



OFFICE OF THE REGISTRAR
103 Parker Hall
1870 Miner Circle
Rolla, MO 65409-0930
Phone: 573.341.4181
Fax: 573.341.4362
registrar@umr.edu
campus.umr.edu/registrar

Memo To: Academic Council
From: UMR Campus Curriculum Committee Meeting
RE: August 18 & September 6, 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 0161, SoMEER, Mining Engineering, approved effective Spring 2006. A proposal to modify the current curriculum for the B.S. in Mining Engineering.

DC 0162, SoMEER, Mining Engineering, approved effective Spring 2006. A proposal to create a new Graduate Minor in Explosives Engineering.

DC 0163, SoMEER, Mining Engineering, approved effective Spring 2006. A proposal to modify the current curriculum for the B.S. in Mining Engineering by incorporating Mi Eng 241 and Mi Eng 242 into a single course.

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 5976, Mining Engineering 231, Rock Mechanics I. The following changes are approved effective Spring 2006.

Course Number – Proposed: 331

Catalog Description – Proposed: Rock mass ratings; empirical failure criteria; slope and highwall stability; field stresses; design of underground openings, pillars, and roof beams; principles of roof-bolt design; surface subsidence.

Credit Hours – Present: Lecture: 2 Lab: 1 Total: 3

Proposed: 2 hour lecture

Prerequisites – Present: IDE 110 and IDE 120; or IDE 140; and Cv Eng 215 or Geo 125, Geo 220

Proposed: IDE 140 or IDE 50 and 150; and Geo 220

CC 5994, Mining Engineering 232, Statics and Mechanics of Rock Materials. The following changes have been approved effective Spring 2006.

Catalog Description – Proposed: Application of the principles of mechanics to engineering problems of equilibrium, strength, and stiffness concerning rock materials and mine support structures. This course extends the study of statics to rock materials in mines and covers rock-related and support structure related mechanics of materials. The course is complemented by rock mechanics laboratory.

Credit Hours – Present: 2 hour lecture



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Proposed: Lecture: 2 Lab: 1 Total: 3
Prerequisites – Present: Co-requisite Mi Eng 231
Proposed: IDE 140, or IDE 50 and 150

CC 6013, Engineering Management 314, Management for Engineers. The following changes are approved effective Spring 2006.

Course Title – Proposed: Management for Engineers and Scientists

Catalog Description – Proposed: The transition of the engineer or scientist to manager; study of management roles and theory, organizational systems and behavior, managing and motivating technical personnel, leadership, communication, processes, and customer focus.

Prerequisite – Present: Senior or Graduate Standing; students who have taken EMgt 211 cannot enroll in this course

Proposed: Graduate Standing.

CC 6014, Engineering Management 361, Project Management. The following change is approved effective Fall 2005.

Prerequisite – Present: Emgt 211

Proposed: Graduate Standing

CC 6017, Engineering Management 352, Activity Based Accounting and Financial Decision Making. The following changes are approved effective Spring 2006.

Course Title – Proposed: Financial Decision Analysis

Catalog Description – Proposed: Understanding the principles and use of accounting standards and systems, financial statements, the time value of money, asset pricing models, sources of funds, financial ratios, dividend and growth policies, and capital structure for financial decision making.

CC 6018, Economics 260, Introduction to Sports Economics. New course approved effective Spring 2006.

Catalog Description: The course uses economics to analyze the business of sports. The course is designed for students with both an introductory or broader economics background, but who have not studied the economics of sports. Topics include labor relations, stadium financing, league structure, competitive balance, amateurism, sports gambling and in-game strategy.

Credit Hours: 3 hour lecture

Prerequisites: Econ 121 or Econ 122

CC 6019, Mining Engineering 241, Principles of Mineral Processing. The following change is approved effective Spring 2006.

Credit Hours – Present: 2 hour lecture

Proposed: Lecture: 2 Lab: 1 Total: 3



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CC 6020, Mining Engineering 242, Mineral Processing Laboratory. Course deletion approved effective Spring 2006.

CC 6022, Basic Engineering 401, Special Topics. The following change is approved effective Fall 2005.

Discipline and Course Number – Proposed: IDE 401

CC 6023, Computer Engineering 411, Advanced VLSI Design. New course approved effective Spring 2006.

Catalog Description: Advanced topics in chip-level VLSI design, including issues related to high-performance, low-power, analog and mixed-signal circuits, reliability, noise and coupling mechanisms, computer aided design tools, and recent advances and trends in the field.

Credit Hours: 3 hour lecture

Prerequisites: Cp Eng 311

CC 6024, IDE 200, Special Problems. New course approved effective Fall 2005.

