Memo To: Faculty Senate
From: Missouri S&T Campus Curriculum Committee Meeting
RE: December 1, 2009 and January 5, 2010 meetings

**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 0340, Environmental Engineering, Bachelor of Science. A proposal to modify the current curriculum for the Bachelor of Science in Environmental Engineering approved effective Fall 2010.

DC 0341, Biological Sciences, Bachelor of Arts. A proposal to modify the current curriculum for the Bachelor of Arts in Biological Sciences effective Fall 2010.

DC 0342, Biological Sciences, Bachelor of Arts, Pre-Medicine Emphasis Area. A proposal to modify the current curriculum for the Bachelor of Arts, Pre-Medicine emphasis area approved effective Fall 2010.

DC 0343, Biological Sciences, Bachelor of Arts, Secondary Education Emphasis Area. A proposal to modify the current curriculum for the Bachelor of Arts, Secondary Education emphasis area approved effective Fall 2010.

DC 0344, Biological Sciences, Bachelor of Science. A proposal to modify the current Bachelor of Science in Biological Sciences approved effective Fall 2010.

**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 7845, Electrical Engineering 405, Power System Protection. The following change is approved effective Fall 2010.
Catalog Description – Proposed: Protective relaying incorporating electromechanical, solid state and computer relaying methods for high voltage transmission systems; instrument transformers; generator, transformer, line and bus protection; effect of system grounding; pilot protection and out of step relaying principles.



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CC 7846, Electrical Engineering 404, Economic Operation of Power systems. The following changes are approved effective Fall 2010.
Course Title – Proposed: Power System Operations
Catalog Description – Proposed: Optimal dispatch operations, economic loading of power plants, mathematical optimization, locational marginal pricing, optimal power flow; effective of hydro and wind power plants on system economics; contingency analysis and system security, state estimation.

CC 7847, Petroleum Engineering 406, Advanced Reservoir Simulation, effective Spring 2010. Duplicate of CC 7463 that was approved in September 2008. Returned to department.

CC 7848, Geological Engineering 235, Environmental Geoscience. Course deletion approved effective Spring 2010.

CC 7849, Geological Engineering 340, Fld Opr/Ground Water Hyd. Course deletion approved effective Spring 2010.

CC 7850, Geological Engineering 349, Comp Appl in Geol Engr. Course deletion approved effective Spring 2010.

CC 7851, Geological Engineering 351, Geological Eng Case Hist, Course deletion approved effective Spring 2010.

CC 7852, Geological Engineering 415, Advanced Geostatistics. Course deletion approved effective Spring 2010.

CC 7853, Geological Engineering 438, Rem Eng Uncont Haz Waste. Course deletion approved effective Spring 2010.

CC 7854, Engineering Graphics 212, Computer Aided Drafting. Course deletion approved effective Spring 2010.

CC 7855, Engineering Management 357, Advanced Facilities Planning & Design. The following changes are approved effective Spring 2010.
Catalog Description – Proposed: An integrated approach to the planning and design of facilities; examination of advanced techniques and tools for facility location, space allocation, facility layout materials handling system design, work place design; e.g. mathematical programming and simulation modeling.
Credit Hours – Present: 1 hour lecture, 2 hour lab, Total: 3
Proposed: 2 hour lecture, 1 hour lab, Total: 3



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CC 7858, IST 368, Law and Ethics in E- Commerce. The following change is approved effective Fall 2010.
Prerequisites – Present: Any intro level Philosophy course
Proposed: None

CC 7859, Business 110, Management and Organizational Behavior. The following changes are approved effective Fall 2010.
Catalog Description – Proposed: The course provides an introduction to the basic concepts of management and organization to give all majors an awareness of what functions and challenges are faced by managers in today's global environment; their applications to the organization, operations, and resources are discussed.
Prerequisites – Present: Psych 50
Proposed: None

CC 7860, Business 120, Financial Accounting. The following change has been approved effective Fall 2010.
Prerequisite – Present: math 4
Proposed: None

CC 7861, Business 320, Managerial Accounting. The following change has been approved effective Fall 2010.
Prerequisites – Present: Bus 120
Proposed: Bus 120 or Eng Mgt 130 or Eng Mgt 131 or Eng Mgt 230

CC 7862, Business 360, Business Operations. The following change is approved effective Fall 2010.
Prerequisites – Present: Math 12, Stat 211, and Bus 120
Proposed: Math 8 or 12 or 14; and Statistics course; Bus 120 or Eng Mgt 130 or Eng Mgt 131 or Eng Mgt 230.

