



Memo To: Faculty Senate
From: Missouri S&T Campus Curriculum Committee Meeting
RE: March 2, 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 0377, Engineering Management, Bachelor of Science, approved effective Fall 2011. A proposal to remove the FE assessment requirement and replace it with the Associate Engineering Manager Certification Exam assessment requirement.

DC 0378, Psychology, Bachelor of Arts, Secondary Education Emphasis, approved effective Fall 2011. Psychology 10 is being added as a required course for the BA in Psychology Secondary Education Emphasis Area.

DC 0379, Psychology, Bachelor of Science, Secondary Education Emphasis, approved effective Fall 2011. Psychology 10 is being added as a required course for the BS in Psychology Secondary Education Emphasis Area.

DC 0380, Computer Science, Bachelor of Science, approved effective Fall 2011. A proposal to modify the current requirements that count toward the humanities elective.

DC 0385, Explosives Engineering, Master of Science – Non-Thesis, approved effective Fall 2011. Replacing the proposed Exp Eng 491 Internship with Exp Eng 497 and Exp Eng 498.

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 8074, Explosives Engineering 497, Graduate Cooperative Experience. New course approved effective Summer 2011.

Catalog Description: Students on an approved internship will complete a project designed by the advisor and employer. The project selected must require that students apply critical thinking skills and discipline specific knowledge in the working setting. A major report and a formal presentation are required.

Credit Hours: 3 hour lab

Prerequisites: 12 hours Exp Eng coursework

CC 8075, Explosives Engineering 498, Industry Project. New course approved effective Summer 2011.

Catalog Description: Students who are currently employed may complete a project in their work setting designed by the advisor and employer. The project selected must require that students apply critical thinking skills and discipline specific knowledge. A major report and a formal presentation are required.

Credit Hours: 3 hour lab

Prerequisites: 12 hours Exp Eng coursework

CC 8099, Computer Engineering 439, Electrical Engineering 439, Computer Science 449, Statistics 439, Systems Engineering 439, Clustering Algorithms. New course approved effective Spring 2012.

Catalog Description: An introduction to cluster analysis & clustering algorithms rooted in computational intelligence, computer science & statistics. Clustering in sequential data, massive data & high dimensional data. Students will be evaluated by individual or group research projects & research presentations.

Credit Hours: 3 hour lecture

Prerequisites: At least one graduate course in statistics, data mining, algorithms, computational intelligence, or neural networks, consistent with student's degree program.

CC 8102, Mining Engineering 411, Research Methods for Mining Engineering. New course approved effective Fall 2011.

Catalog Description: Foundations, dimensions, and methods for designing and investigating research problems in Mining Engineering. Focus on fundamental and applied research, research methods, literature review, experimental design and experimentation, dissertation composition, concepts of originality and intellectual property.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

CC 8103, Chemical Engineering 339, Introduction to Molecular Modeling and Simulation. New course approved effective Fall 2011.

Catalog Description: An introduction to the concepts of molecular-based modeling and simulations, their connections to other engineering approaches and their role in multi-scale modeling. Major methodologies such as molecular dynamics and lattice and off-lattice Monte Carlo, and special case studies are discussed.

Credit Hours: 3 hour lecture

Prerequisites: Ch Eng 247

CC 8105, Electrical Engineering 409, Advanced Electric-Drive Vehicles. The following changes are approved effective Fall 2011.

Course Title – Proposed: Advanced Electric-Drive Vehicles

Catalog Description – Proposed: This course covers an entire range of advanced topics related to the analysis, design, control, simulation, and optimization of electric, hybrid, and plug-in hybrid power-trains including the automotive applications of adjustable speed motor drives, energy storage systems, and advanced power converters.

CC 8106, Geological Engineering 484, Advanced Engineering and Environmental Geophysics. New course approved effective Fall 2011.

Catalog Description: An introduction to the theory and application of the gravity, magnetic, resistivity, self-potential induced polarization, seismic, electromagnetic and GPR methods as applied to the solution of engineering and environmental problems.

Credit Hours: 3 hour lecture

Prerequisite: Admittance into USAES-S&T Co-operative Degree Program

Co-listing: Geophysics 484

CC 8107, Biological Sciences 335, Cancer Cell Biology. New course approved effective Fall 2011.

Catalog Description: Advanced biology course examining cellular processes that go awry during tumorigenesis. We will discuss cell cycle controls, signal transduction pathways, DNA repair, telomerase, apoptosis, cell migration and adhesion that are altered in cancer cells.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 211

CC 8108, Biological Sciences 435, Advanced Cancer Cell Biology. New course approved effective Fall 2011.

