Computer Science, approved effective Fall 2006. A proposal to modify the current curriculum for the BS in Computer Science by adding CS 306 as a required class and reducing the free electives from 9 to 6 credit hours.

DC 0172, SoMEER, Nuclear Engineering, approved effective Fall 2006. A proposal to modify the current curriculum for the BS in Nuclear Engineering by replacing NE 204 with NE 312.

The UMR Campus Curricula Committee recommends to the Academic Council that the course changes on the following CC forms be approved.

Approved CC forms:

CC 6016, Chemistry 436, X-ray Crystallography. New course approved effective Fall 2006. This course was approved at the Oct. 2005 meeting but the department is wanting to offer it Spring 2006 and has asked the Curricula Committee to change the effective term to Spring 2006. The Committee voted and agreed to change the effective term to Spring 2006.



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CC 6045, Chemistry 344, Advanced Physical Chemistry. The following change is approved effective Fall 2006.

Catalog Description - Proposed: Advanced undergraduate treatments of special topics of physical chemistry, which may include statistical mechanics, kinetics, group theory, or spectroscopy.

CC 6046, Biological Sciences 251, Ecology. The following changes are approved effective Fall 2006.

Catalog Description – Proposed: Relationships between organisms and the environment. Topics include the influence of environmental factors on individual organisms, population dynamics, interspecific associations, and entire ecosystems.

Credit Hours – Present: Lecture: 3 Lab: 1 Total: 4
Proposed: 3 hour Lecture

CC 6054, Computer Science 397, Software Systems Development I. The following change is approved for Fall 2006.

Prerequisites – Present: 100 credit hours completed
Proposed: Cmp Sc 306 and 100 credit hours completed

CC 6057, Metallurgical Engineering 218, Metals Structures and Properties Laboratory. The following changes are approved effective Spring 2006.

Course Title – Proposed: Microstructural Development Laboratory

Catalog Description – Proposed: Investigation of the relationships between microstructures, and processing for various materials.

Prerequisites – Present: Mt Eng 215, 216, accompanied by Met Eng 217
Proposed: Met Eng 121, accompanied by Mt Eng 217

CC 6058, Metallurgical Engineering 217, Metals Microstructural Development. The following change is effective Spring 2006.

Prerequisites – Present: Mt Eng 215, 216
Proposed: Mt Eng 121

CC 6059, Metallurgical Engineering 215, Fundamentals of Materials Behavior. The following change is approved effective Fall 2006.

Catalog Description – Proposed: An introduction to crystal defects and deformation; mechanical testing; creep; fracture mechanics and fatigue.

CC 6060, Metallurgical Engineering 216, Metals Characterization Laboratory. The following changes are approved effective Fall 2006.

Course Title – Proposed: Mechanical Testing of Materials

Catalog Description – Proposed: Deformation of materials and mechanical testing of materials; tensile testing, creep; impact testing; fracture mechanics and fatigue.



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CC 6061, Nuclear Engineering 204, Nuclear Radiation Measurements. The following changes are approved effective Spring 2006.

Course Number – Proposed: 312

Course Title – Proposed: Nuclear Radiation Measurements and Spectroscopy

Catalog Description – Proposed: Contemporary radiation detection theory and experiments with high resolution gamma-ray spectroscopy, solid state detectors, neutron detection and conventional gas filled detectors. Neutron activation analysis of unknown material, statistical aspects of nuclear measurements.

CC 6065, Electrical Engineering 408, Computer methods in Power System Analysis. The following change is approved effective Spring 2006.

Catalog Description – Proposed: Algorithms for large scale system solution, non-linear systems, ordinary differential equations, eigenvalue problems, modal information, and optimization. Applications to power systems analysis.

CC 6066, Metallurgical Engineering 367, Introduction to Powder Metallurgy The following changes are approved effective Spring 2006.

Course Title – Proposed: Introduction to Particulate Materials

Catalog Description – Proposed: Many net shape components for transportation, medical, or consumer goods are fabricated from powders. The performance of the component depends strongly on powder characteristics and processing. Aspects of powder fabrication, characterization, handling, component fabrication and secondary processing will be covered.

Prerequisites – Present: Met 217 and Met 218

Proposed: Met 121

CC 6067, Metallurgical Engineering 421, Ferrous Metals Casting. The following changes are approved effective Spring 2006.

Catalog Description – Proposed: An advanced study of the metallurgy of cast irons and net shape cast steel alloys. Includes theories of nucleation and growth in gray, nodular, compacted graphite and malleable irons. The effects of deoxidation practice and inclusion shape control for cast steels are also included. The effects of alloying elements, processing variables and heat treatment.

Credit Hours – Present: 2 hour Lecture

Proposed: 3 hour Lecture

CC 6069, Engineering Management 368, Systems Engineering and Analysis I. Course deletion approved effective Spring 2006.

CC 6070, Engineering Management 468, Systems Engineering Analysis II. Course deletion approved effective Spring 2006.



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CC 6071, Engineering Management 469, Systems Architecting. Course deletion approved effective Spring 2006.

CC 6093, MSE 401, Special Topics. New course approved effective Spring 2006.
Catalog Description: This course is designed to give the department an opportunity to test a new course. Variable title.

Credit Hours: 0-6
Prerequisites: None

For the information of the Academic Council, the following EC forms have been submitted by the University departments for an experimental course that will be offered in the near future.

Approved EC forms:

EC 1710, Computer Science 301, Software Requirements Engineering, approved effective Fall 2006.