CC 7863, Business 380, Strategic Management. The following change is approved effective Fall 2010.
Prerequisites – Present: Mkt 311 and Fin 250; Senior Standing
Proposed: Mkt 311 or Eng Mgt 251; Fin 250 or Eng Mgt 252; Senior Standing.

CC 7864, ERP 246, Introduction to Enterprise Resource Planning. The following change is approved effective Fall 2010.
Prerequisites – Present: IST 51
Proposed: IST 50



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CC 7865, Finance 250, Corporate Finance I. The following change is approved effective Fall 2010.
Prerequisites – Present: Bus 120, and Econ 121 or Econ 122
Proposed: Bus 120 or Eng Mgt 130 or Eng Mgt 131 or Eng Mgt 230; Econ 121 or Econ 122.

CC 7866, IST 223, Database Management. The following change is approved effective Fall 2010.
Prerequisites – Present: IST 141
Proposed: IST 50; IST 151 or Comp Sci 153

CC 7867, IST 241, E-Commerce. The following change is approved effective Fall 2010.
Prerequisites – Present: IST 141, IST 286
Proposed: IST 50, IST 286

CC 7868, IST 354, Multi-Media Development and Design. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 51, Cmp Sc 53 or Cmp Sc 73
Proposed: IST 51 or Cmp Sci 53 or Cmp Sci 73 or Cmp Sci 74

CC 7870, Engineering Mechanics 324, Engr Plasticity I. Course deletion approved effective Spring 2010.

CC 7871, Engineering Mechanics 424, Engr Plasticity II. Course deletion approved effective Spring 2010.

CC 7872, Aerospace Engineering 321, Aerodynamics Cad Design. Course deletion approved effective Spring 2010.

CC 7873, Aerospace Engineering 341, Exper Stress Analysis I. Course deletion approved effective Spring 2010.

CC 7874, Aerospace Engineering 487, Mechanical Engineering 487, Finite Elem Approx III. Course deletion approved effective Spring 2010.

CC 7875, Mechanical Engineering 337, Atmospheric Science. Course deletion approved effective Spring 2010.

CC 7876, Mechanical Engineering 341, Experimntl Stress Analysis I. Course deletion approved efective Spring 2010.



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CC 7877, Mechanical Engineering 345, Non-Intrusive Meas Meth. Course deletion approved effective Spring 2010.

CC 7878, Mechanical Engineering 424, Theory of Stability II. Course deletion approved effective Spring 2010.

CC 7879, Biological Sciences 315, Developmental Biology. The following change is approved effective Spring 2010.
Prerequisites – Present: Bio 115 and Bio 211
Present: Bio 211

CC 7880, Biological Sciences 345, Comparative Chordate Anatomy. The following change is approved effective Spring 2010.
Prerequisites – Present: Bio 110 or 111, and Bio 115 and 116
Proposed: Bio 113, Bio 114

CC 7881, Ceramic Engineering 407, Bhvr-Mtls Vi-Mechanical. Course deletion approved effective Spring 2010.

CC 7882, Metallurgical Engineering 351, Min proc II Flo & Hydro. Course deletion approved effective Spring 2010.

CC 7883, Metallurgical Engineering 455, Chemical Metallurgy. Course deletion approved effective Spring 2010.

CC 7884, Civil Engineering 432, Turbince-Opn Chnnel flow. Course deletion approved effective Spring 2010.

CC 7885, Civil Engineering 466, Wastewater Treatment II. Course deletion approved effective Spring 2010.

CC 7886, Civil Engineering 491, Internship. Course deletion approved effective Spring 2010.

CC 7887, Civil Engineering 499, Case Studies in Civ Engr. Course deletion approved effective Spring 2010.



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CC 7888, Engineering Management 345, Energy Management Engineering. The following changes are approved effective Fall 2010.
Course Title – Proposed: Energy and Sustainability Management Engineering
Catalog Description – Proposed: This course explores strategic processes and partnership required for the management of sustainable energy infrastructures and innovation in energy systems. Topics relate to renewable energy, energy efficiencies, energy conversion, energy technology, and economic efficiency of energy sources.
Prerequisite – Present: Eng Mgt 209
Proposed: Senior or Graduate Standing

CC 7889, Systems Engineering 468, Systems Engineering Analysis II. The following change is approved effective Spring 2010.
Co-listing: Removing Eng Mgt 468

CC 7890, Systems Engineering 469, Systems Architecting. The following change is approved effective Spring 2010.
Co-listing: Removing Eng Mgt 469

CC 7891, IDE 105, Design Representations. Course deletion approved effective Spring 2010.

