



Memo To: Faculty Senate
From: Missouri S&T Campus Curriculum Committee Meeting
RE: September 7, 2010 meeting

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 0365, Computer Science, Master of Science, deleting the Bioinformatics Emphasis, approved effective Fall 2010.

DC 0366, Finance Minor, approved effective Spring 2011. A proposal to modify the current curriculum for the minor in Finance.

DC 0368, Civil Engineering, Bachelor of Science, approved effective Fall 2011. Adding courses to the depth and technical elective requirements.

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 7919, Bus 330, Foundations of Sustainable Business. New course approved effective Spring 2011.

Catalog Description: An introduction to sustainability, this course examines the concept of environmental issues in a business context. Principles, processes, and practices of sustainable business will be explored through a wide range of case studies.

Credit Hours: 3 hour lecture

Prerequisites: Junior, Senior, or Graduate standing.

CC 7920, Bus 440, Business Innovation for Sustainability. New course approved effective Spring 2011.

Catalog Description; This course provides a platform for students to focus on a variety of environmental sustainability issues and culminates in a business proposal for an ethical, sustainable, and profitable venture for a new or existing business, non-profit, or governmental organization.

Credit Hours: 3 hour lecture

Prerequisite: Bus 330

CC 7999, Chemical Engineering 358, Intermediate Chemical Process Safety. New course approved effective Fall 2011.

Catalog Description: The identification and quantification of risks involved in the processing of hazardous and/or toxic materials are studied. Methods to design safety systems or alter the chemical process to reduce or eliminate the risks are covered.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

CC 8000, Chemical Engineering 350, Engineering Management 350, Risk Assessment and Reduction. New course approved effective Fall 2011 pending approval of the graduate certificate in Safety Engineering.

Catalog Description: Safe, secure manufacturing facilities protect the health of employees and the public, preserve the environment, and increase profitability. Methods for systematically identifying hazards and estimating risk improve the safety performance and security of manufacturing facilities.

Credit Hours: 3 hour lecture

Prerequisites: Senior or Graduate Standing

CC 8022, Business 421, Teambuilding and Leadership, The following changes are approved effective Spring 2011.

Catalog Description – Proposed: This class will teach students how to work well in teams and lead teams and organizations. Management, networking, presentation skills, and sustainable business practices will be covered.

Prerequisites – Present: Admission into the MBA program

Proposed: Admission into the MBA or the Management of Sustainable Business Graduate Certificate program

CC 8023, Geological Engineering 207, Geology and Engineering of Ancient and Modern Peru. New course approved effective Spring 2011.

Catalog Description: A study of the geological engineering of the Cuzco-Machu Picchu corridor, including the inter-relations of geology, climate, archeology, and history. A technical report and a week-long field trip to Peru during Spring Break are required.

Credit Hours: 1 hour lecture

Prerequisites: None

CC 8024, Chemistry 241, Physical Chemistry. The following change is approved effective Spring 2011.

Prerequisites – Present: Math 22, Physics 25

Proposed: Math 22, Physics 24 or Physics 25

CC 8025, Chemistry 244, Physical Chemistry Laboratory. The following change is approved effective Spring 2011.

Prerequisites – Present: preceded or accompanied by Chem 243 or 240 and Chem 4 or an equivalent training program approved by S&T

Proposed: Preceded or accompanied by Chem 243 and preceded or accompanied by Chem 4 or an equivalent training program approved by S&T.

CC 8026, Chemistry 343, Introduction to Quantum Chemistry. The following change is approved effective Spring 2011.

Prerequisites – Present: Math 22 & Physics 25 or equivalents

Proposed: Math 22, Physics 24 or Physics 25

CC 8027, Chemistry 355, Instrumental Methods of Chemical Analysis. The following change is approved effective Spring 2011.

Prerequisites – Present: Chem 4, Chem 52, Chem 223, Chem 243

Proposed: Chem 4, Chem 151, Chem 223, Chem 243

CC 8028, Civil Engineering 230, Elementary Fluid Mechanics. The following changes are approved effective Spring 2011.

Course Title – Proposed: Engineering Fluid Mechanics

Catalog Description – Proposed: Study of fluids at rest and in motion. Topics include fluid properties, statics of fluids, and the control volume approach to conservation of mass, momentum and energy. Applications include flow in pipes, pipe systems, external flow, and fluid flow measurements.

Prerequisites – Present: IDE 150 or IDE 140 with a grade of “C” or better

Proposed: IDE 150 or IDE 140, and Math 204, each with a grade of “C” or better

CC 8029, Chemical Engineering 420, Applied Mathematics in Chemical Engineering. The following change is approved effective Spring 2011.

Catalog Description – Proposed: An introduction to numerical methods for ordinary and partial differential equations arising in chemical engineering, bioengineering, and environmental engineering applications. Topics include finite difference and finite element methods; other numerical and analytical methods if time permits.

