



Memo To: Faculty Senate
From: Missouri S&T Campus Curricula Committee Meeting
RE: September 7, 2011

The Missouri S&T 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 0393, History, Bachelor of Arts, Secondary Education Emphasis, approved effective Fall 2012. A proposal to modify the current curriculum for the B.A. with Secondary Education Emphasis area.

DC 0394, Earth Sciences, Master of Science for Teachers, approved effective Fall 2012. The MST degree in Earth Sciences is being deleted.

DC 0395, Aerospace Engineering, Bachelor of Science, effective Fall 2011. Returning form to department for them to re do correctly.

The Missouri S&T Campus Curricula Committee recommends to the Faculty Senate that the course changes on the following CC forms be approved.

Approved CC forms:

CC 8150, Computer Engineering 311, Introduction to VLSI Design, approved effective Fall 2012.

Catalog Description – Proposed: An introduction to the design and analysis of digital integrated circuits (ICs). Topics include basic manufacturing techniques, transistor-level design and analysis of logic and memory circuits, logic timing, and parasitics. Computer aided design tools are used to develop circuits in the lab.

Prerequisites – Present: CpE 213

Proposed: EE 121 and CpE 111

CC 8151, Engineering Management 124, Principles of Engineering Management. The following changes are approved effective Spring 2012.

Course Title – Proposed: Practical Concepts for Technical Managers

Catalog Description – Proposed: This course introduces topics relevant to the technical manager in the 21st Century. Topics covered include management practices, leadership, communications, project management, working in the global environment, risk management, systems engineering, product development, and quality management.

CC 8153, Technical Communication 334, Usability Studies. New course approved effective Spring 2012.

Catalog Description: Students in this course will study and apply methods used by technical communicators to evaluate usability. Students will study methods used to evaluate human interaction with communication tools and how to make those products more suitable for human use.

Credit Hours: 3 hours lecture

Prerequisites: One semester of college writing or technical writing

CC 8154, Systems Engineering 470, Software Intensive Systems Architecting. New course approved effective Spring 2012.

Catalog Description: Basic tools and concepts of architecting complex software intensive systems are introduced. The following topics are covered under four main sections: Architecting Process, Architecting Heuristics, Architecting Patterns and Frameworks, and Architecture Assessment.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

CC 8155, Aerospace Engineering 370, Mechanical Engineering 370, Nuclear Engineering 370, Physics 370, Plasma Physics I. New course approved effective Spring 2012.

Catalog Description: Single particle orbits in electric and magnetic fields, moments of Boltzmann equation and introduction to fluid theory. Diffusion of plasma in electric and magnetic fields. Analysis of laboratory plasmas and magnetic confinement devices. Introduction to plasma kinetic theory.

Credit Hours: 3 hour lecture

Prerequisites: AE 231 or ME 231 or Physics 221 or Nuc Eng 221 or EE 271

CC 8159, Ceramic Engineering 392, X-Ray Diffraction Laboratory. The following changes are approved effective Fall 2012.

Course Title – Proposed: X-Ray Diffraction Analysis

Catalog Description – Proposed: Theory and practical aspects of x-ray diffraction analysis are covered including diffraction theory, qualitative and quantitative analysis techniques, electronic databases, and operation of modern powder diffractometers. Students cannot receive credit for both Cr Eng 292 and Cr Eng 392.

Credit Hours – Present: 1 hour lab

Proposed: 2 hour lecture, 1 hour lab

Prerequisites – Present: preceded or accompanied by Cr Eng 291 or Cr Eng 477, or an advanced crystallography class

Proposed: Preceded or accompanied by Cr Eng 291

CC 8160 Chemistry 459, Mass Spectrometry of Macromolecules. New course effective Spring 2012.

Catalog Description: The course will provide an overview of mass spectrometric applications in biomacromolecules and synthetic polymers; particular areas of emphasis are proteomics, genomics, pharmaceutical screening, characterization of biochemical complexes and synthetic polymers.

Credit Hours: 3 hour lecture

Prerequisites: Chem 355 or equivalent

CC 8161, Engineering Management 409, Design for Six Sigma. The following changes are approved effective Spring 2012.

Catalog Description – Proposed: Principles of Design for Six Sigma for product development. Topics include tools and methods including quality function deployment, concept generation, concept selection, product modeling, process development, DFX strategies, failure mode and effects analysis, design of experiments, TRIZ, and robust design.

Prerequisites – Present: EMgt 375 and EMgt 309

Proposed: EMgt 309

CC 8162, Geological Engineering 202, Cooperative Work Training. New course approved effective Spring 2012.

Catalog Description: On the job experience gained through cooperative education with industry, with credit arranged through departmental cooperative advisor. Grade received depends on quality of reports submitted and work supervisor's evaluation.

Credit Hours: 1-3

Prerequisites: None

CC 8163, Aerospace Engineering 180, Introduction to Aerospace Design. The following change is approved effective Spring 2012.

