



OFFICE OF THE REGISTRAR

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Memo To: Academic Council
From: UMR Campus Curriculum Committee Meeting
RE: March 7 and April 4, 2006 Meetings

The UMR Campus Curricula Committee recommends to the Academic Council that the curriculum changes and degree proposals on the following DC forms be approved.

Approved DC forms:

DC 182, College of Arts and Sciences, Biological Sciences, approved effective Fall 2007. A proposal to change the current curriculum for the BS in Biological Sciences.

DC 0183, School of Engineering, Interdisciplinary Engineering, approved effective Fall 2006.

A proposal to create a new Master of Science in Interdisciplinary Engineering.

DC 0184, School of Engineering, Interdisciplinary Engineering, approved effective Fall 2006.

A proposal to create a new Ph.D. in Interdisciplinary Engineering.

DC 0185, School of Engineering, Systems Engineering, approved effective Fall 2006. A proposal to change the current curriculum for the MS in Systems Engineering by replacing EMgt 308, 314, and 361 with Sys Eng 413, 411, and 412.

DC 0186, School of Engineering, Mechanical Engineering/Manufacturing Process Emphasis Area, approved effective Fall 2006. A proposal to modify the current emphasis area in Manufacturing Processes.

DC 0187, SMIS, Business and Management Systems, approved effective Fall 2006. A proposal to change the current curriculum for the BS in Business and Management Systems by replacing Bus 250 with Fin 250.

DC 0188, SMIS, Information Science & Technology, approved effective Fall 2006. A proposal to change the current curriculum for the BS in Information Science & Technology by replacing IST 286 with IST 246 and IST 221 with IST 286.

DC 0189, SM&IS, Business and Management Systems, approved effective Fall 2006. A proposal to modify the current curriculum for the BS in Business and Management Systems by replacing IST 346 with IST 246.



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DC 0197, School of Engineering, Electrical Engineering, approved effective Fall 2006.

A proposal to change the course listings for the Power Emphasis area under Electrical Engineering by replacing EE 306 with EE 307.

DC 0199, School of Engineering, Aerospace Engineering, approved effective Fall 2006.

A proposal to modify the current curriculum for the BS in Aerospace Engineering.

DC 0200, College of Arts and Sciences, Psychology, approved effective Fall 2006. A requirement clause of ,“At least 6 hours of work in the Psychology Minor must be completed in residence at UMR”, will be added after the Psychology Minors in the Undergraduate Catalog.

The UMR Campus Curricula Committee recommends to the Academic Council that the course changes on the following CC forms be approved.

Approved CC forms:

CC 7016, Engineering 111, Experiential Design. New course approved effective Spring 2007.

Catalog Description: Members of the class will learn modern design methods and will have the opportunity to gain hands-on experience through team projects

Credit Hours: .5 hour lecture

Prerequisites: None

CC 7017, Environmental Engineering 467, Civil Engineering 467, Environmental Chemistry. The following change is approved effective Fall 2006.

Credit Hours – Present: 3 hour lecture

Proposed: lecture: 2 lab:1 Total: 3

CC 7018, Engineering Management 257, Mechanical Engineering 256, Materials Handling and Plant Layout. The following change is approved effective Fall 2006.

Prerequisites – Present: Emgt 282 or Mc Eng 153

Proposed: None

CC 7019, Engineering Management 344, Mechanical Engineering 344, Chemical Engineering 384, Interdisciplinary Problems in Manufacturing Automation. The following change is approved effective Fall 2006.

Prerequisites – Present: Emgt 334

Proposed: None

CC 7020, Engineering Management 434, Advanced Manufacturing Systems Integration. The following change is approved effective Fall 2006.

Prerequisites – Present: Emgt 334

Proposed: None



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CC 7022, Military Science 15, Foundations of Officership. The following changes are approved effective Fall 2006.

Course Title – Proposed: Leadership and Personal Development

Catalog Description – Proposed: Mil Sci 15 introduces cadets to the personal challenges and competencies that are critical for effective leadership. Cadets learn how the personal development of life skills such as critical thinking, goal setting, time management, physical fitness, and stress management relate to leadership, officership, and the Army profession.

CC 7023, Military Science 25, Basic Leadership. The following changes are approved effective Fall 2006.

Course Title – Proposed: Introduction to Tactical Leadership

Course Description – Proposed: Mil Sci 25 overviews leadership fundamentals such as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Cadets explore dimensions of leadership values, attributes, skills and actions in the context of practical, hands-on, and interactive exercises.