Catalog Description: Graduate level biology course examining cellular processes that go awry during tumorigenesis. We will discuss cell cycle controls, signal transduction pathways, DNA repair, telomerase, apoptosis, cell migration and adhesion that are altered in cancer cells. In addition to lecture, will include a weekly section to examine primary cancer literature.

Credit Hours: 3 hour lecture

Prerequisites: Bio Sci 211

CC 8109, Geology 325, Advanced Physical Geology. The following changes are approved effective Fall 2011.

Course Number – Proposed: Geology 425

Catalog Description – Proposed: Examination of topics concerned with the physical properties of earth materials, processes affecting change of the surface and interior of the earth, and the driving forces causing these changes. Weekly critical assessment of literature, and an oral presentation & term paper required.

CC 8110, Systems Engineering 435, Model Based Systems Engineering. New course approved effective Spring 2012.

Catalog Description: This course covers the use of models to represent systems and the underlying system elements, components, etc. Topics also include SysML, executable systems architectures, model repositories, integration of models and information, and use of MBSE in distributed systems.

Credit Hours: 3 hour lecture

Prerequisites: Sys Eng 433

CC 8112, Computer Science 388, Introduction to High Performance Computer Architecture. New course approved effective Fall 2011.

Catalog Description: Overviews high performance architecture of computing systems and covers various architectural/hardware and software/algorithmic means that enhance performance. Uniprocessor and concurrent systems are investigated. Various computational models are studied and linked to commercial systems.

Credit Hours: 3 hour lecture

Prerequisites: Comp Eng 213, Comp Sci 253

CC 8113, ERP 348, Strategic Enterprise Management Systems. The following changes are approved effective Fall 2011.

Prerequisites – Present: ERP 246 or BUS 426 or ERP 346 (maybe taken concurrently)

Proposed: ERP 246 or preceded or accompanied by ERP 346

CC 8114, ERP 345, Use of Business Intelligence. The following change is approved effective Fall 2011.

Prerequisites – Present: ERP 246 or BUS 426 or ERP 346 (ERP 346 may be taken concurrently)

Proposed: ERP 246 or preceded or accompanied by ERP 346

CC 8115, ERP 448, Enterprise Performance Management System Prototyping. The following changes are approved effective Fall 2011.

Course Title – Proposed: Enterprise Performance Dashboard Prototyping

Catalog Description – Proposed: Study of implementation and design practices for enterprise performance management systems with a focus on dashboards, balanced scorecard, and value-based management. SAP's Business Objects Ecelsius, Crystal Reports, BW, or similar tools will be used for project implementations.

Prerequisites – Present: ERP 444 or IST 444

Proposed: ERP 346; ERP 444 or IST 444

CC 8116, ERP 347, Supply Chain Management Systems. The following changes are approved effective Fall 2011.

Catalog Description – Proposed: The course studies the need and challenges for supply chain integration with focus on the planning, analysis, design, development, and evaluation of supply chain in an ERP environment. SAP Supply Chain Management (SCM) or a similar system is used for project implementation.

Prerequisites – Present: ERP or BUS 426 or ERP 346 (may be taken concurrently)

Proposed: ERP 246 or preceded or accompanied by ERP 346

CC 8117, Business 426, Integration Using Enterprise Resource Planning. The following changes are approved effective Fall 2011.

Course Title – Proposed: Integration of Business Areas

Catalog Description – Proposed: Students will work on projects and simulations to learn to integrate the business functions to maximize performance efficiency and effectiveness. The consulting field will be covered through projects and readings.

Prerequisites – Present: Preceded or accompanied by BUS 421

Proposed: Student must have completed at least 12 hours towards the MBA degree

CC 8118, IST 443, Information Retrieval and Analysis. The following change is approved effective Fall 2011.

Prerequisites – Present: IST 223 or equivalent relational database experience

Proposed: ERP 345 or statistics knowledge

CC 8119, Business 315, Introduction to Teambuilding and Leadership. New course approved effective Fall 2011.

Catalog Description: This course covers an introduction to leadership styles, principles, models, issues, and applications through analytical and intellectual examination.

Key components of teams are introduced, with opportunities to practice and develop both leadership and teambuilding skills.

Credit Hours: 3 hour lecture

Prerequisites: None

CC 8120, Business 415, Teambuilding and Leadership in Business Settings. New course approved effective Fall 2011.

Catalog Description: This course covers leadership styles, principles, models, issues, and applications through analytical and intellectual examination. Key components of teams are introduced, with opportunities to practice and develop both leadership and teambuilding skills. Case studies required.

Credit Hours: 3 hour lecture

Prerequisites: Admission to the Management for Sustainable Business Graduate

Certificate program or to an M.S. program other than the MBA.

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 2310, Mining Engineering 401, Simulation of Mining systems, approved effective Fall 2011.

