



Memo To: Academic Council
From: Missouri S&T Campus Curriculum Committee Meetings
RE: December 4, 2007 and January 8, 2008 Meetings

The UMR Campus Curricula Committee recommends to the Faculty Senate that the name change on the following NC form be approved. The following NC form has also been routed to the Budgetary Affairs Committee for additional recommendation to the Faculty Senate.

Approved NC forms:

NC 13, Business Administration and Information Science & Technology. A proposal to merge the department of Business Administration and Information Science & Technology into one department called Business and Information Technology approved effective July 1, 2008.

The UMR Campus Curricula Committee recommends to the Faculty Senate that the curriculum changes and degree proposals on the following DC forms be approved.

Approved DC forms:

DC 0273, Technical Communication, approved effective Fall 2008.

A proposal to create a new graduate minor in Technical Communications.

DC 0274, Petroleum Engineering, approved effective Fall 2008.

A proposal to modify the current curriculum for the BS in Petroleum Engineering.

DC 0275, Economics, approved effective Fall 2008.

A proposal to modify the current curriculum for the BS in Economics by replacing Survey of Calculus with Business Calculus/Math 12.

DC 0276, Computer Science, approved effective Fall 2008.

A proposal to change the current footnote for the laboratory science elective for the BS in Computer Science.

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

Approved CC forms:

CC 7285, IST 336, Internet Computing. The following changes are approved effective Spring 2008.

Course Title – Proposed: Foundations of Internet Computing

Catalog Description – Proposed: Computer Networks provide the basic transport foundation for Internet Computing. They are covered thoroughly (LANs, WANs, packet switching, protocols, etc.). Design principles and communications, and security considerations are also covered.

CC 7286, Mining Engineering 110, Surveying for Mineral Engineers. The following change is approved effective Spring 2008.

Prerequisites – Present: Mi Eng 50, Math 6, accompanied or preceded by Mi Eng 003

Proposed: Math 6, accompanied or preceded by Mi Eng 003 and Min Eng 50

CC 7287, IDE 106, Design Perceptions. The following change is approved effective Fall 2008.

Credit Hours – Present: 1 hour lecture

Proposed: 1 hour lab

CC 7288 Computer Science 348, Evolutionary Computing. New course approved effective Fall 2008.

Catalog Description: Introduces evolutionary algorithms, a class of stochastic, population-based algorithms inspired by natural evolution theory (e.g., genetic algorithms), capable of solving complex problems for which other techniques fail. Students will implement course concepts, tackling science, engineering and/or business problems.

Credit Hours: 3 hour lecture

Prerequisites: Cmp Sc 253 and a statistics course

CC 7289, Mining Engineering 383, Tunneling & Underground Construction Techniques. The following change is approved effective Spring 2008.

Prerequisites – Present: Mi Eng 231, Mi Eng 325 or Cv Eng 215, Cv Eng 216 or Ge Eng 371

Proposed: Min Eng 331, Mi Eng 324 or Cv Eng 215, Cv Eng 216 or

Ge Eng 371

CC 7290, Mining Engineering 345, Strata Control. The following change is approved effective Spring 2008.

Prerequisites – Present: Mi Eng 231
Proposed: Mi Eng 331

CC 7291, Mining Engineering 326, Surface Mining Methods and Equipment. The following change is approved effective Spring 2008.

Prerequisites – Present: Min Eng 215; coreq. Mi Eng 231; junior or senior standing
Proposed: Mi Eng 215; coreq. Mi Eng 331; junior or senior standing

CC 7292, Mining Engineering 324, Underground Mining Methods and Equipment. The following change is approved effective Spring 2008.

Prerequisites – Present: Mi Eng 003, coreq. Mi Eng 221 and Mi Eng 231
Proposed: Mi Eng 003, coreq. Mi Eng 221 and Mi Eng 331

CC 7293, Civil Engineering 317, Pavement Design. The following changes are approved effective Spring 2009.