CC 7024, Military Science 35, Individual Leadership Studies. The following change is approved effective Fall 2006.

Course Title – Proposed: Innovative Team Leadership

CC 7025, Military Science 40, Leadership and Teamwork. The following change is approved effective Fall 2006.

Course Title – Proposed: Foundations of Tactical Leadership

Catalog Description – Proposed: Mil Sci 40 examines the challenges of leading tactical teams in the complex contemporary operating environment (COE). The course highlights dimensions of terrain analysis, patrolling, and operation orders. Further study of the theoretical basis of the Army leadership framework explores the dynamics of adaptive leadership in the context of military operations.

CC 7026, Military Science 105, Leadership and Problem Solving. The following changes are approved effective Fall 2006.

Course Title – Proposed: Adaptive Tactical Leadership

Catalog Description – Proposed: Mil Sci 105 Challenges cadets to study, practice, and evaluate adaptive leadership skills as they are presented with scenarios related to squad operations. Cadets receive systematic and specific feedback on their leadership attributes and actions. Based on such feedback and self-evaluations, cadets continue to develop their leadership and critical thinking abilities.

CC 7027, Military Science 106, Leadership and Ethics. The following changes are approved effective Fall 2006.



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Course Title – Proposed: Leadership in Changing Environments

Catalog Description – Proposed: Mil Sci 106 Uses increasingly intense situational leadership challenges to build cadet awareness and skills in leading tactical operations up to platoon level. Cadets review aspects of combat, stability, and support operations. They also conduct military briefings and develop proficiency in garrison operation orders.

CC 7028, Military Science 207, Leadership, Management, and Ethics. The following changes are approved effective Fall 2006.

Course Title – Proposed: Developing Adaptive Leaders

Catalog Description – Proposed: Mil Sci 207 Develops cadet proficiency in planning, executing, and assessing operations, functioning as a member of a staff, and providing performance feedback to subordinates. Cadets assess risk, make ethical decisions, and lead fellow ROTC cadets. Lessons on military justice and personnel processes prepare cadets to make the transition to Army officers.

CC 7029, Military Science 208, Officership. The following changes are approved effective Fall 2006.

Course Title – Proposed: Leadership in a Complex World

Catalog Description – Proposed: Mil Sci 208 Explores the dynamics of leading current military operations in the contemporary operating environment. Cadets examine differences in customs, military law, principles of war, and rules of engagement in terrorism. They also explore aspects of interacting with non-government organizations, civilians on the battlefield, and host nation support.

CC 7030, Physics 355, Chaos, Fractals, and Nonlinear Dynamics. New course approved effective Fall 2006.

Catalog Description: An introduction into nonlinear dynamics, deterministic chaos, and fractals. Topics covered include phase plane analysis, iterated maps, routes to chaos, lyapunov exponents, strange attractors and pattern formation with applications to chaotic vibrations, population dynamics, chemical oscillations and lasers.

Credit Hours: 3 hour lecture

Prerequisites: Math 204; Physics 24 or Physics 25

CC 7031, Biological Sciences 211, Cellular Biology. Tabled, department needs to do a DC form.

Course Title – Proposed: Cell Biology

Catalog Description – Proposed: The structure and function of eukaryotic and prokaryotic cells. Emphasis on macromolecules, organelles, metabolic pathways, bioenergetics, cell signaling, the cycle, and information processing.

Credit Hours – Present: Lecture: 3 Lab: 1 Total: 4

Proposed: 3 hour lecture



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CC 7032, Biological Sciences 212, Cell Biology Laboratory. Tabled, department needs to do a DC form.

Catalog Description: Laboratory course to accompany Cell Biology (Biol 211).

Laboratory work includes microscopy, biochemical assays, enzymology, and genetic analysis (PCR, mapping, electrophoresis, transfection, sequencing).

Credit Hours: 1 hour lab

Prerequisites: Preceded or accompanied by Biol 211

CC 7033, Systems Engineering 404, Computer Science 404, Computer Engineering 404, Data Mining and Knowledge Discovery. New course approved effective Fall 2006.

Catalog Description: Data mining and knowledge discovery utilizes both classical and new algorithms, such as machine learning and neural networks, to discover previously unknown relationships in data. Key data issues to be addressed include knowledge representation and knowledge acquisition (automated learning).

