

Pre-Approved MEng Electives for Systems Engineering

5-Jan-09

Systems Engineering Masters

1. All the core courses must be satisfactorily completed.
2. At least one course from the Systems Modeling and Analysis group must be completed.
3. No more than one course from the Systems Management group may be used.
4. A minimum of thirty credit hours are required.
5. The entire selection of courses for the degree must be approved by the student's advisor.
6. Other courses could be accepted as electives if approved by the Director of Graduate Studies.

Systems Engineering Options

1. All the core courses must be satisfactorily completed.
2. Take any course from the list of pre-approved electives.

Caution: Check in the on-line, Course Roster to be sure the course is being offered in the semester you want it. The semesters listed are when the courses have been offered in the past.

Core Courses

Department and Number	Course Name	Credits	Semester	Group
SYSEN 510, CEE 504, ComS 504, ECE 512, MAE 591, ORIE 512	#N/A	3	Fall	Core
SYSEN 520, CEE 505, ComS 505, ECE 513, MAE 592, ORIE 513	#N/A	3	Spring	Core
CEE 590	#N/A	4	Fall or Spring	Core
SYSEN 590, AEP 751, BEE, CEE 591/2, ChemE 590, ComS 790, ECE 693/4, MAE 690, ORIE 597, etc.	Systems Engineering Project	6 to 8	Fall and Spring	Core

Pre-Approved Electives by Department

Department	Course Name	Credits	Semester	Group
ASTR Courses				
ASTR 6531	Astrophysical Fluid Dynamics	4	Spring	Modeling & Analysis
BEE Courses				
BEE 411	Biomass Processing: Modeling and Analysis	3		Modeling & Analysis
BEE 4530	CAE: Applications to Biomedical Processes	3	Spring	Application
BEE 4550	Bioinstrumentation	4	Spring	Application
BEE 4750	Environmental Systems Analysis	3	Fall	Modeling & Analysis
BEE 4760	Solid Waste Engineering	3	Spring	Application
BEE 4780	Ecological Engineering	3	Spring	Application
BEE 6510	Bioremediation: Engineering Organisms	3	Spring	Application
BEE 652	Instrumentation: Sensors and Transducers	3		Application
BEE 6590	Biosensors and Bioanalytical Techniques	3	Spring	Application
BEE 678	Nonpoint Source Models	3		Modeling & Analysis
BEE 685	Biological Engineering Analysis	4	Spring	Modeling & Analysis
CEE Courses				
MAE 4580, CEE 4770	Introduction to Composite Materials	4	Fall	Application
CEE 506	Civil and Environmental Systems Engineering	3		Application
ComS 5720, CEE 5090, ORIE 5340	Heuristic Methods for Optimization	3 to 4	Spring	Modeling & Analysis
CEE 5290, COMS 5720, ORIE 5330	Heuristic methods for optimization	3	Fall	Modeling & Analysis
CEE 5930	Engineering Mgt. Methods I	3	Fall	Management
CEE 5940	Engineering Mgt. Methods II	3	Spring	Management
CEE 5950	Construction Planning and Operations	3	Fall	Management
CEE 5970	Risk Analysis and Management	3	Spring	Application
CEE 5980	Introduction to Decision-making	3	Fall	Management
CEE 6200	Water Resource Systems	3		Application
CEE 6210	Stochastic Hydrology	3	Fall	Application
CEE 6230	Environmental Quality Systems Engineering	3		Application
CEE 6630	Transportation Systems	3	Spring	Application
CEE 6750	Concrete Materials and Construction	3	Spring	Application
CEE 6920	Special Topics in Engineering Management	3	Fall, Spring	Application
ChemE Courses				
ChemE 470	Process Control Strategies	3	Spring	Application
ChemE 4700	Process Control Strategies	3	Spring	Application
ChemE 4720, ECE 4720, MAE 4780	Feedback Control Systems	4	Fall	Modeling & Analysis
ChemE 4720, ECE 4720, MAE 4780	Feedback Control Systems	4	Fall	Modeling & Analysis
ChemE 4810, BMPE 4810	Biomedical Engineering	3		Application
ChemE 4810	Biomedical Engineering	3	Spring	Application
ChemE 5720	Managing Business Development Solutions	3	Fall	Management
BMPE 605, ChemE 605	Fundamentals in Biomedical Engineering I	1 to 4		Application
ChemE 6610	Air Pollution Control	3	Spring	Application
ComS Courses				
ComS 409, CIS 409	Data Structures & Algorithms for Comp Sci	4	Fall	Modeling & Analysis
ComS 4110	Programming Languages & Logics	4	Fall	Modeling & Analysis
ComS 4120	Introduction to Compilers	3	Spring	Application
ComS 4210	Numerical Analysis	4	Fall	Modeling & Analysis
ComS 4410	Systems Programming & Operating Systems	3	Fall, Spr, Sum	Modeling & Analysis
ComS 4420	Computer Architecture	4	Fall	Application
ECE 4750, ComS 4420	Computer Architecture	4	Fall	Application
ComS 4450	Computer Networks	4		Application
ComS 4700	Foundations of Artificial Intelligence/ Practicum	5	Fall	Modeling & Analysis
ComS 4740	Introduction to Natural Language Processing	4	Fall, Spring	Application
ComS 4820	Introduction to Analysis of Algorithms	4	Spr, Sum	Modeling & Analysis
ComS 502	Computing Methods for Digital Libraries	3	Fall	Application