CC 8030, Civil Engineering 263, Chemical Fundamentals of Environmental Engineering. Course deletion approved effective Spring 2011.

Co-listing: Removed Environmental Engineering 263 as being co-listed with CE 263

CC 8034, Theatre 90, Theatre Appreciation. The following change is approved effective spring 2011.

Course Title – Proposed: Theatre via Video

Catalog Description – Proposed: provides knowledge and internal understanding of theatre and its processes via discussion after watching plays on video and live productions-works will include videos from Aristophanes to Beckett to Sondheim.

CC 8048, Biological Sciences 175, Introduction to Biological Design and Innovation. New course approved effective Fall 2010.

Catalog Description: Students will identify problems in biomedical sciences, and then design and implement innovative solutions using advanced techniques. Students will present and defend their proposals and results.

Credit Hours: 3 hour lab

Prerequisites: Bio Sci 188

CC 8049, Biological Sciences 188, Introduction to Biomedical Problems. New course approved effective Fall 2010.

Catalog Description: problem based learning approach to issues in medical science.

Students will work in groups and individually to answer problems related to diagnostic testing and evaluation of diseases and other medical conditions.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 146

CC 8050, Biological Sciences 146, Introduction to Human Anatomy and Physiology II. New course approved effective Fall 2010.

Catalog Description: Second semester of a two-semester sequence of the study of the structure and function of human organ systems, including the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 144

CC 8051, Biological Sciences 144, Introduction to Human Anatomy and Physiology I. New course approved effective Fall 2010.

Catalog Description: First semester of a two-semester sequence dealing with the structure and function of human organ systems. Includes the study of cells, tissues, and the integumentary, skeletal, muscular and nervous systems.

Credit Hours: 3 hour lecture

Prerequisites: Any high school or college Biology course

CC 8053, Biological Sciences 375, Advanced Biology Lab Techniques I. The following changes are approved effective Spring 2011.

Course Title – Proposed: Biological Design and Innovation I.

Catalog Description – Proposed: Students identify significant problems in biological/biomedical sciences, and then design and implement innovative solutions using advanced techniques. Students present and defend proposals and results.

Prerequisites – Present: Junior or senior standing in Biological Sciences or related area plus consent of instructor

Proposed: At least two 200 level or higher Biology courses

CC 8054, Biological Sciences 246, Human Anatomy and Physiology II. The following changes are approved effective Spring 2011.

Catalog Description: Second semester of a two-semester sequence of the study of the structure and function of human organ systems, including the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 244

CC 8055, Biological Sciences 247, Human Anatomy and Physiology II Laboratory. The following changes are approved effective Spring 2011.

Catalog Description: Laboratory accompanying Bio Sci 246. This course may be taken separately at a later date.

Credit Hours: 1 hour lab

Prerequisites: preceded or accompanied by Bio Sci 246

CC 8056, Biological Sciences 244, Human Anatomy and Physiology I. The following changes are approved effective Spring 2011.

Catalog Description: First semester of a two-semester sequence dealing with the structure and function of human organ systems. Includes the study of cells, tissues, and the integumentary, skeletal, muscular and nervous systems.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 110 or Bio Sci 111 or Bio Sci 211

CC 8057, Biological Sciences 245, Human Anatomy & Physiology I Laboratory. The following changes are approved effective Fall 2011.

Catalog Description: Laboratory accompanying Bio Sci 244. This course may be taken separately at a later date.

Credit Hours: 1 hour lab

Prerequisites: Preceded or accompanied by Bio Sci 244

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 2252, Mechanical Engineering 301, Signal processing for Instrumentation and Control. Approved effective Fall 2010.

Course Description: The course presents fundamental techniques for analysis and processing of experimental data and real-time signals. Continuous- and discrete-time development of signal spectra, Fourier Transform, convolution, filter design, and system identification. The emphasis is on practical problems that arise in instrumentation and control applications.

Credit Hours: 3 hour lecture

Prerequisites: math 204; ME 211 or permission of instructor for non-ME majors.

EC 2259, Biological Sciences 401, Microbial Genetics. Approved effective Fall 2010.

Course Description: A study of the mechanisms of the control of gene expression, genetic modification and evolution of microorganism. The course will examine applications of the principles of microbial genetics in genetic engineering and synthetic biology through analysis of the classic and current literature in the field. Students will be required to prepare presentations.

Credit Hours: 3 hour lecture

Prerequisites: Biological Sciences 221

EC 2260, MSE 401, Modeling in Materials Processing, approved effective Spring 2011.

Course Description: Introduce the fundamental models of fluid flow, heat and mass transfer and solidification. Apply these models to the problems of metallurgical and materials industries. Understanding mathematical calculation and using CFD software to solve problems in metallurgical and materials processing. Course to be taught every other year in the spring.

Credit Hours: 3 hour lecture

Prerequisites: Met 204

EC 2262, History 301, The Reformation, approved effective Spring 2011.