Credit Hours: 3 hour lecture

Prerequisites: Graduate standing

CC 7034, Engineering Management 404, Data Mining and Knowledge Discovery. Course deletion approved effective Spring 2006.

CC 7035, Computer Engineering 311, Introduction to VLSI Design. The following change is approved effective Fall 2006.

Credit Hours – Present: Lecture: 2 Lab: 1 Total: 3

Proposed: 3 hour lecture

CC 7036, IST 446, Business 446, Enterprise Resource Planning: Systems Config and Integration. New Course approved effective Spring 2007.

Catalog Description: Implementation and design practices for business processes in Enterprise Resource Planning (ERP) systems. The course will examine and apply techniques used in SAP R/3 for system configuration and integration, with focus on logistics and finance.

Credit Hours: 3 hour lecture

Prerequisites: IST 346 or Bus 326

CC 7037, Geology 350, Paleoclimatology and Paleoecology. New course approved effective Fall 2006.

Catalog Description: This course will introduce students to the elements of climate, evidence of climate changes, proxy measurements and paleoclimate models. There is a review of Holocene climates and Archean to Pleistocene paleoclimates.

Credit Hours: 3 hour lecture

Prerequisites: Geology 52



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CC 7038, Geology 437, Advanced Palynology. The following change is approved effective Fall 2006.

Prerequisites – Present: Geology 223 or 329
Proposed: Geology 227 or 329

CC 7039, Systems Engineering 413, Economic Analysis of Systems Engineering Projects. New course approved effective Fall 2006.

Catalog Description: Economic evaluation of complex engineering systems for government defense and commercial industries; choosing system alternatives using engineering economic analysis; quantitative techniques for evaluating non-monetary consequences; life cycle costing, formal treatment of risk, uncertainty, and project cost monitoring.

Credit Hours: 3 hour lecture
Prerequisites: Graduate Standing

CC 7040, Systems Engineering 411, Systems Engineering Management. New course approved effective Fall 2006.

Catalog Description: This course covers modern methods of effective management of complex systems, and systems of systems. Effective team building and integrated product and process development in a diverse and global work environment is the central theme. Topics include leadership, quality tools, concurrent engineering, communication and performance evaluation.

Credit Hours: 3 hour lecture
Prerequisites: Graduate Standing

CC 7041, Systems Engineering 412, Complex Engineering Systems Project Management. New course approved effective Fall 2006.

Catalog Description: Explore issues related to planning, scheduling, and controlling complex engineering projects. Issues specific to distributed project planning and control, development of Systems Engineering Management Plan, Integrated Master Schedule and Integrated Master Plan, and monitoring technical performance, schedule and risk will be discussed.

Credit Hours: 3 hour lecture
Prerequisites: Graduate Standing

CC 7042, Music 310, Symphonic Bands. New course approved effective Fall 2006.

Catalog Description: An auditioned ensemble. Students perform music for wind ensemble and large bands. Music from 1400-present is performed in a concert setting.

Credit Hours: 1 hour lab
Prerequisites: Consent of instructor – audition only



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CC 7042, Mechanical Engineering 339, Aerospace Engineering 339, Computational Fluid Mechanics. The following changes are approved effective Fall 2006.

Course Title – Proposed: Computational Fluid Dynamics

Prerequisites – Present: Cmp Sc 73, one course in fluid mechanics

Proposed: Cmp Sc 53 or 73 or 74; one course in fluid mechanics

CC 7043, Mechanical Engineering 360, Aerospace Engineering 360, Probabilistic Engineering Design. New course approved effective Fall 2006.

Catalog Description: The course deals with uncertainties in engineering analysis and design at three levels uncertainty modeling, uncertainty analysis, and design under uncertainty. It covers physics based reliability analysis and reliability-based design, robustness assessment and robust design, their integration with design simulations, and their engineering applications.

Credit Hours: 3 hour lecture

Prerequisites: Mc Eng 208 or Ae Eng 261

CC 7044, Systems Engineering 449, Computer Engineering 449, Network-Centric Systems Reliability and Security. New course approved effective Spring 2007.

Catalog Description: This course presents reliability and fault tolerance for network-centric systems, including models, metrics, and analysis techniques. This course also concentrates on security, including technical tools and methods for audit and assessment as well as management and policy issues.

Credit Hours: 3 hour lecture

Prerequisites: SysE/CpE 419 or CpE 349

CC 7045, IST 246, Introduction to Enterprise Resource Planning. New course approved effective Fall 2006.