ORIE 5126	Supply Chain Management	3	Spring	Application
ORIE 5130	Service System Modeling and Design	3	Spring	Application
ORIE 5150	Design of Manufacturing Systems	4	Fall	Application
ORIE 5150	Design of Manufacturing Systems	4	Fall	Application
ORIE 524	Design of Manufacturing Systems II	2	Spring wks 8-14	Application
ORIE 5300	Operations Research I: Optimization I	4	Fall	Modeling & Analysis
ORIE 5310	Optimization II	4	Spring	Modeling & Analysis
CEE 5290, COMS 5720, ORIE 5330	Heuristic methods for optimization	3	Fall	Modeling & Analysis
ComS 5720, CEE 5090, ORIE 5340	Heuristic Methods for Optimization	3 to 4	Spring	Modeling & Analysis
ORIE 5500	Engineering Probability and Statistics II	4	Fall	Modeling & Analysis
ORIE 5550	Applied Time-Series Analysis	3	Fall	Modeling & Analysis
ORIE 5560	Queueing Theory and Its Applications	3	Fall	Modeling & Analysis
ORIE 56520 (ORIE 4520)	Introductory Engineering Stochastic Processes II	4	Spring	Modeling & Analysis
ORIE 5770	Quality Control	3	Fall	Application
ORIE 6580	Simulation	4	Spring	Modeling & Analysis
ORIE 5800	Simulation Modeling & Analysis	4	Fall	Modeling & Analysis
ORIE 6500	Applied Stochastic Processes	4	Fall	Modeling & Analysis

Other Courses	Course Name	Credits	Semester	Group
SYSEN 5900	Systems Engineering Project	6 to 8	Fall and Spring	Core
BME 5650	Biomechanical Systems--Analysis and Design	3 to 4	Spring	Application
BME 4810	Biomedical Engineering	3	Spring	Application
ORIE 6580	Simulation	4	Spring	Modeling & Analysis
NBA 5530	Acct. & Fin. Analysis for Engr.	3	Spring	Management
NBA 6390	Data-Driven Marketing	3	Spring	Management
NBA 5640	Entrepreneurship and Private Equity	3	Fall	Management
NBA 5070	Entrepreneurship For Scientists & Engineers	3	Fall and Spring	Management
NBA 6630	Managerial Decision Making	3	Fall	Management
NBA 665	Managing Technology and Innovation	3	Spring	Management
NBA 5220	Negotiations: The Global Perspective	3	Spring	Management
Hadm 7711	Organizational Behavior	3	Fall	Management
ILROB 776	World Class Manufacturing	4	Fall	Management
ILROB 6270	Leadership in Organizations	4	Spring	Management
ILROB 7240	Managing Social Influence	3	Fall	Management

ILROB 6790
ILROB 5200
ILROB 4240
ILROB 7780, SOC 7780
NBA 6660