

**Minutes**

Campus Curricula Committee Meeting

October 6, 2009 Meeting

3:00 p.m. Room 117 Fulton Hall

Approval of September 1, 2009 minutes.

Jerry Bayless, Barry Flachsbart, Angie Huffman, Irina Ivliyeva, Keith Nisbett, and Jennifer Thorpe attended the meeting.

**Review of submitted DC forms:**

DC 0330, Computer Engineering, approved effective Fall 2010. A proposal to modify the current curriculum for the BS in Computer Engineering by allowing students to take either Cp Eng 319 or CS 365.

DC 0332, Mechanical Engineering, approved effective Fall 2010. A proposal to list specified requirements for the Energy Conversion emphasis area under the BS degree so that it can be tracked by a degree audit.

DC 0334, Petroleum Engineering, approved effective Fall 2010. A proposal to delete the existing emphasis areas under the BS degree as listed: Energy Industry Management, Information Technology, and Reservoir Characterization.

**Review of submitted CC forms:**

CC 7698, Computer Engineering 313, Principles of Computer Architecture. The following changes are approved effective Spring 2010.

Catalog Description – Proposed: Principles of performance measurement and instruction set design; advanced issues in pipelining; instruction level parallelism (dynamic scheduling, branch prediction, multi-issue processors); memory hierarchies for superscalar processors; multiprocessors; multi-threading; storage systems; and interconnection networks.

Prerequisites – Present: Cp Eng 213 and Cp Eng 214

Present: Cp Eng 215

CC 7699, Computer Engineering 391, Computer Engineering Senior Project I. The following change is approved effective Spring 2010.

Prerequisites – Present: Stat 217, Cp Eng 111, Economics 121 or 122, Sp &M 85, English 160, Cp Eng 213, 214, and a computer organization elective.

Proposed: Stat 217, Cp Eng 111, Economics 121 or 122, Sp&M 85, English 160, Cp Eng 213, 214, Cp Eng 215, and El Eng 121.

CC 7703, Metallurgical Engineering 358, Steelmaking. The following changes are approved effective Fall 2009.

Prerequisites – Present: None

Proposed: Cer Eng 259

CC 7704, Mining Engineering 305, Explosives Handling & Safety. The following change is effective Spring 2010.

Credit Hours – Present: 1 hour lecture

Proposed: 3 hour lecture

CC 7706, Mechanical Engineering 355, Automation in Manufacturing. The following changes are approved effective Spring 2010.

Course Title – Proposed: Manufacturing Equipment Auto

Catalog Description – Proposed: Manufacturing automation at the equipment level.

Topics include sensors, actuators, and computer interfacing for manufacturing equipment, dynamic modeling and control of manufacturing equipment, interpolation, coordinated motion control, kinematic and geometric error modeling, and run out.

Credit Hours – Present: 3 hour lecture

Proposed: 2 hour lecture, 1 hour lab, Total: 3

Prerequisites – Present: ME 253 and ME 279

Proposed: ME 279

CC 7707, Electrical Engineering 271, Electromagnetics. The following change is approved effective Spring 2010.

Prerequisites – Present: El Eng 153, El Eng 152, Physics 24 and Math 204 each with a grade of “C” or better. Passing grade on EE Advancement Exam II. El Eng 272 is a co-requisite.

Proposed: El Eng 153, El Eng 152, Physics 24 and Math 204 each with a grade of “C” or better. Passing grade on EE Advancement Exam II.

CC 7709, Metallurgical Engineering 303, Developments in Refining and Materials Recycling. The following changes are approved effective Spring 2010.

Course Title – Proposed: Metals Refining and Recycling of Materials

Credit Hours – Present: 2 hour lecture

Proposed: 3 hour lecture

CC 7710, Electrical Engineering 304, Electric Power Quality. The following changes are approved effective Spring 2010.

Catalog Description – Proposed: Definitions of power quality, types of power quality problems; sources of sags, transient overvoltages and harmonics; distribution overcurrent protection methods and their effect on power quality and reliability; harmonic analysis, principles of controlling harmonics, devices for filtering harmonics; power quality improvement methods.

Prerequisites – Present: EE 153

Proposed: EE 205 or EE 207

CC 7711, Electrical Engineering 375, Metallurgical Engineering 305, Fundamentals of Nondestructive Testing Techniques. New course approved effective Spring 2010.