Catalog Description: Fundamentals of enterprise resource planning (ERP) systems concepts, and the importance of integrated information systems in an organization.

The focus of this course is on illustrating procurement, production, and sales business processes using ERP software. Use of SAP as an example ERP system.

Credit Hours: 3 hour lecture

Prerequisites: IST 141

CC 7046, IST 221, Internet Concepts & Applications. The following changes are approved effective Fall 2006.

Course Number – Proposed: 352

Course Title – Proposed: Advanced Web Development

Catalog Description – Proposed: Advanced Web development techniques to provide dynamic interaction; methods for extracting and delivering dynamic information to/from Web servers—a hands-on approach. Interaction with other Web servers, especially database servers, to obtain and deliver information. Project work is required.



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CC 7047, Computer Science 332, IST 353, Modular Software Systems. New course approved effective Spring 2007.

Catalog Description: Introduction to Software Life Cycle pertaining to characteristics of large modular software systems. Exploration of software support for such systems, using Java, including use of GUI features, advanced I/O and String handling, Interfaces, Abstract classes, Generics and other modularity features. Program project included.

Credit Hours: 3 hour lecture

Prerequisites: CS 253 or IST 231

CC 7051, Computer Engineering 325, Electrical Engineering 325, Optical Computing. New course approved effective Fall 2006.

Catalog Description: Introduction to the principles, subsystems, and architectures of optical computing. Topics include characteristics of optical devices; optical implementations of memory, logic elements, and processors: and computational structures.

Credit Hours: 3 hour lecture

Prerequisites: CpE 111 or equivalent

CC 7052, Electrical Engineering 325, Computer Engineering 325, Optical Computing, Fall 2006.

Prerequisites – Present: CpE 111 and EE 271 or equivalent

Proposed: CpE 111 or equivalent

Co-listing: CpE 325

CC 7053, Mechanical Engineering 261, Analysis and Synthesis in Engineering Design. The following changes are approved effective Fall 2006.

Course Title – Proposed: Engineering Design

Catalog Description – Proposed: Real-life design projects emphasize problem definition, conceptualization, modeling, approximation techniques and optimization.

Teamwork, communication, leadership and group discussions are encouraged.

Student group and professional expert presentations bring awareness to diverse design issues and methodology, and professional engineering practice.

Prerequisites – Present: Mc Eng 208, 225, 231

Proposed: Mc Eng 208, 225, 231; should be taken in final semester

CC 7055, IST 353, Modular Software Systems in Java, Spring 2007. Withdrawn by department. This course was approved on CC 7047 as a co-listed course with Comp Sci 332.



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For the information of the Academic Council, 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 1778, History 301, American Environmental History, approved effective Summer 2006.

Course Description: American Environmental History discusses the interaction of people with the Western Hemisphere's physical environment, 1500-present. This course looks at how humans envision the environment, how they interact with their surroundings, and how the changes that occur with that interaction influence not only their cultures, but the physical environment as well.

Credit Hours: 3 hour lecture

Prerequisites: Hist 175 or Hist 176 or Hist 112

EC 1779, Psychology 301, The Social Psychology of Health, approved effective Fall 2006.

Course Description: This course examines Health Psychology. Topics will include basic behavioral pharmacology (involving alcohol & other drugs), illusions of invulnerability to risk, stress and coping, and the science of persuading people to protect their health. Students will learn how to construct a public service announcement towards a societal problem as part of the course.

Credit Hours: 3 hour lecture

Prerequisites: Psych 50

EC 1780, Computer Science 301, Evolutionary Computing, approved effective Spring 2007.

Course Description: Introduces evolutionary algorithms, a class of stochastic, population-based algorithms inspired by natural evolution theory (e.g., genetic algorithms) capable of solving complex problems for which other techniques fail. Students will implement course concepts, tackling science, engineering and/or business problems.

Credit Hours: 3 hour lecture

Prerequisites: Cmp Sc 253 and a statistics course

EC 1781, Computer Engineering 201, Computer Organization and Design, approved effective Fall 2006.

Course Description: Introduction to basic concepts of computer organization and design; metrics for computer performance, computer arithmetic, Von Neuman architecture, implementing instructions, control unit, instruction pipelining, pipelining hazards and their mitigation, memory systems hierarchy, cache memories, basic I/O controllers such as keyboard.

Credit Hours: 3 hour lecture

Prerequisites: Cp Eng 111



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EC 1782, Systems Engineering 401, Economic Analysis of Systems Engineering Projects, Summer 2006.