Catalog Description: (Variable) problems or readings on specific subjects or projects in the department.

Credit Hours: 1.0 – 6.0

Prerequisites: Consent of instructor

CC 6025, IDE 300, Special Problems. New course approved effective Fall 2005.

Catalog Description: (Variable) Problems or readings on specific subjects or projects in the department.

Credit Hours: Variable

Prerequisites: Consent of instructor

CC 6026, IDE 400, Special Problems. New course approved effective Fall 2005.

Catalog Description: (Variable) Problems or readings on specific subjects or projects in the department.

Credit Hours: Variable

Prerequisites: Consent of instructor

CC 6027, Computer Engineering 210, Electrical Engineering 210, Senior Seminar.

Course deletion approved effective Fall 2006.

CC 6028, Computer Engineering 458, Mechanical Engineering 458, Aerospace Engineering 458, Systems Engineering 458, Adaptive Critic Designs. New course approved effective Spring 2006.

Catalog Description: Review of Neurocontrol and Optimization, Introduction to Approximate Dynamic Programming (ADP), Reinforcement Learning (RL), Combined Concepts of ADP and RL – Heuristic Dynamic Programming (HDP),



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Dual Heuristic Programming (DHP), Global Dual Heuristic Programming (GDHP), and Case Studies.

Credit Hours: 3 hour lecture

Prerequisites: EE 368 Neural Networks or equivalent (Computational Intelligence Comp Eng 301)

CC 6029, Electrical Engineering 231, Control Systems. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 267
Proposed: Elec Eng 265

CC 6030, Electrical Engineering 331, Digital Control. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 231, Elec Eng 267
Proposed: Elec Eng 231

CC 6031, Electrical Engineering 333, System Simulation and Identification. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 231, Elec Eng 267
Proposed: Elec Eng 231

CC 6032, Electrical Engineering 337, Neural Networks for Control. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 231
Proposed: Elec Eng 265

CC 6033, Electrical Engineering 338, Fuzzy Logic Control. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 231
Proposed: Elec Eng 265

CC 6034, Electrical Engineering 433, Current Topics in Control Theory. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 435
Proposed: Consent of Instructor

CC 6035, Electrical Engineering 438, Robust Control Systems. The following change is approved effective Spring 2006.

Prerequisites – Present: Elec Eng 435
Proposed: Elec Eng 431

CC 6055, SoMEER 301, Special Topics. New course approved effective Fall 2005.



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Catalog Description: This course is designed to give the school an opportunity to test a new course. Variable title.

Credit Hours: Variable

Prerequisites: None

CC 6056, MSE 301, Special Topics. New course approved effective Fall 2005.

Catalog Description: This course is designed to give the school an opportunity to test a new course. Variable title.

Credit Hours: Variable

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 1687, Business 301, Business Negotiations, approved effective Fall 2005.

Course Description: The purpose of this course is to understand the practices and processes of negotiation so that you can negotiate successfully in a variety of settings. The course is designed to be relevant to the broad spectrum of negotiation problems faced by managers, consultants, etc. Because almost everyone negotiates all the time, this course is relevant to almost any student pursuing a business career.

Credit Hours: 3 hour lecture

Prerequisites: At least Junior standing

EC 1691, Engineering Management 201, Introduction to Project Management, approved effective Spring 2006.

Course Description: This course covers the fundamentals of project management including project definition, project selection, project planning, estimating, scheduling, resource allocation and project control.

Credit Hours: 3 hour lecture

Prerequisites: none



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EC 1692, Computer Engineering 301, Embedded Processor System Design, approved effective Spring 2006.

Course Description: Development of hardware and software for embedded systems.

Course emphasizes aspects of embedded systems like real-time operating systems, advanced programming, communication schemes, hardware peripherals and sensors, control methodologies, printed-circuit board design, interrupts, microcontrollers, and hardware-software co-design. Course typically requires 1 or more team design projects.

Credit Hours: 3 hour lecture

Prerequisites: Cp Eng 213

EC 1693, IST 301, Telecommunications Management, approved effective Spring 2006.

Course Description: Management of the business and technology aspects of telecommunications services, including both the skills to manage a business and the skills to effectively design, select, implement, and operate telecommunications technology. Topics include managerial skills, technology planning, operations management, and planning & acquisition management.

Credit Hours: 3 hour lecture

Prerequisites: none

EC 1694, IST 401, Bus 401, Enterprise Resource Planning: Systems Config and Integration, approved effective Spring 2006.

Course Description: Implementation and design practices for business processes in Enterprise Resource Planning (ERP) systems. The course will examine and apply techniques used in SAP R/3 for system configuration and integration, with a focus on logistics and finance.