Catalog Description: Principles and applications of various means of non-destructive testing of metallic materials. Radiological inspection methods, ultrasonic testing, magnetic methods, electrical and eddy current methods and others.

Credit Hours: 3 hour lecture

Prerequisites: Physics 24 or 25

Co-listing: Metallurgical Engineering 305

CC 7716, Electrical Engineering 353, Power Electronics. The following change is approved effective Spring 2010.

Catalog Description – Proposed: Analysis, design, modeling, and control of switching mode power converter circuits for ac-dc, dc-dc, dc-ac, and ac-ac conversion. Power semiconductor devices, passive components, and non-ideal sources and loads. Applications to industry, consumer goods, electric vehicles, and alternative energy.

CC 7719, ERP 345, Use of Business Intelligence. The following change is approved effective Spring 2010.

Prerequisites – Present: ERP or BUS 426 and database experience

Proposed: IST 223 or BUS 423 or equivalent experience; ERP 246 or BUS 426 or ERP 346 (may be taken concurrently).

CC 7720, ERP 346, ERP Systems Design and Implementation. The following change is approved effective Spring 2010.

Prerequisites – Present: IST 141

Proposed: IST 50

CC 7721, ERP 347, Business 366, Supply Chain Management Systems. The following change is approved effective Spring 2010.

Prerequisite – Present: ERP 346 or BUS 420 or (ERP 246 previously, and ERP concurrently).

Proposed: ERP 246 or BUS 426 or ERP 346 (may be taken concurrently).

CC 7722, ERP 348, Strategic Enterprise Management Systems. The following changes are approved effective Spring 2010.

Catalog Description – Proposed: This course will study different strategic performance management systems including dashboards, management cockpit, scorecards, and strategy maps in an organization. SAP's Strategic Enterprise Management (SEM), Business Objects Xcelsius, or similar tools will be used to enhance student education with real world applications.

Prerequisites – Present: ERP 346 or BUS 420 or (ERP 246 previously, and ERP 346 concurrently)

Proposed: ERP 246 or BUS 426 or ERP 346 (may be taken concurrently)

CC 7723, ERP 349, ERP System Administration. The following change is approved effective Spring 2010.

Prerequisites – Present: ERP 346 or BUS 420 or (ERP 246 previously, and ERP 346 concurrently)

CC 7724, ERP 446, Enterprise Resource Planning: Systems Config and Integration. The following changes are approved effective Spring 2010.

Catalog Description – Proposed: Implementation and design practices for business processes in Enterprise Resource Planning (ERP) systems. The course will examine and apply techniques used in SAP ERP system for system configuration and integration, with a focus on Financial Accounting, logistics, Controlling, and production.

Prerequisites – Present: ERP 346 or BUS 420 or (ERP 246 previously, and ERP 346 concurrently)

Proposed: ERP 346

CC 7725, ERP 448, Strategic Enterprise management System Configuration. The following changes are approved effective Spring 2010.

Course Title – Proposed: Enterprise Performance Management System Prototyping

Catalog Description – Proposed: This course will study implementation and design practices for enterprise performance management and monitoring systems with a focus on dashboards, balanced scorecard, and value based management. SAP's Strategic Enterprise management (SEM), Business Object Xcelsius, or similar tools will be used for project implementation.

Prerequisites – Present: ERP 346 or BUS 426 or ERP 345, and some experience in accounting and strategic management  
Proposed: ERP 345

CC 7727, Electrical Engineering 453, Advanced power Electronics. New course approved effective Fall 2010.

Catalog Description: The purpose of this course is to cover selected areas of power electronics in greater depth. The topics covered include small signal analysis of power converters, voltage- and current- mode control, soft switching techniques, power factor correctors, multi-level converters, and PWM techniques.

Credit Hours: 3 hour lecture

Prerequisites: EE 353

CC 7728, Economics 270, Mining 270, Mining Industry Economics. New course approved effective Spring 2010.

Catalog Description: Importance of the mineral industry to national economy, uses, distribution, and trade of economic minerals, time value of money, mineral taxation, economic evaluation utilizing depreciation, depletion, and discounted cash flow concepts, social and economical significance of mineral resources.

Credit Hours: 3 hour lecture

Prerequisites: None

Co-listing: Mining Engineering 270

CC 7729, Economics 340, Mining Engineering 342, Environmental and Natural Resource Economics. The following change is approved effective Spring 2010.

