

Memo To: Faculty Senate  
From: Missouri S&T Campus Curriculum Committee Meeting  
RE: May 5, 2009 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 0322, Chemistry, Bachelor of Arts Secondary Education Emphasis Area, effective Fall 2009. A proposal to modify the current curriculum for the BA in Chemistry Secondary Education Emphasis Area.

DC 0323, Chemistry, Bachelor of Arts, effective Fall 2009. A proposal to modify the chemistry electives by removing Chem 349, 351, and 371.

DC 0324, Chemistry, Bachelor of Science Pre-medicine Emphasis Area, effective Fall 2009. A proposal to modify the chemistry electives by removing Chem 351.

DC 0325, Geology and Geophysics, Minor in Geology, effective Fall 2009. A proposal to modify the current curriculum for the minor in Geology.

DC 0326, Geology and Geophysics, Geophysics emphasis area, effective Fall 2009. A proposal to modify the requirements for the Geophysics emphasis area.

**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 7636, Math 402, Physics 402, Mathematical Physics I. The following change is approved effective Fall 2009.

Co-listing: Physics 402

CC 7637, Math 403, Physics 403, Mathematical Physics II. The following changes are approved effective Fall 2009.

Prerequisite – Present: Math 402 or equivalent

Proposed: Math 402 or Physics 402

Co-listing: Physics 403

CC 7638, Physics 402, Mathematical Physics I. New course approved effective Fall 2009.

Catalog Description: Vector spaces, generalized coordinate transformations, vector analysis, tensors, partial differential equations in physics and boundary value problems, orthogonal functions and solutions to ordinary differential equations, hypergeometric, confluent hypergeometric, Legendre, Laguerre, and Bessel functions, Hermite polynomials, Green's functions in one dimension.

Credit Hours: 3 hour lecture

Prerequisites: None

Co-listing: Math 402

CC 7639, Physics 403, Mathematical Physics II. New course approved effective Fall 2009.

Catalog Description: Green's functions in three dimensions, integral equations, complex variable theory and contour integration, group theory with applications to quantum mechanics, solid state and molecular physics.

Credit Hours: 3 hour lecture

Prerequisites: Math 402 or Physics 402

Co-listing: Math 403

CC 7640, Engineering Management 477, Tolerance Design. New course approved effective Fall 2009.

Catalog Description: This course is an examination of the theory and practice of allowance allocation for high quality and low cost manufacture of mass-produced consumer products, including technology intensive products, such as automobiles, trucks, military and commercial airplanes, computers and consumer electronics.

Credit Hours: 3 hour lecture

Prerequisites: Emgt 375 or equivalent

CC 7641, Psychology 140, Experimental Psychology. The following change is approved effective Fall 2009.

Course Title – Proposed: Research Methods

Catalog Descriptions – Proposed: An introduction to the content, models and methodologies of psychological research. This course covers the fundamental components of psychological research including the literature review, correlational and descriptive methods, experimental design, statistical analyses, interpretation, and ethics.

CC7642, Psychology 401, Special Topics. New course approved effective Fall 2009.

Catalog Description: This course is designed to give the department an opportunity to test a new graduate level course. Variable title.

Credit Hours: 0-6

Prerequisite: None

CC 7643, Physics 483, Selected Topics of the Solid State. The following change is approved effective Spring 2010.

Course Title – Proposed: Special Topics in Condensed Matter Physics

Catalog Description – Proposed: A selection of advanced concepts in modern condensed matter physics. Potential topics include: Many-body theory, electron-lattice interactions, quantum magnetism, disordered solids, superconductivity, symmetry breaking and phase transitions, nucleation, inhomogeneous fluids and interfaces, wetting transitions.

CC 7644, Physics 451, Advanced Computational Physics. New course approved effective Spring 2010.

Catalog Description: An introduction to modern computer simulations for solving physics problems. The course will be project-oriented with examples including planetary motion, chaotic dynamics, quantum scattering, structure of atoms and clusters, molecular dynamics, and Monte-Carlo simulations. Graduate students will be required to do extra work upon consultation with their advisor.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

CC 7645, Physics 475, Molecular Spectroscopy. Course deletion approved effective Fall 2009.

CC 7646, Physics 481, Physics of the Solid State. The following change is approved effective Fall 2009.

Course Title – Proposed: Condensed Matter Physics

Catalog Description – Proposed: A course in the physics of hard and soft matter including solids, liquids, and complex materials. Topics: atomic structure, mechanical properties, phonons, electronic structure, energy band theory, electronic correlations, transport properties, magnetism, superconductivity.

CC 7647, Physics 457, Advanced Subatomic Physics. New course approved effective Fall 2010.

Catalog Description: An introduction to elementary particles. Topics include particle properties, nuclear forces, particle interactions, the Standard Model for quarks and leptons, fundamental forces in gauge field theory models, and the role of elementary particle interactions in cosmology.