Course Title – Proposed: Asphalt Pavement Design

Catalog Description – Proposed: Structural design of flexible pavements including loading characteristics, properties of pavement components, stress distribution, and the effects of climatic variables on design criteria.

Prerequisites – Present: Preceded or accompanied by Cv Eng 216
Proposed: Preceded by Cv Eng 216

CC 7295, Mining Engineering 351, Demolition of Building and Structures. The following change is approved effective Spring 2008.

Prerequisites – Present: IDE 50 or 140, and IDE 110 or Min Eng 232, plus US citizen or permanent resident. *Requirement due to Safe Explosives Act – January 2003.
Proposed: Preceded or accompanied by IDE 50 or 140, plus US citizen or permanent resident. *Requirement due to Safe Explosives Act – January 2003.

CC 7296, Computer Science 397, Software Systems Development I. The following changes are approved effective Spring 2008.

Catalog Description – Proposed: Class members will work in small teams to develop a complete software system beginning with end-user interviews and concluding with end-user training.

Prerequisites – Present: Cmp Sc 306 and 100 credit hours completed
Proposed: Cmp Sc 206 and 100 credit hours completed

CC 7297, Computer Science 485, Advanced Topics in Wireless Networks. New course approved effective Fall 2008.

Catalog Description: Introduces the fundamentals and recent advances in wireless networking. Coverage includes cellular networks, wireless and mobile ad hoc networks, wireless mesh networks, sensor networks and wireless LANs with a focus on network operation. Special topics selected from the literature on wireless network security will also be addressed.

Credit Hours: 3 hour lecture

Prerequisites: Cmp Sc 385 or equivalent

CC 7298, Education 360, Teaching for Responsible Behavior. Course deletion approved effective Spring 2008.

CC 7299, Electrical Engineering 421, Solid State Electronics. Course deletion approved effective Fall 2008.

CC 7300, Engineering Management 328, Safety Engineering Mgt. II. Course deletion approved effective Spring 2008.

CC 7301, Geology 372, Geological Field Studies. The following change has been approved effective Spring 2008.

Catalog Description – Proposed: Intensive review of the scientific literature corresponding to a selected geographical region of geologic interest; followed by a 7- to 10-day long field trip to be held over spring break or after the end of the semester. Students will be expected to bear a portion of the field trip expenses. Repeatable for credit.

Credit Hours – Present: 1-3 hour lab

Proposed: 3 hour lecture

CC 7302, IDE 242, Competition Team Communication. New course approved effective Fall 2008.

Catalog Description: Communication skills, both technical and promotional, will be covered. Students will practice both communication skills in written, oral and media-based modes. Specific activities will include writing a proposal for funding, developing a promotional media piece and speaking to external groups about a SDELC team. Assessment will be made on each of the deliverables.

Credit Hours: .5 hour lecture .5 hour lab Total: 1

Prerequisites: IDE 224 and IDE 233

CC 7303, Mechanical Engineering 320, Aerospace Engineering 320 , Advanced Mechanics of Materials. New course approved effective Summer 2008.

Course Title: Advanced Mechanics of Materials

Catalog Description: Comprehensive insight into mechanics of materials. Topics to include: theories of failure, torsion of noncircular sections, shear flow and shear center, unsymmetric bending, bending of curved members, beams on elastic foundation and pressurization of thick walled cylinders.

Credit Hours: 3 hour lecture

Prerequisites: IDE 110, Math 204

CC 7304, Chemistry 221, Organic Chemistry I. Form withdrawn and returned to department.

CC 7305, Physics 407, Modern Physics. Course deletion approved effective Spring 2008.

CC 7306, Physics 475, Molecular Spectroscopy. Course deletion approved effective Spring 2008.

CC 7307, Civil Engineering 218, Structural Analysis. Course deletion approved effective Fall 2008.

CC 7308, Mining Engineering 221, Mining Exploration. The following change has been approved effective Spring 2008.

Prerequisite – Present: Geo 125, Geo 220 and Mi Eng 110

Proposed: Geo 125 and Mi Eng 110

CC 7309, Petroleum Engineering 338, Finite Element Analysis with Applications in Petroleum Engineering. New course approved effective Fall 2008.