Co-listing: Mining Engineering 342

CC 7730, Economics 345, Mining Engineering 355, Energy Economics. The following change is approved effective Spring 2010.

Course Number – Proposed: 355

Co-listing: Mining Engineering 355

CC 7731, Mining Engineering 270, Economics 270, Mining Industry Economics. The following change is approved effective Spring 2010.

Co-listing: Economics 270

CC 7732, Mining Engineering 342, Economics 340, Environmental and Natural Resource Economics. New course approved effective Spring 2010.

Catalog Description: Optimum use of replenishable and non-replenishable resources, public goods and common resources, externalities, private vs. public costs, and quality of the environment; emphasis on public policy related to environmental and natural resource economics.

Credit Hours: 3 hour lecture

Prerequisites: Econ 221

CO-listing: Economics 340

CC 7733, Mining Engineering 355, Economics 355, Energy Economics. New course approved effective Spring 2010.

Catalog Description: Market structure. World resource development. Supply and demand analysis on energy production and consumption within domestic and global setting.

Credit Hours: 3 hour lecture

Prerequisites: Economics 221

Co-listing: Economics 355

CC 7735, Russian 320, Russian Phonetics and Intonation. New course approved effective Fall 2010.

Catalog Description: This course focuses on pronunciation improvement, development of basic transcription skills, comprehension of Russian speech at fast tempo, interactions of intonation and syntax. Lab work is required.

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

Prerequisites: Russian 2

**Review of submitted EC forms:**

EC 2173, Chemical Engineering 301, Modeling and Computing in Science & Engineering, approved effective Fall 2010.

Course Description: The course will introduce the students to modeling and computing techniques needed to solve scientific and engineering problems using computers. Various numerical methods will be introduced and Matlab will be used to solve these problems both via Matlab functions and programming using Matlab language and its visualization capabilities. Also spreadsheet will be used to solve engineering problems and processing the experimental and computing data.

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

Prerequisites: None

EC 2174, Engineering Management 401, Human Systems Integration, approved effective Spring 2010.

Course Description: This course considers Human System Integration (HIS) in a variety of applications including systems acquisition and training, HIS tools, techniques, and procedures.

Credit Hours: 3 hour lecture

Prerequisites: Eng Mgt 311 or Psych 311

EC 2175, Mining Engineering 401, Advanced Explosives Handling and Safety, approved effective Spring 2010.

Course Description: Basic handling & safety for explosives, explosives devices and ordnance related to laboratory handling, testing, manufacturing & storage, for both civil and defense applications. Graduate students will be required to complete an extra project.

Credit Hours: 3 hour lecture

Prerequisites: Min Eng 151 and Min Eng 307

EC 2176, Mining Engineering 301, Computer Pyrotechnic Firing System Operations, approved effective Spring 2010.

Course Description: Students will learn the field operations of the Fire One computer firing system set up, system diagnostics and overall operation of the firing system. Each student will set up a pyromusical show from a printed script, diagnose and correct problems then fire the display using the Fire One system and software. This course is necessary to provide the student with the basic knowledge needed for the designing of shows using the Fire One choreography software.

Credit Hours: 1 hour lecture, .5 hour lab, Total: 1.5

Prerequisites: Co-requisite of Min Eng 309 or Min Eng 313

EC 2177, Mining Engineering 301, Computer Fired Pyrotechnic Show Design, approved effective Spring 2010.

Course Description: Students will learn to use music editing, Fire One pyrotechnic choreography and simulation software to design their own pyromusical show programs. Starting with the creation of a musical sound track to selecting the fireworks and choreographing the fireworks to the musical score. The students will also create pyrotechnic sequences that can be used in shows selectively "on cue". With the use of the simulation software, shows and sequences can be previewed and tweaked to perfection. The only limitation is the artistic imagination of the student.

Credit Hours: 1 hour lecture, .5 hour lab, Total: 1.5

Prerequisites: Min Eng 301

EC 2178, Petroleum Engineering 401, Integrated Reservoir Management, approved effective Spring 2010.

Course Description: The fundamental and practices of integrated oil and gas reservoir management, including reservoir management concepts, reservoir management process, Data acquisition, analysis and management, reservoir model, reservoir performance analysis and forecast, improved oil recovery processes, reservoir management economics and asset management.

Credit Hours: 3 hour lecture

Prerequisites: PE 232 and PE 241

EC 2180, Engineering Management 301, Intelligent Investing, approved effective Spring 2010.

