

DUAL & GRADUATE LEVEL LIVE ENGINEERING COURSES
Purdue University Calumet
Spring 2009 (January 12, 2009 to May 9, 2009)

CRN: 64767 ECE 595A Neural Networks, C. Viswanathan, MW 2:00-3:20 PM

Introduction to Neural Networks design and applications. Neural network architectures. The perception, linear networks, associative, competitive, and recurrent networks. Machine learning: least mean squares and backpropagation. Statistical pattern classification. Performance evaluation of learning systems. Fuzzy Logic – hybrid models - Engineering applications.

CRN: 64768 ECE 595B, Client Server Program, M. Anan, MW 3:30-4:50 PM

Fundamentals of Client/Server programming using socket interface; features of network programming including connection oriented and connectionless communication using C++ and Java; other client/server mechanisms, such as RPC and RMI and formal object environments designed to facilitate network programming CORBA, COM and Beans.

Prerequisites: Graduate/senior standing or by instructor's permission.

Computer Networking and Programming backgrounds are required.

CRN: 64769 ECE 595C Principles of Medical Imaging, B. Chen, MW 6:30–7:50 PM

This course is designed for graduate students or senior students in engineering or closely related areas. It covers the major aspects of standard medical imaging systems used today including X-Ray, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound (US) and nuclear medicine. The fundamental physics and engineering underlying each imaging modality are reviewed. The image acquisition, reconstruction and artifact correction are examined. Students will gain technical knowledge and an overview of current status of medical imaging technologies.

Prerequisite: Basic college physics and/or engineering courses, Linear algebra, Matlab programming

CRN: 64770 ECE 595D Power Systems, E. Pierson MW: 5:00-6:20 PM

Power systems overview, electric energy and the environment, AC transmission lines and underground cables, power flow, transformers in power systems, high voltage dc, distribution systems, synchronous generators, voltage regulation and stability, transient and dynamic stability, control and economic dispatch, transmission line faults, and transient over-voltages. Computer simulations.

CRN: 64771 ECE 595E Software Design, X. Yang, TR: 3:30-4:50 PM

Prerequisite: Familiar with Object-Oriented programming languages: C++/Java.

The purpose of this course is to introduce the design method of complex software systems. Topics include reviews of principles of object-oriented programming languages; introduction to software project management; software life cycle: requirements, design, implementation and testing; design methods using UML for concurrent, real-time and distributed large scale object-oriented software systems.

CRN: 65165 ECE 595K Statistical Concepts & Application in Engr, Y. Siow, TR: 3:30-4:50 PM

Introduction to concepts and modern tools in probability and statistics, with applications to engineering design, system analysis, manufacturing, and quality management problems.

CRN: 64752 ME 597A Air Quality Modeling, X. Wang, MW 3:30-4:50 PM

This course is intended for the graduate engineer or scientist who is interested in the modeling of air pollution: the basic concepts of air quality and air pollution modeling; overview of practical and advanced approaches to air pollution modeling meteorology; evaluation of models and the development of efficient control strategies. Problems of engineering interest will be examined. Some of the homework problems will require use of a CFD code – several source codes will be provided as well as access to commercial CFD codes such as FLUENT/GAMBIT.

CRN: 64753 ME 597B Heating and Air Conditioning Analysis, G. Nnanna, MW 2:00-3:30 PM

This course is an introduction to analysis and design of Heating, Ventilation, Air-Conditioning & Refrigeration HVAC&R system. The materials covered include air conditioning systems, decentralized cooling and heating systems, space air conditioning design, moist air properties and psychrometric processes, indoor air quality, heat transmission in building structures, space cooling and heating load calculations, energy calculations, pipe design and sizing, space air diffusion, fans and building air distribution, cooling towers and heat exchangers, extended surfaces, HVAC&R case studies and trends including residential, commercial and hospital facilities.

CRN: 64754 ME 597C CFD Applications, X. Wang, MW 6:30-7:50 PM

An introduction to basic concepts and techniques in CFD. Basic aspects of discretization of governing equations. Finite difference and finite volume methods. Computational Grids. Boundary conditions. Numerical solutions of some flow problems. Use of CFD software.

CRN: 65166 ME 597K Statistical Concepts & Application in Engr, Y. Siow, TR: 3:30-4:50 PM

Introduction to concepts and modern tools in probability and statistics, with applications to engineering design, system analysis, manufacturing, and quality management problems.

CRN: 64751 ME 597D Finite Element Analysis, B. Pai, MW 12:30-1:50 PM

CRN: 64906 MSE 597A Solid Waste Management, H. Abramowitz, MW 5:00-6:30 PM

An introduction to the decisions that must be made from the point of generation to the ultimate disposal of solid wastes. Solid wastes include municipal, industrial, medical, hazardous, and radioactive wastes. Decisions encompass the four major solid waste functions: (1) collection (including storage, and the separation of materials for recycling); (2) transport, (3) processing (including volume reduction, energy recovery/thermal reduction, and materials recovery) and (4) ultimate disposal (landfilling of wastes or residues, stabilization/fixation, and vitrification). The appropriate environmental legislation will be incorporated as the various topics are introduced. Field trips will be arranged. The primary focus will be on municipal waste.

See next page for Off Campus Courses

GRADUATE LEVEL Off Campus COURSES Spring 2009

(January 12, 2009 to May 8, 2009)

Registration Deadline: January 9, 2009

Taught live at Purdue West Lafayette

Available via streaming video (primarily), CD & Internet at Purdue Calumet

Course Administrator: N. Houshangi

64876	AAE552	Nondestructive Evaluations of Structures and Materials
64877	AAE607	Variational Principles of Mechanics
64878	AAE626	Turbulence Modeling
64879	AAE690S	Advanced Signals and Systems for Satellite Navigation
64880	CE5970	Advanced Geospatial Estimation
64881	CE59700	GPS Positioning
64882	ECE580	Optimization Methods for Systems and Control
64883	ECE600	Random Variables and Signals
64884	ECE608	Computational Models and Methods
64885	ECE637	Digital Image Processing I
64886	GRAD590	Powertrain Integration
64887	IE533	Industrial Applications of Statistics
64888	IE546	Economic Decisions in Engineering
64889	IE583	Design and Evaluation of Material Handling Systems
64890	IE670	Advanced Topics in Manufacturing Engineering
64891	MA528	Advanced Mathematics for Engineers and Physicists II
64892	ME510	Gas Dynamics
64893	ME525	Combustion
64894	ME553	Product and Process Design
64895	ME559	Micromechanics of Materials
64917	ME577	Human Motion Kinetics
64896	ME578	Digital Control
64897	ME597	Heat Transfer in Electronic Systems
64898	ME614	Computational Fluid Dynamics
64899	MSE510	Microstructural Characterization Techniques
64900	MSE530	Materials Processing in Manufacturing
64901	STAT522	Sampling and Survey Techniques

- For more information: <https://engineering.purdue.edu/ProEd>
- For text books, contact: [University Bookstore, West Lafayette, IN, 765-743-9618](#) or
- Web Address: www.purdueu.com; [Follett's Bookstore, West Lafayette, IN](#)
- 765-743-9642 or 1-800-837-5388, Web Address: www.purdue.bkstr.com; or
- [Total Information, Inc.](#) toll free: 1.800.876.4636 or fax: 712.254.0153. Web Address: www.total-info.com.
- For PUC engineering graduate program, visit: <http://www.calumet.purdue.edu/engr/engrgradprogram.html>
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