CC 7892, IDE 106, Design Perceptions. Course deletion approved effective Spring 2010.

CC 7893, IDE 101, Special Topics. Course deletion approved effective Spring 2010.

CC 7894, IDE 200, Special Problems. Course deletion approved effective Spring 2010.

CC 7895, IDE 201, Special Topics. Course deletion approved effective Spring 2010.

CC 7896, IDE 203, Technology in Elementary Education. Course deletion approved effective Spring 2010.

CC 7897 IDE 301, Special Topics. Course deletion approved effective Spring 2010.

CC 7898, IDE 342, Introduction to Solar Car Design. Course deletion approved effective Spring 2010.

CC 7899, IDE 400, Special Problems. Course deletion approved effective Spring 2010.

CC 7900, IDE 401, Special Topics. Course deletion approved effective Spring 2010.



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CC 7901, IDE 420, Modern Product Design. Course deletion approved effective Spring 2010.

CC 7902, IDE 427, Function-based Risk Analysis, Course deletion approved effective Spring 2010.

CC 7903, IDE 490, Research. Course deletion approved effective Spring 2010.

CC 7904, IST 443, Information Retrieval and Analysis. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 345
Proposed: IST 223 or equivalent relational database experience.

CC 7905, IST 243, Systems Analysis. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 141, preceded or accompanied by IST 223
Proposed: IST 223

CC 7906, FIN 350, Corporate Finance II. The following change is approved effective Fall 2010.
Prerequisite – Present: Finance 250
Proposed: Fin 250 or Eng Mgt 147 or Eng Mgt 252

CC 7907, IST 286, Web and Digital Media Development. The following changes are approved effective Fall 2010.
Credit Hours – Present: 1.5 hour lecture, 1.5 hour lab, Total: 3
Proposed: 3 hour lecture
Prerequisite – Present: IST 151
Proposed: IST 50

CC 7908, FIN 360, Investments I. The following change is approved effective Fall 2010.
Prerequisites – Present: Finance 250
Proposed: Fin 250 or Eng Mgt 147 or Eng Mgt 252

CC 7909, IST 321, Network Performance Design and Management. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 233 or IST 336
Proposed: IST 223, IST 233



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CC 7910, IST 151, Implementing Information Systems: Data Perspective. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 51
Proposed: IST 51 or Comp Sci 53 or Comp Sci 73 or Comp Sci 74

CC 7911, IST 357, Econ 357, Network Economy. The following changes are approved effective Fall 2010.
Catalog Description – Proposed: Emerging Network/Internet economy, using traditional economics tools. Topics: production and reproduction cost of information, information as an "experience good," versions of products, switching cost, lock-in effects, market adoption dynamics, first-mover advantage, intellectual property rights.
Prerequisites – Present: Econ 221
Proposed: Econ 121 or Econ 122

CC 7912, IST 231, Computing Internals and Operating Systems. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 151
Proposed: IST 151 or Comp Sci 153

CC 7913, IST 233, Introduction to Telecommunications Networks. The following change is approved effective Fall 2010.
Prerequisite – Present: IST 151
Proposed: IST 151 or Comp Sci 153

CC 7919, Bus 330, Foundations of Sustainable Business. New course effective Fall 2010 pending approval of Graduate Certificate.
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 effective Spring 2011 pending approval of Graduate Certificate.
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



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CC 7935, Mechanical 461, Modern Product Design. The following change is approved effective Spring 2010.
Co-listing: Removing IDE 420

CC 7936, Systems Engineering 427, Function-Based Risk Analysis. The following change is approved effective Spring 2010.
Co-listing: Removing IDE 427

**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 2210, Mining Engineering 401, Geostatistics, approved effective Spring 2011.
Course Description: Definition of geostatistical data; theory of random fields; autocorrelation and measures of spatial variability including semivariograms, variograms and covariance functions; and spatial prediction and validation. Case studies in mineral resource estimation and environmental pollutant prediction will be presented.
Credit Hours: 3 hour lecture
Prerequisites: Graduate standing or consent

EC 2211, Petroleum Engineering 301, approved effective Fall 2010.
Course Description: An overview of the hardware, fluids and processes employed in completing oil and gas wells. Examination of types of well completions and their use; influence of well geometry and considerations in designing well completions. Brief overview of sand control, multilaterals and intelligent well completions. Review of completion examples.
Credit hours: 3 hour lecture
Prerequisites: PE 241