Prerequisites – Present: AE 161

Proposed: A grade of “C” or better in AE 161

CC 8164, Aerospace Engineering 161, Aerospace Vehicle Performance. The following change is approved effective Spring 2012.

Prerequisites – Present: Physics 23

Proposed: A grade of “C” or better in both Physics 23 and Math 15

CC 8165, Aerospace Engineering 231, Aerodynamics I. The following change is approved effective Spring 2012.

Prerequisites – Present: Accompanied or preceded by AE 161 and a “C” or better in Math 14, 15, 22, Physics 23, and ME 219

Proposed: A grade of “C” or better in each of AE 161, Math 14, 15, 22, Physics 23, and ME 219

CC 8166, Biological Sciences 334, Genomics. New course approved effective Spring 2012.

Catalog Description: This course offers a general overview of the field of genomics.

Topics covered include genome sequencing and annotation, transcriptomics, proteomics, metabolomics, genomic variation, and an overview of human, and several animal, plant, and microbial genome projects.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 331

CC 8167, Electrical Engineering 446, Wireless Communications. New course approved effective Spring 2012.

Catalog Description: Introduction to the principle of wireless communication systems.

Topics include: wireless channel characteristics, cellular concepts, channel capacity analysis, transceiver architectures, diversity techniques, multiple access schemes, and practical wireless systems.

Credit Hours: 3 hour lecture

Prerequisites: EE 343 or EE 344 or equivalent

CC 8168, Psychology 377, Psychology in Media. New course approved effective Fall 2012.

Catalog Description: Examples drawn from the media (e.g., television, movies, newspapers) will be used as the basis for discussing a wide variety of psychological phenomena, principles, and theories, and their applicability to everyday life.

Credit Hours: 3 hour lecture

Prerequisites: Psych 50

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 2346, Computer Engineering 301, Electrical Engineering 301, Systems Engineering 301, Evolvable Hardware, effective Spring 2012.

Course Description: This course deals with evolvable devices, circuits & systems operating in an uncertain changing environment. These devices, circuits & systems are endowed with the ability to learn & adapt autonomously. Their implementations are on any reconfigurable platforms (analog, digital or chemical).

Credit Hours: 3 hour lecture

Prerequisites: CpE 367 or EE 367

EC 2347, Biological Sciences 301, Microbial Metabolism, approved effective Spring 2012.

Course Description: A survey of diverse metabolic properties of microorganisms. Course material will emphasize major metabolic pathways and how they relate to microbial diversity and microbial ecology. A research proposal is not required for this class.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 221

EC 2348, Explosives Engineering 301, Computer Fired Pyrotechnic Show Design and Firing System, approved effective Spring 2012.

Course Description: Students will learn to use music editing, electronic firing system operation and Fire One pyrotechnic choreography and simulation software to design their own pyromusical show programs. Creation of a musical sound track, selecting the fireworks and choreographing to the musical score. Creation, setup, diagnose and fire pyrotechnic show.

Credit Hours: 1 hour lecture, 2 hour lab

Prerequisites: ExpEng 309 or 313; successful background check

EC 2352, English 201, Creative Nonfiction Writing, approved effective Spring 2012.

Course Description: Students will write creative nonfiction essays about their experiences and the experiences of others. The course will emphasize the revision process, focusing on both sentence-level and global issues. Additionally, this course will introduce students to published writers' rhetorical choices.

Credit Hours: 3 hour lecture

Prerequisites: English 20

EC 2353, Biological Sciences 401, Advanced Modeling in Biology and Medicine, approved effective Spring 2012.

Course Description: Students will learn how to use mathematical and statistical tools together with the physical principles to develop predictive models, with emphasis on quantitative understanding of complexity in multiple fields. Paper discussions and projects are required.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 242 or 244

EC 2354, Biological Sciences 301, Modeling in Biology and Medicine, approved effective Spring 2012.

Course Description: Students will learn how to use simple mathematical and statistical tools together with the physical principles to develop predictive models. Emphasis is placed on quantitative understanding of complexity in the fields of physiology, immunology, and ecology.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 242 or 244

EC 2355, Statistics 401, Design and Analysis of Epidemiological Studies, approved effective Fall 2012.

Course Description: An introduction to epidemiological studies (cohort, case-control and longitudinal) and their design; potential outcomes; causality; adjustment for confounding, selection bias and measurement bias.

Credit Hours: 3 hour lecture

Prerequisites: Stat 343 and 344 and one of Stat 346, 444 or 453



EC 2366, Economics 301, Sustainable Economics, approved effective Spring 2012.

Course Description: This course covers economics of sustainable development practices in the private sector and in government. Topics include the role of business and government in sustainability, natural resources scarcity, externalities, and problems of pollution.

Credit Hours: 3 hour lecture

Prerequisites: Econ 121 or 122

Daniel Tauritz, Chair
Missouri S&T Campus Curricula Committee