Credit Hours: 3 hour lecture

Prerequisites: Physics 307

CC 7648, Chemical Engineering 443, MSE 443, Nanomaterials. New course approved effective Fall 2009.

Catalog Description: Introduction of the fundamentals of nanomaterials and recent developments on nanomaterials. Topics include physical and chemical properties, synthesis, processing, and applications of nanomaterial. Example nanomaterials include nanoparticles, nanotubes, and nanowires. Students will need to complete a project related to nanomaterials.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

CC 7649, Geological Engineering 105, Mathematical Concepts for Military Engineers. New course approved effective Summer 2009.

Catalog Description: Review of fundamental concepts in Algebra, Trigonometry and Calculus for students in Geological Engineering. Designed as a bridging course for Military Reserve officers enrolled in the On-Line Certificate in Military Geological Engineering.

Credit Hours: 2 hour lecture

Prerequisite: Permission of instructor. This course was designed for military officers registered in either the GE DL MS Degree Program or the GE FLW MS Degree Program.

CC 7650, Geological Engineering 425, Applications of Geological Engineering. Approved as an EC. See EC #2181.

CC 7651, Geological Engineering 205, Statics and Mechanics of Geologic Materials.  
New course approved effective Summer 2009.

Catalog Description: Fundamental statics of rigid bodies and mechanics of deformable bodies for entering graduate students, focusing on behavior of rock and soil in engineering situations. Not for students intending to register as professional engineers.

Credit Hours: 3 hour lecture

Prerequisites: Permission of instructor. This course was designed for military officers registered in either the GE DL MS Degree Program or the GE FLW MS Degree Program

CC 7652, Geological Engineering 210, Statics and Mechanics of Geologic Materials.  
Duplicate of CC 7651, returned to department.

CC 7653, Mechanical Engineering 211, Linear Systems in Mechanical Engineering. The following changes are approved effective Fall 2009.

Course Title – Proposed: Modeling and Analysis of Dynamic Systems

CC 7654, Mechanical Engineering 279, Automatic Control of Mechanical Systems. The following change is approved effective Fall 2009.

Course Title – Proposed: Automatic Control of Dynamic Systems

CC 7655, Mechanical Engineering 366, Solar Energy Technology. New course approved effective Fall 2009.

Catalog Description – Proposed: Introduction to the nature of solar radiation and associated thermal energy transfers. Methods of collecting and storing solar energy. Analysis and design of systems for utilizing solar energy, including heating and cooling.

Credit Hours – Proposed: 3 hours lecture

Prerequisites: ME 225, or consent of instructor for non – ME majors.

CC 7656, Spanish 90, Scientific Spanish . Course deletion approved effective Fall 2009

CC 7657, Sociology 383, Social Science Foreign Field Study. Course deletion approved effective Fall 2009.

CC 7658, Sociology 380, Social Organization. Course deletion approved effective Fall 2009.

CC 7659, Sociology 342, Social Investigation. Course deletion approved effective Fall 2009.

CC 7660, Sociology 321, Social Theory. Course deletion approved effective Fall 2009.

CC 7661, Sociology 251, Urban & Rural Sociology. Course deletion approved effective Fall 2009.

CC 7662, Sociology 245, Ethnicity & Nationality. Course deletion approved effective Fall 2009.

CC 7663, Sociology 240, social Complex Organization. Course deletion approved effective Fall 2009.

CC 7664, Sociology 218, Social Change. Course deletion approved effective Fall 2009.

CC 7665, Russian 180, Basic Russian Composition. Course deletion approved effective Fall 2009.

CC 7666, Philosophy 347, Philosophy of Language. Course deletion approved effective Fall 2009.

CC 7667, Philosophy 302, Internship. Course deletion approved effective Fall 2009.

CC 7668, German, 311, Adv German Conversation. Course deletion approved effective Fall 2009.

CC 7669, German 180, Basic German Composition. Course deletion approved effective Fall 2009.

CC 7670, French 90, Scientific French. Course deletion approved effective Fall 2009.

CC 7671, Spanish 378, Novela Proletaria. Course deletion approved effective Fall 2009.

CC 7672, Spanish 277, Lit in Trans (Spanish). Course deletion approved effective Fall 2009.

CC 7673, Speech & Media Studies, Design & Prod for Prt Media. Course deletion approved effective Fall 2009.

CC 7674, Sociology 265, Sociology of Education. Course deletion approved effective Fall 2009.

CC 7675, Sociology 235, Industrial Sociology. Course deletion approved effective Fall 2009.

CC 7676, Sociology 231, Social Stratification. Course deletion approved effective Fall 2009.

CC 7677, Sociology 225, Culture & Personality. Course deletion approved effective Fall 2009.

CC 7678, Sociology 220, The Community. Course deletion approved effective Fall 2009.