Course Description: Economic evaluation of complex engineering systems for government defense and commercial industries; choosing system alternatives using engineering economic analysis; quantitative techniques for evaluating non-monetary consequences; life cycle costing, formal treatment of risk, uncertainty, and project cost monitoring.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

EC 1783, Systems Engineering 401, System Engineering Management, approved effective Summer 2006.

Course Description: This course covers modern methods of effective management of complex systems, and systems of systems. Effective team building and integrated product and process development in a diverse and global work environment is the central theme of the course. Topics to be covered include leadership, quality tools and associated philosophy, concurrent engineering, communication and performance evaluation.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

EC 1784, Systems Engineering 401, Complex Engineering Systems Project Management, approved effective Summer 2006.

Course Description: Explores issues related to planning, scheduling, and controlling complex engineering projects. Issues specific to distributed project planning and control, development of Systems Engineering Management Plan, Integrated Master Schedule and Integrated Master Plan, and monitoring technical performance, schedule and risk will be discussed.

Credit Hours: 3 hour lecture

Prerequisites: Graduate Standing

EC 1785, IST 401, Database Marketing, approved effective Spring 2007.

Course Description: Introduce students to methods & concepts used in database marketing, such as 1) predictive modeling techniques (e.g., regression, decision trees, cluster analysis) and 2) standard processes for mapping business objectives to data mining goals to produce a deployable marketing model. Metrics like lifetime value of a customer and ROI will be covered. Several application areas will be covered.

Credit Hours: 3 hour lecture

Prerequisites: Ability to work with statistics, databases, and spreadsheets

EC 1786, IST 301, Telecommunications Management, approved effective Spring 2007.



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Course Description: Management of the business and technology aspects of telecommunications services, including both the skills to manage a business and the skills to effectively design select, implement, and operate telecommunications technology. Topics include managerial skills, technology planning, operations management, and planning & acquisition management.

Credit Hours: 3 hour lecture

Prerequisites: Bus 110 and IST 233

EC 1787, Geology 401, Advanced Paleoclimatology and Paleoecology, approved effective Fall 2006.

Course Description: Advanced study of paleoclimatic and paleoecologic processes since the Archean, and the interpretation of Holocene climate changes, including human impacts. Extensive presentations and discussions of current ideas and techniques in paleoclimatic studies.

Credit Hours: 3 hour lecture

Prerequisites: Geology 223 and 227

EC 1788, Business 301, International Business, approved effective Summer 2006.

Course Description: This survey course will deal with business concepts, analytical processes and philosophical bases for international business operations. Emphasis is on environmental dynamics, multinational business organizations, cultural and economic constraints, unique international business practices and international operations, strategy and policy.

Credit Hours: 3 hour lecture

Prerequisites: Bus 240

EC 1789, Aerospace Engineering 401, Advanced Astrodynamics, approved effective Summer 2006.

Course Description: Analysis of spacecraft motion using different dynamic models and perturbations. Use of the state transition matrix and differential corrections technique for trajectory computation. Orbit determination and station-keeping methods. Introduction to the three-body problem. Application of computational and analytic methods to solve astrodynamics problems.

Credit Hours: 3 hour lecture

Prerequisites: Ae Eng 314 or equivalent

EC 1790, Engineering Management 301, Case Studies in Project Management, approved effective Fall 2006.

Course Description: Includes the main components of the Project Management Institute (PMI) Body of Knowledge; case studies in project management including project implementation, organizational structures, project estimating, project scheduling, project risk management, and conflict management.

Credit Hours: 3 hour lecture

Prerequisites: Emgt 361

EC 1791, Nuclear Engineering 401, Advanced Mathematics for Nuclear Engineers, approved effective Fall 2006.

Course Description: Advanced application of ordinary and partial differential equations in the solution of nuclear engineering problems, particularly with the neutron transport equations. Bessel's equation, Legendre's equation and special functions, eigenvalue problems, Green's function, integral methods and transformations.

Credit Hours: 3 hour lecture

Prerequisites: NE 303

EC 1792, Statistics 301, Statistical Consulting, approved effective Spring 2007

Course Description: A discussion and case-study based course providing background and experience needed to be successful in a typical statistical consulting role: professional and ethical standards, contracting, interpersonal and listening skills. Actual consulting experience may be included.