EC 2212, Petroleum Engineering 401, Advanced Well Completion Design, approved effective Spring 2010.
Course Description: An overview of the hardware, fluids and processes employed in completing oil and gas wells. Examination of types of well completions and their use; influence of well geometry and considerations in designing well completions. Brief overview of sand control, multilaterals and intelligent well completions. Review of completion examples and exercises with design software.
Credit hours: 3 hour lecture
Prerequisites: PE 241



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EC 2214, Civil Engineering 301, Concrete Pavement Design, approved effective Spring 2010.
Course Description: Structural design of rigid pavements including loading characteristics, properties of pavement components, stress distribution, and the effects of climatic variables on design criteria.
Credit Hours: 3 hour lecture
Prerequisites: CE 216 with a grade of "C" or better

EC 2215, Civil Engineering 301, Structural Dynamics, approved effective Spring 2010.
Course Description: This course presents the fundamental concepts in structural dynamics and force distribution in structures under dynamic locds. Specifically, the natural frequency and mode shape of structural systems are investigated. The response and behavior of structural components and systems are studied under machine-induced, blast, wind and earthquake excitations. Both hand calculations and computer methods for the analysis of lumped and distributed mass models are developed
Credit Hours: 3 hour lecture
Prerequisites: IDE 150, CE/Arch 217

EC 2216, Civil Engineering 401, Special Concretes, approved effective Spring 2010.
Course Description: Material and structural behavior of special concretes. Optimization of cementitious based systems. Evaluation and NDE/T aspects of concrete.
Credit Hours: 3 hour lecture
Prerequisites: Consent of instructor with Graduate Standing.

EC 2219, Engineering Management 301, New Product Design, approved effective Spring 2010.
Course Description: Students use physical modeling to characterize a team-based inter-disciplinary design project. A prototype is built and tested to determine the effectiveness of the various modeling techniques used.
Credit Hours: 2 hour lecture, 1 hour lab, Total: 3
Prerequisites: None

EC 2220, Nuclear Engineering 401, Electrical Engineering 401, approved effective Spring 2010.
Course Description: Physics and technologies involved in various radiological imaging or treatment systems in the medical field, such as digital radiography, digital mammography, computed tomography, digital image processing, feature extraction, and nuclear medicine instruments will be covered.
Credit Hours: 3 hour lecture
Prerequisites: NE 312 or equivalent



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EC 2222, Aerospace Engineering 301, Mechanical Engineering 301, Nuclear Engineering 301, Physics 301, Plasma Physics I, effective Spring 2010.
Course Description: Single particle orbits in electric and magnetic fields, moments of Boltzmann equation and introduction to fluid theory. Wave phenomena in plasmas. 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/ME 231 or Physics 221 or Nuc Eng 221

EC 2223, Biological Sciences 401, Advanced Nanobiotechnology, approved effective Spring 2010.
Course Description: nanotechnology has emerged to change human economy and society in many aspects. Applications of nanotechnology in life science is termed nanobiotechnology, This graduate course describes the recent development of nanobiotechnology and includes discussions of recent papers.
Credit Hours: 2 hour lecture
Prerequisites: Bio 211, Bio 231, graduate standing

EC 2224, Technical Communication 401, Web-Based Communication, approved effective Spring 2010.
Course Description: A study of selected tools, strategies, and genres used to communicate via the World Wide Web. Emphasis on the communication of technical information.
Credit Hours: 3 hour lecture
Prerequisite: None

EC 2226, Philosophy 201, Ancient and Medieval Philosophy, approved effective Summer 2010.
Course Description: The class begins with the Pre-Socratics before covering Socrates, Plato, Aristotle, Augustine, Aquinas and the major schools of thought during these eras. The two studies are a natural complement of each other and provide a strong foundation in philosophical history.
Credit Hours: 4 hour lecture
Prerequisite: None



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EC 2227, Philosophy 201, Modern Philosophy, approved effective Summer 2010.
Course Description: The re-awakening of Europe from the Dark and Middle ages brings with a change in the focus of philosophy. Epistemology or the study of knowledge and belief justification replaces metaphysics as first philosophy, rationalism and empiricism, will be extensively explored.
Credit Hours: 3 hour lecture
Prerequisites: None

EC 2228, Business 301, Foundations of Sustainable Business, approved effective Fall 2010.
Course 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

EC 2229, Business 401, Business Innovation for Sustainability, approved effective Fall 2010.
Course 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
Prerequisites: Bus 330 or equivalent

**New Business:**
The committee considered the Provost's proposal for a Special Program for a Sustainability Minor, which had been referred to the committee by the Faculty Senate. The committee voted to recommend approval.

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



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