CC 7679, Sociology 160, Hispanic Culture. Course deletion approved effective Fall 2009.

CC 7680, Sociology 121, Human Ecology. Course deletion approved effective Fall 2009.

CC 7681, Sociology 85, Cultural Anthropology. Course deletion approved effective Fall 2009.

CC 7682, Russian 402, Elem Russian Grad Students. Course deletion approved effective Fall 2009.

CC 7683, Russian 311, Advanced Russian Conversation. Course deletion approved effective Fall 2009.

CC 7684 Philosophy 305, Contemporary Philosophy. Course deletion approved effective Fall 2009.

CC 7685, Philosophy 212, Ethics of Computer Usage. Course deletion approved effective Fall 2009.

CC 7686, Music 38, Class Instrument Instruction. Course deletion approved effective Fall 2009.

CC 7687, Music 31, Varsity Band. Course deletion approved effective Fall 2009.

CC 7688, French 402, Beg Fr For Grad Students. Course deletion approved effective Fall 2009.

**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 2165, Environmental Engineering 301, Civil Engineering 301, Architectural Engineering 301, Sustainability, Population, energy, Water, and Materials, approved effective Fall 2009.

Course Description: This course will examine the concepts regarding the continued advancement of humankind while maintaining our ecological niche on earth. Key topics include: population growth, poverty, and impacts of development; energy consumption, sources, storage, conservation and policy; water quality and quantity; materials and building; and policy implications.

Credit Hours: 3 hour lecture

Prerequisites: Senior Standing

EC 2166, Mechanical Engineering 301, Aerospace Engineering 301, Alternate Energy Engineering, approved effective Spring 2010.

Course Description: The course introduces the physics & methods of energy conversion from non-conventional energy sources (solar, wind, nuclear, biomass, geothermal, oceans and transportation sources). Coverage will include: advantages and disadvantages of energy sources, engineering design challenges in harnessing such forms of energy, and evaluation and analysis of energy systems for the future.

Credit Hours: 3 hour lecture

Prerequisites: Any undergraduate thermodynamics or fluids class

EC 2167, Biological Sciences 401, Computer Science 401, Advanced Bioinformatics, approved effective Fall 2009.

Course Description: This course covers advanced topics in computational methods of the analysis of biological data, including advanced algorithm design and implementation, data mining, biological visualization, and the access and analysis of large data sets.

Credit Hours: 3 hour lecture

Prerequisites: CS 311 or Bio 311



EC 2168, Petroleum Engineering 301, 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.

Credit Hours: 3 hour lecture

Prerequisites: PE 241

EC 2169, Electrical Engineering 401, Wireless Communications, approved effective Spring 2010.

Course Description: Introduction to the principle of wireless communications in modern cellular and satellite communication systems. Topics include: wireless channel characteristics, cellular concepts, capacity analysis, transceiver architectures, diversity techniques, multiple access schemes, practical wireless systems and wireless networks.

Credit Hours: 3 hour lecture

Prerequisites: EE 343; EE 344 or Stat 343

EC 2170, Statistics 301, Physics 301, Science Education and Quantitative Literacy for Elementary School, approved effective Summer 2009.

Course Description: An integrated science-mathematics course for elementary school teachers. Course covers selected science/mathematics topics/skills specified in Missouri standards for grades 3-5. Inquiry-based methods of teaching these topics in an integrated manner will be emphasized.

Credit Hours: 3 hour lecture

Prerequisites: Stat 305 or Stat 306 or Stat 307 or Phy 302 or Phy 303

EC 2171, Civil Engineering 301, Advanced Traffic Signal Operations, approved effective Fall 2009.

Course Description: Discuss the role and function of a traffic signal components: the signal controller, conflict monitor, vehicle detectors, etc. Discuss layout of traffic signal hardware at an intersection. Discuss the phasing/timing of traffic signals in detail.

Credit Hours: 3 hour lecture

Prerequisites: CE 353

EC 2172, Computer Science 401, Heterogeneous and Mobile Databases, approved effective Spring 2010.

Course Description: This course extensively discusses multi-database systems (MDBS) and mobile data access systems (MDAS), moreover it will study traditional distributed database issues within the framework of MDBSs and MDASs

Credit Hours: 3 hour lecture

Prerequisite: CS 304

EC 2181, Geological Engineering 401, Applications of Geological Engineering, approved effective Summer 2009.

Course Description: The course is focused on geological engineering considerations during military-site characterizations. Fundamental topics such as rock mechanics, engineering hazards, environmental issues and site planning will be covered from the perspective of the practicing military engineer operating in a rapid deployment mode.

Credit Hours: 3 hour lecture

Prerequisites: Permission of instructor. This course was designed for military officers registered in either the GE DL MS Degree Program or the GE FLW MS Degree Program.

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