Credit Hours: 3 hour lecture

Prerequisites: Stat 213 or 215 or 217; and one of Stat 353 or Stat 346 or Stat 444

EC 1793, Technical Communication 301, Proposal Writing, approved effective Spring 2007.

Course Description: A focus on the proposal as a fundamental aspect of corporate, government and academic institutions, with emphasis on the conventions and rhetorical elements of the proposal genre.

Credit Hours: 3 hour lecture

Prerequisites: English 65

EC 1794, MSE 301, Materials Selection in Mechanical Design, effective Spring 2007. Tabled.

Course Description: The course will introduce the basics of materials selection in mechanical design. It will also introduce the benefits of computational materials and process selection. The students will also learn to use commercially available materials selection software.

Credit Hours: 3 hour lecture

Prerequisites: Met 121

EC 1795, Nuclear Engineering 401, Two-phase Flow in Energy Systems II, approved effective Fall 2006.

Course Description: This is the first graduate level course for those who are interested in the two-phase flow applications in energy systems. This course will acquaint students with knowledge on various two-phase flow phenomena encountered in both adiabatic and heated systems, and their mechanistic models. This course also introduces both the conventional and state-of-the-art two-phase flow formulations.



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Credit Hours: 3 hour lecture

Prerequisites: NE 221 or Ch Eng 231 or ME 231

EC 1796, Mechanical Engineering 301, Chemical Engineering 301, Ceramic Engineering 301, Mechanics of Biological Tissues, approved effective Fall 2006.

Course Description: Mechanical behavior of a model cell. Thermo-visco-elasticity of polymer chains and networks, and molecular interpretation. Multi-scaling of cell filaments, membranes, whole cell and tissues. Biomedical applications in artificial insemination, tissue engineering and ophthalmology.

Credit Hours: 3 hour lecture

Prerequisites: Mc Eng 219 or Mc Eng 227 or Ch Eng 141 or Cer Eng 259 or the equivalent, and Math 204

EC 1797, Engineering Management 401, Tolerance Design, approved effective Fall 2006.

Course 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

EC 1798, Engineering Management 201, Introduction to Project Management, approved effective Fall 2006.

Course Description: This course covers the fundamentals of project management including project definition, project selection, project planning, estimating, scheduling, resource allocation and project control.

Credit Hours: 3 hour lecture

Prerequisites: None

EC 1802, Computer Engineering 301, Electrical Engineering 301, Systems Engineering 301, Wireless Networks, approved effective Summer 2006.

Course Description: Overview of wireless communications and networking, transmission fundamentals and wireless channel, signal coding techniques and error control, satellite communications, cellular networks, cordless systems, mobile IP and mobility management, multiple access techniques and wireless access protocols, wireless LAN, IEEE 802.11, and introduction to wireless adhoc and sensor networks.

Credit Hours: Lecture: 2 Lab: 1 Total: 3

Prerequisites: EE 243 or CpE 213; and hardware competency

EC 1803, Mechanical Engineering 301, Chemical Engineering 301, Ceramic Engineering 301, Biological Sciences 301, Mechanics of Biological Tissues, approved effective Fall 2006.



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Course Description: This course will introduce the students to biomechanics of single cells and tissues, characterization methods, and biomedical applications. Topics include 1) Mechanics of a model cell, 2) Time and temperature dependent mechanical behavior of polymer chains and networks, 3) Multi-scaling of cell filaments, membranes, the whole cell, multi-cell aggregate and tissues, and 4) Biomedical applications.

Credit Hours: 3 hour lecture

Prerequisites: IDE 110, IDE 120, Mc Eng 219, Math 204

EC 1808, IST 401, Information Network Analysis, approved effective Fall 2006.

Course Description: Focus is on applied analysis of complex information networks in the form of web and text systems. Topics include web system link analysis, text mining, consensus analysis, collaborative filtering, recommender systems. Uses interactive data analysis tools such as SAS.

Credit Hours: 3 hour lecture

Prerequisites: Database and Statistics Familiarity

EC 1809, IST 301, Use of Business Intelligence, approved effective Fall 2006.

Course Description: Application of “intelligent” techniques from CS (AI, data mining), and OR (stochastic modeling, simulation, forecasting) to business decision-making. Overview of the theory, but with a focus on the application to business problem solving. Use of SAP as a tool to access and present data, search for patterns, and identify exceptions, as well as forecast, optimize, and schedule resources.

Credit Hours: 3 hour lecture

Prerequisites: Database experience

J. Keith Nisbett, Chair
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