Course Description: This course will cover the sixteenth-century Reformation, its background, and impact. It will explore the social, cultural, and political aspects of the movement that created protestant Christianity and, hence, modern Western religious pluralism.

Credit Hours: 3 hour lecture

Prerequisites: Hist 111 or Hist 112

EC 2263, History 301, Twentieth-Century War and Gender in Europe, approved effective Spring 2011.

Course Description: This course explores men and women's experiences in France and Germany between 1914 and 1945. Ideas about society changed in the twentieth century due to war, these changes were reflected in politics, and changed relationships between men and women.

Credit Hours: 3 hour lecture

Prerequisites: Hist 112

EC 2264, History 301, Making of Modern Germany, approved effective Spring 2011.

Course Description: A survey of modern Germany from 1815 through the present. Major themes include political, economic, intellectual, social, and cultural developments in modern and contemporary Germany with emphasis on constructed identities.

Credit Hours: 3 hour lecture

Prerequisites: History 112, History 176

EC 2265, Electrical Engineering 301, Introduction to Scientific Measurement & Instrumentation, approved effective Spring 2011.

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 and Stat 217

EC 2266, Electrical Engineering 301, Electric-Drive Vehicles, approved effective Spring 2011.

Course Description: This course covers introductory topics related to the understanding and analysis of electric, hybrid, and plug-in hybrid power trains. In specific, classification of hybrid drive trains, driving cycles, energy storage systems, Mechanical coupling devices, automotive applications of fuel cells, and introduction to power converters will be covered.

Credit Hours: 3 hour lecture

Prerequisites: Senior Standing

EC 2267, Electrical Engineering 401, Power Converter Modeling and Design, approved effective Spring 2011.

Course Description: Students will learn electrical, magnetic, and thermal modeling techniques for switching power converters that are applicable to both simulation and analysis. Students will then learn a generic framework to design optimal converters using these models.

Credit Hours: 3 hour lecture

Prerequisites: EE 353 or equivalent

EC 2272, Electrical Engineering 401, Adaptive Control Theory, approved effective Spring 2011.

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 2273, Biological Sciences 401, Principles of the Biomedical Sciences, approved effective Fall 2010.

Course Description: Teachers complete 80 hours of project Lead the Way training for the principles of Biomedical Sciences curriculum, including all projects, portfolios and exit evaluation.

Credit Hours: 3 hour lecture

Prerequisites: Secondary teaching certification

EC 2274, Biological Sciences 401, Medical Interventions, approved effective Fall 2010.

Course Description: Teachers complete 80 hours of Project Lead the Way training for the Medical Interventions curriculum, including all projects, portfolios and exit evaluation.

Credit Hours: 3 hour lecture

Prerequisites: Secondary teaching certification

EC 2275, Biological Sciences 401, Human Body Systems, approved effective Fall 2010.

Course Description: Teachers complete 80 hours of Project Lead the Way training for the Human Body Systems curriculum, including all projects, portfolios and exit evaluation.

Credit Hours: 3 hour lecture

Prerequisites: Secondary teaching certification

EC 2276, Biological Sciences 401, Biomedical Innovation, approved effective Fall 2010.

Course Description: Teachers complete 80 hours of Project Lead the Way training for the Biomedical Innovation curriculum, including all projects, portfolios and exit evaluation.

Credit Hours: 3 hour lecture

Prerequisites: Secondary teaching certification

EC 2277, Chemistry 401, Mass Spectrometry of Macromolecules, approved effective Spring 2011.

Course Description: The course will provide an overview of mass spectrometric applications in bio-macromolecules 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: Graduate status; Chem 355 or equivalent

EC 2278, Art 101, Women in the Arts, approved effective Fall 2011.

Course Description: This course traces the contributions of women in the arts, in context with cultural and political influences. Culminates with a group art performance or work.

Credit Hours: 2 hr. lecture, 1 hr. lab, Total: 3

Prerequisites: None

EC 2279, Art 201, Art in the Community, approved effective Spring 2011.

Course Description: This course involves students designing and creating art for the local community such as mural painting and supporting local schools and public services.

Credit Hours: 1 hr. lecture, 2 hr. lab, Total: 3

Prerequisites: Art 20 or Art 40

EC 2280, English 301, Readings in Science Fiction, 1871-1953: Evolution of Superman Myth, approved effective Spring 2011.

Course Description: We will explore the hypothesis that post humanism has its roots in early science fiction's superman myth: humans will control their own evolution and ascend to a higher order of being. Readings include: Nietzsche, Wells, Shaw, S.S. Lewis, Arthur C. Clark.

Credit Hours: 3 hour lecture

Prerequisites: English 20 and a semester of college literature



EC 2281, Technical Communication 301, Help Authoring, approved effective Spring 2011.

Course Description: Students will work with various media to create documentation and help files, primarily for software products and work processes. The course will incorporate print, video, and web-based materials.

Credit Hours: 3 hour lecture

Prerequisites: English 65

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