Catalog Description: This course introduces finite element analysis (FEA) methods and applications of FEA in subsurface engineering. The course is intended to provide a fundamental understanding of FEA software and experience in creating meshes for petroleum reservoirs or other subsurface features.

Credit Hours: 3 hour lecture, 1 hour lab, Total: 4

Prerequisites: Pe Eng 241; Geo 220 or Mining 232

CC 7310, Petroleum Engineering 366, Mechanical Earth Modeling. New course approved effective Fall 2008.

Catalog Description: This course introduces the work process necessary to create the Mechanical Earth Model's principle components, formation in-situ stress and strength. 1-D modeling methods are reviewed and extended to 3-D; and the integration of MEM with well design is shown. An MEM model will be created and compared to actual field results.

Credit Hours: 3 hour lecture

Prerequisites: Pe Eng 232 or Geo 220 or Mining 232

CC 7311, Geophysics 377, Seismic Interpretation. New course approved effective Fall 2008.

Catalog Description: An introduction to 2-D/3-D seismic structural interpretation, stratigraphic interpretation, reservoir identification and evaluation, and horizon and formation attributes. The students are expected to master interactive 2-D/3-D seismic interpretation software packages that are routinely used in the petroleum industry.

Credit Hours: 1 hour lecture, 2 hour lab, Total: 3

Prerequisites: Geop 270 or 385

CC 7312, Mining Engineering 270, Mining Industry Economics. The following change is approved effective Spring 2008.

Prerequisites – Present: Accompanied or preceded by Mi Eng 221

Proposed: None

CC 7313, Mining Engineering 307, Principles of Explosives Engineering. The following change is approved effective Spring 2008.

Prerequisites – Present: Geo Eng 50; accompanied or preceded by either Cv Eng 215 or Geo 220

Proposed: Accompanied or preceded by either Cv Eng 215 or Geo 220 or Geo 125

CC 7314, Mining Engineering 312, Ore Reserve Analysis and Geostatistics. The following change is approved effective Spring 2008.

Prerequisites – Present: Math 22, Math 204, Stat 213

Proposed: Math 204, Stat 213

CC 7315, Mining Engineering 317, Mine Power and Drainage. The following change is approved effective Spring 2008.

Prerequisites – Present: Cv Eng 230

Proposed: None

CC 7316, Mining Engineering 322, Mine Management. The following change is approved effective Spring 2008.

Prerequisites – Present: Completion of 120 credits in Mining Engineering curriculum
Proposed: Completion of 100 credits in Mining Engineering curriculum

CC 7317, Mining Engineering 324, Underground Mining Methods and Equipment. The following change is approved effective Spring 2008.

Prerequisites – Present: Mi Eng 003, coreq. Mi Eng 221 and Mi Eng 231
Proposed: Coreq. Mi Eng 221 and Mi Eng 331

CC 7318, Mining Engineering 326, Surface Mining Methods and Equipment. The following change is approved effective Spring 2008.

Prerequisites – Present: Mi Eng 215; coreq. Mi Eng 231; junior or senior standing
Proposed: Mi Eng 215; coreq. Mi Eng 331

CC 7319, Mining Engineering 344, Coal Preparation. The following change is approved effective Spring 2008.

Prerequisites – Present: Met Eng 241 and senior standing
Proposed: Mi Eng and senior standing

CC 7320, Mining Engineering 393, Mine Planning and Design. The following change is approved effective Spring 2008.

Prerequisites – Present: Completion of 120 hours in Mining Engineering curriculum
Proposed: Completion of 110 hours in Mining Engineering curriculum

CC 7321, MSE 444, Instructional Education for Graduate Students. Course deletion approved effective Fall 2008.

CC 7335, Engineering Mechanics 321, Intermediate Mechanics of Materials. Course deletion approved effective Summer 2008.

For the information of the Faculty Senate, 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 2001, Mining Engineering 301, Stage Pyrotechnics and Special Effects, approved effective Fall 2008.