Course Description: The course is an introduction to value investment strategies using the philosophy of Warren Buffet. The approach requires mathematics, and takes advantage of research with forecasting methods using Quality Engineering tools including signal-to-noise ratio, and the Mahalanobis-Taguchi System.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

EC 2185, Electrical Engineering 301, Introduction to Scientific Measurements & Instrumentation, approved effective Spring 2010.

Course Description: Introduction to the fundamental principles and theories of scientific measurement. Establishment of a systematic approach in analysis, design, calibration and characterization of sensors and measurement instruments. Survey of the latest sensor technologies for measuring various physical and chemical quantities.

Credit Hours: 3 hour lecture

Prerequisites: EE 253 & Stat 217

EC 2186, Electrical Engineering 301, Introduction to Radar Systems, approved effective Spring 2010.

Course Description: Introducing basics of radar systems and applications.

Credit Hours: 3 hour lecture

Prerequisites: EE 271; EE 267 or EE 217



EC 2190, Computer Engineering 301, Electrical Engineering 301, Systems Engineering 301, Evolvable Hardware, approved effective Spring 2010.

Course Description: This course deals with adaptive evolvable systems operating in a changing environment. Components/building blocks approach for the design of evolvable systems and the mathematical theory of evolvable machines and the idea of virtual reconfigurable circuits for the design of more adaptive, competitive and innovative engineering products will be taught.

Credit Hours: 3 hour lecture

Prerequisites: Cp Eng 367 or EE 367

EC 2194, Mining Engineering 401, Truck Haulage Engineering and Haul Roads Efficiency, approved effective Spring 2010.

Course Description: This course will provide understanding into haul road design and safety requirements; and equip students with the ability to select, design, implement and supervise truck haulage in surface mines. It will include haul road design and safety; truck haulage design and safety; truck-road-service points; efficiency, productivity and economics; truck selection; ergonomics and risks.

Credit Hours: 3 hour lecture

Prerequisites: Consent of Instructor

EC 2196, English 201, The Literature of Sports, approved effective Spring 2010.

Course Description: This course will deal with the abundant body of first rate writing that has been devoted to American sports, from classic journalism, to poetry, to the short story and the novel. Beginning with consideration of the philosophy of play, the course will examine the role of sport in American culture, popular culture, history and literature.

Credit Hours: 3 hour lecture

Prerequisites: English 20

EC 2198, Electrical Engineering 401, Adaptive Control Theory, approved effective Spring 2010.

Course Description: a self-contained mathematical treatment of robust adaptive control theory and its current state of the art. Throughout the course both theoretical and application aspects of robust adaptive control design for uncertain dynamical systems will be presented. Homework will include analytical as well as Matlab-based design, simulation, and analysis projects.

Credit Hours: 3 hour lecture

Prerequisites: EE 431

EC 2200, Systems Engineering 401, Model Based Systems Engineering, approved effective Spring 2010.

Course Description: Modeling and Simulation principles related to systems engineering and systems architecture. Topics include the use of SysML, commercial software package integration, AP233 standards, and the creation of multi-disciplinary models combining aspects of these tools to simulate a complete system.

Credit Hours: 3 hour lecture

Prerequisites: Consent of Instructor

EC 2201, Computer Engineering 401, Electrical Engineering 401, Engineering Management 401, Statistics 401, Systems Engineering 401, Clustering Algorithms, approved effective Spring 2010.

Course Description: An introduction to the cluster analysis and clustering algorithms rooted in computational intelligence, computer science and statistics. Clustering in sequential data, massive data and high dimensional data.

Credit Hours: 3 hour lecture

Prerequisites: Graduate standing, at least one graduate course in either statistics, data mining or neural networks

**Review of Tabled Items:**

CC 7635, ERP 442, Customer Relationship Management in an ERP Environment. New course approved effective Spring 2010.

Catalog Description: This course emphasizes identification (targeting), acquisition, retention, and development (expansion of (profitable) customers. It also covers effective and efficient management of customers, using information technology. The SAP CRM and SAS BI tools are used to enhance student education with real world applications.

Credit Hours: 3 hour lecture

Prerequisites: ERP 345

The meeting adjourned at 4:10 p.m. The next meeting will be Tuesday November 3rd at 3:15 p.m. in 117 Fulton Hall.

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J. Keith Nisbett, Chair  
Missouri S&T Campus Curricula Committee