Credit Hours: 3 hour lecture

Prerequisites: IST 346 or Bus 326; and Graduate Standing

EC 1697, Computer Engineering 401, VLSI Testing and Design for Test, approved effective Spring 2006.

Course Description: The course covers the problems of VLSI testing, the design of circuits for testability (DFT), and the use of IEEE Boundary SCAN standard. Testing VLSI systems, especially the deep submicron (DSM) technology, has become one of the most critical obstacles designing microprocessors and ASIC's. A major objective is to develop and implement CAD tools that give solutions to VLSI testing in DSM.

Credit Hours: 3 hour lecture

Prerequisites: Comp Eng 311

EC 1698, Computer Engineering 401, Systems Engineering 401, Network-Centric Systems Reliability and Security, approved effective Spring 2006.



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Course Description: This course presents reliability and fault tolerance techniques for network-centric systems, including models, metrics, and analysis techniques. This course also concentrates on security, including technical tools and methods for audit and assessment as well as management and policy issues.

Credit Hours: 3 hour lecture

Prerequisites: Sys Eng/Comp Eng 419 or Cp Eng 349

EC 1699, Geological Engineering 301, Fractured Rock Characterization, approved effective Fall 2005.

Course Description: Explores current theoretical approaches to characterizing joints, cracks, faults, fractures, etc. in rock masses, for engineering and science. Topics include analysis of sampling, orientation, frequency, spacing, and size. Precursor to "Fractured Rock Behavior" course.

Credit Hours: 3 hour lecture

Prerequisites: Geology 220 or Min Eng 231 or equivalent

EC 1700, Electrical Engineering 401, Advanced Topics in Antenna Analysis & Design, approved effective Spring 2006.

Course Description: Introduction and discussion of advanced antenna design issues including aperture and microstrip antennas including simulation, design, and testing.

Credit Hours: 3 hour lecture

Prerequisites: EE 373

EC 1701, Mining Engineering 301, Demolition of Buildings and Structures, approved effective Spring 2006.

Course Description: Provide participants with basics and solid grounding in the equipment, techniques and processing equipment sites and non-mining structures such as buildings, factories, bridges etc.

Credit Hours: Lecture: 2 Lab: 1 Total 3

Prerequisites: IDE 50 or 140; and IDE 110 or Min 232; US citizen or permanent resident (to fulfill the requirements of the SAFE EXPLOSIVE ACT 2003). Resident enrollment at UMR (e.g. not distance or internet)

EC 1702, Geological Engineering 301, MSE 301, International Engineering & Design, approved effective Spring 2006.

Course Description: A multi-disciplinary engineering course focused on sustainable design, material selection, and technology transfer to developing countries. Course includes elements of traditional capstone design classes. Experiential learning through competitions and/or field work is a major component of the class.

Credit Hours: Lecture: 2 Lab: 1 Total: 3

Prerequisites: Senior standing, instructor approval



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EC 1703, SoMEER 301, Materials Failure Analysis I, approved effective Spring 2006.

Course Description: Introduction of procedures in materials failure analysis and forensic investigations. Manufacturing processes, fractography, microstructure, elementary fracture mechanics, and corrosion will be discussed in the context of materials performance. Emphasis on aircraft incident investigations. Additional failure/forensic investigations to include other transportation vehicles.

Credit Hours: 2 hour lecture

Prerequisites: Sr. standing.

EC 1704, IDE 401, Function-Based Risk Analysis, approved effective Fall 2005.

Course Description: Risk analysis of products and systems will be explored using product functionality as the starting point. Traditional probabilistic risk assessment techniques will be covered along with recent approaches that use historical data to produce automatic risk assessments.

Credit Hours: 3 hour lecture

Prerequisites: IDE 420/ME 461 and graduate student standing

EC 1705, CE 301, Arch Eng 301, Metallic Structures in Architecture, approved effective Fall 2005.

Course Description: Overview of the main challenging applications of steel and aluminum in urban habitats, with reference to multi-story buildings, bridges, large roofing systems, and other special structures. Design criteria, structural schemes, and material selections are discussed. The relationship between structural and architectural features is emphasized.

Credit Hours: 3 hour lecture

Prerequisites: Civ Eng/Arch Eng 221

EC 1709, Min Eng 301, Design Elements of Mine Environmental Engineering, approved effective Fall 2005.

Course Description: Design elements for mine environmental engineering including models for rainfall prediction, soil-loss prediction, design of terraces and diversions, and design of impoundment capacity and impoundment structures; digital mapping of terrain and soils; soil restoration; and selection of species for revegetation.

Credit Hours: 3 hour lecture

Prerequisites: none

J. Keith Nisbett, Chair
UMR Campus Curricula Committee



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