Course Description: Use of energetic materials in close proximity to audiences. Provide participants with training preparing for Missouri Pyrotechnic Display Operators License. Covers: close proximity indoor and outdoor pyrotechnics and special effects. Working with stage crews and talent, safety and permitting.

Credit Hours: 1 hour lecture, 2 hour lab, Total: 3

Prerequisites: Chem 1. US Citizen or permanent resident (to fulfill the requirements of the SAFE EXPLOSIVES ACT 2003). Resident enrollment at UMR (e.g. not distance or internet)

EC 2009, Geological Engineering 401, Applications of Geological Engineering, approved effective Spring 2008.

Course Description: The course will focus on geological engineering considerations during military-site characterizations. Fundamental topics such as rock mechanics, engineering hazards, environmental issues and site planning will be covered from the perspective of the practicing military engineer operating in a rapid deployment mode.

Credit Hours: 2 hour lecture, 1 hour lab, Total: 3

Prerequisites: Permission of instructor. The course is intended for military officers registered in the UMR FLW Masters of Science in Geological Engineering Degree Program.

EC 2010, Civil Engineering 301, Introduction to Traffic Simulation Models, approved effective Spring 2008.

Course Description: Fundamentals of system simulation, components of a simulation model, traffic flow simulation approaches, application of traffic flow simulation software, output analysis, and simulation of Intelligent Transportation Systems (ITS).

Credit Hours: 3 hour lecture

Prerequisites: Stat 213, CE 211, CE 353 (or concurrent enrollment)

EC 2011, IDE 301, Renewable Power Systems Design, approved effective Spring 2008.

Course Description: The fundamental equations for modeling renewable power systems capable of producing electric and thermal energy will be covered. Models will be used to design, fabricate and test renewable residential power systems.

Credit Hours: 2 hour lecture 1 hour lab Total: 3

Prerequisites: IDE 214 or EE 265 or ME 211

EC 2012, IDE 201, SDELC Communication, approved effective Spring 2008.

Course Description: Communication skills, both technical and promotional, will be covered. Students will practice both communication skills in written oral and media-based modes. Specific activities will include writing a proposal for funding, developing a promotional media piece and speaking to external groups about a SDELC team. Assessment will be made on each of the deliverables listed.

Credit Hours: 0.5 hour lecture, 0.5 hour lab, Total: 1

Prerequisites: IDE 224, IDE 233

EC 2013, Engineering Management 301, Intelligent Investing, approved effective Summer 2008. During the approval of this course the Finance Program voiced a concern that they have an interest in teaching this type of course sometime in the near future.

Course Description: In this course we examine methods and tools, which support building a personal portfolio that leads to long-term wealth for the owner. The approach is based on the teachings of Benjamin Graham and Warren Buffet.

Credit Hours: 3 hour lecture

Prerequisites: None

EC 2014, Aerospace Engineering 401, Mechanical Engineering 401, Advanced Topics in Decision and Control, approved effective Spring 2008.

Course Description: This course will deal with latest topics in the areas of decision and control. Course could be repeated if topics vary.

Credit Hours: 3 hour lecture

Prerequisites: AE 381 or Equivalent

EC 2015, Mathematics 301, Introduction to Number Theory, approved effective Summer 2008.

Course Description: Basic properties of the integers, factorization, Diophantine equations, congruences, quadratic residues, Legendre symbol, quadratic reciprocity, number-theoretic functions, distribution of primes.

Credit Hours: 3 hour lecture

Prerequisites: Math 209 or graduate standing



EC 2025, Nuclear Engineering 301, Radiological Engineering, approved effective Spring 2008.

Course Description: Radiation exposure pathways analysis; modeling of radionuclides transport through atmosphere, surface and ground water. Human health impact. Transportation of nuclear waste. Nuclear Waste characterization. Regulatory structure and requirements. Scenario case studies and computer simulation.

Credit Hours: 3 hour lecture

Prerequisites: Nu Eng 205

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UMR Campus Curricula Committee