Course Description: Overview of stochastic simulation. Model formulation using general purpose process simulation software. Model verification and validation. Simulation experimentation.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing or Stat 213

EC 2317, Electrical Engineering 401, Principle & Applications of Nanophotonics, approved effective Fall 2011.

Course Description: The latest theories, design, fabrication, characterization and applications of nanophotonic devices including quantum dots, nanotubes, nanoparticles, photonic crystals, optical microcavities and optical nanomaterials.

Credit Hours: 3 hour lecture

Prerequisites: EE 255, EE 256

EC 2319, Chemistry 401, Synthesis and Bioapplications of Organofluorine Chemistry, approved effective Fall 2011.

Course Description: Physicochemical characteristics; biological activity; general mechanistic aspects; synthetic methodologies; fluorinated organic compounds as mechanism based enzyme inhibitors; fluorinated amino acids; fluorinated carbohydrates; fluorinated peptide isosteres; fluorinated pharmaceuticals and anesthetics; organofluoro compounds in neurological disorders and anticancer agents.

Credit Hours: 3 hour lecture

Prerequisites: Chem 321 or equivalent

EC 2320, Statistics 301, Statistical Data Analysis Using SAS, approved effective Summer 2011.

Course Description: This course will introduce the student to selected data analytic tools implemented in the Statistical Analysis system (SAS) and appropriate and effective use of these tools. Focus would be on both the use of SAS data analytic tools and the theoretical and methodological rationale that form the basis of such analyses.

Credit Hours: 3 hour lecture

Prerequisites: One of Stat 213, 215, 217, 343 and one of Stat 346, 353, 443, 444, 445

EC 2323, Biological Sciences 201, Introduction to Synthetic Biology, approved effective Summer 2011.

Course Description: Synthetic biology is the use of standardized parts to build devices or systems. Students will design parts (basic biological functions encoded as genetic material) and assemble devices (combinations of one or more parts encoding human-defined functions) resulting in systems (combinations of devices encoding human-defined functions). Students will participate in independent research projects.

Credit Hours: 1 hour lecture, 2 hour lab

Prerequisites: Bio Sci 110 or 111; Chem 3

EC 2324, Computer Science 401, Pervasive Computing, approved effective Fall 2011.

Course Description: Pervasive computing aims to seamlessly integrate computing into our everyday activities, so that people do not need to care about computing artifacts. This course will introduce various techniques needed to realize pervasive computing, such as position tracking and ad-hoc networking.

Credit Hours: 3 hour lecture

Prerequisites: Comp Sci 365 or Comp Eng 319 or equivalent

EC 2325, Computer Science 301, Introduction to Data Mining, approved effective Fall 2011.

Course Description: This course provides an introduction to classical data mining methods which can be used to predict unknown or future values of variables, or to find human-interpretable patterns that describe data. Topics will include classification, clustering, association rule discovery, sequential pattern discovery, regression, and deviation/anomaly detection.

Credit hours: 3 hour lecture

Prerequisites: Comp Sci 238, one of Stat 213 or 215 or 217 or 343

EC 2326, Business 301, Development and Management of New Products, approved effective Fall 2011.

Course Description: Provides framework, tools, techniques, and perspectives to be effective in developing and managing new products. The course encompasses the new product development process from the identification of market need through planning for commercialization.

Credit Hours: 3 hour lecture

Prerequisites: None

EC 2327, Marketing 301, Promotions Management, approved effective Fall 2011.

Course Description: A managerial examination of advertising techniques and how they affect decisions in advertising and sales promotion. Course topics include setting advertising objectives and the budget, applying media tools, and developing advertisements. Instructional methods may include a team project, Internet assignments, and workshops.

Credit Hours: 3 hour lecture

Prerequisites: None

EC 2328, Business 401, Innovation Management, approved effective Spring 2012.

Course Description: Examines the innovation processes used by leading companies to launch new products and services. Constructs, methods, tools, technologies, and metrics for managing innovation are explored within the context of various industry segments and through the use of examples and cases.

Credit Hours: 3 hour lecture

Prerequisites: Bus 301 Devel New Products

EC 2329, IST 301, Advanced Digital Media, approved effective Fall 2011.

Course Description: This is a project-based course that covers advanced digital media skills, including web, graphic, audio, and video technologies.

Credit Hours: 3 hour lecture

Prerequisites: IST 286

EC 2330, History 301, France and the Second World War, approved effective Fall 2011.

Course Description: This seminar-style course examines France during the Second World War and covers topics such as resistance, collaboration, the Holocaust in France, and civilians' daily life. We will examine political decisions as well as lingering effects on French society.

Credit Hours: 3 hour lecture

Prerequisites: Hist 112 or Hist 176

Daniel Tauritz, Chair

Missouri S&T Campus Curricula Committee