Course Description: Software Requirements Engineering (SRE) covers all the activities involved in discovering, analyzing, specifying and managing software requirements for a software system from multiple perspectives. In this course students will study how to elicit, analyze, specify, validate, and manage software requirements using advanced software requirements modeling, methods, processes and tools.

Credit Hours: 3 hour Lecture
Prerequisites: Computer Science 306

EC 1711, Education 301, Teachers' Academy: Effective Instructional Strategies, approved effective Summer 2006.

Course Description: participants will develop an understanding of research-based instruction and the ability to implement the instructional strategies in their classrooms. In addition to effective instructional practices, the teachers' academy will focus on leadership, empowerment, collaboration and renewal.

Credit Hours: 3 hour Lecture
Prerequisite: Graduate standing

EC 1712, Education 301, Differentiating Instruction, approved effective Summer 2006.

Course Description: This course is designed to help participants develop lesson plans and instructional strategies that are challenging, engaging and responsive to a variety of needs, interests, learning styles and multiple intelligences of the students in their classrooms.

Credit Hours: 1 hour Lecture
Prerequisites: current K-12 educator

EC 1713, Education 301, Scientifically Based Reading Instruction, approved effective Summer 2006.



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Course Description: participants will further develop and understanding of comprehensive, research-based reading instruction and the ability to implement the instructional strategies in their classrooms. This course is designed for teachers participating in the second year of the Reading First program.

Credit Hours: 1 hour Lecture

Prerequisites: graduate standing

EC 1714, Education 301, Language Essentials for Teachers of Reading & Spelling, approved effective Summer 2006.

Course Description: Participants will develop an understanding of comprehensive, research-based reading instruction and the ability to implement the instructional strategies in their classrooms. They will utilize frequent formal assessments to determine student mastery of concepts and skills and develop appropriate intervention strategies to ensure that all students are reading on grade level.

Credit Hours: 3 hour Lecture

Prerequisites: Graduate Standing

EC 1718, Philosophy 201, Bioethics, approved effective Spring 2006.

Course Description: This course covers several areas of ethical interest in biotechnology, medicine, and medical care. Topics may include stem-cell research, cloning, genetic engineering, reproductive issues, pharmaceutical ethics, privacy, physician-assisted suicide, patient rights, human and animal experimentation, and resource allocation.

Credit Hours: 3 hour Lecture

Prerequisites: An introductory (below 100) level Philosophy course.

EC 1720, MSE 301, Materials for Energy, approved effective Spring 2006.

Course Description: A survey for cleaner, smaller, cost effective and more efficient energy technologies driven by materials science and engineering. Solar cells, fuel cells, rechargeable batteries, hydrogen storage, capacitors, high-temperature superconductivity. Renewable energy; solar, geothermal, ocean, hydropower, wind, hydrogen, bioenergy, and related term projects.

Credit Hours: 3 hour Lecture

Prerequisites: Senior Standing

EC 1721, MSE 401, Advanced Materials for Energy, approved effective Spring 2006.

Course Description: A survey for cleaner, smaller, cost effective and more efficient energy technologies driven by breakthroughs in materials science and engineering. Solar cells, fuel cells, rechargeable batteries, hydrogen storage, capacitors, high-temperature superconductivity. Renewable energy; solar, geothermal, ocean, hydropower, wind, hydrogen, bioenergy.

Credit Hours: 3 hour Lecture

Prerequisites: Graduate Standing



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EC 1722, Ceramic 301, Biological Science 301, Chemical Engineering 301, Metallurgical Engineering 301, Introduction to Tissue Engineering, approved effective Spring 2006.

Course Description: This course will introduce senior undergraduate students to the principles and clinical applications of tissue engineering, involving the use of biomaterial scaffolds, living cells, and signaling factors to develop implantable parts for the restoration, maintenance, or replacement of biological tissues and organs.

Credit Hours: 3 hour Lecture

Prerequisites: Senior undergraduate standing

EC 1723, Ceramic 401, Biological Sciences 401, Chemical Engineering 401, Metallurgical Engineering 401, Advanced Tissue Engineering, approved effective Spring 2006.

Course Description: This course will introduce graduate students to the principles and clinical applications of tissue engineering, involving the use of biomaterial scaffolds, living cells, and signaling factors to develop implantable parts for the restoration, maintenance, or replacement of biological tissues and organs. A term paper and oral presentation on a tissue engineering topic are expected.

Credit Hours: 3 hour Lecture

Prerequisites: Graduate Standing

EC 1730, Nuclear Engineering 301, Two-phase Flow in Energy Systems – Part I, approved effective Spring 06.

Course Description: This is an intermediate level course for senior undergraduate or graduate students who are interested in the area of two-phase flow. This course will acquaint students with knowledge on single-phase & two-phase fluid flow and fundamental thermal-hydraulic phenomena related to energy systems.

Credit Hours: 3 hour Lecture

Prerequisites: NE 221 or NE 223 or Ch Eng 231 or ME 231

EC 1746, Geophysics 401, Advanced Potential Field Methods, approved effective Spring 2006.

Course Description: Gravity and magnetic methods applied to tectonic, mineral, and oil exploration. Applications to environmental and engineering geology will also be examined.

Credit Hours: 3 hour Lecture

Prerequisites: Geoph 382, Geol 220, Math 22

J. Keith Nisbett, Chair
UMR Campus Curricula Committee



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