Industrial Engineering – Professional Electives

Purpose of Professional Electives

Professional electives are used to customize and tailor your degree program towards your career interests. In order to deepen your expertise in industrial and systems engineering, you should select at least three advanced level industrial engineering courses as professional electives from the A List.

As a secondary objective, professional electives can be used to broaden your exposure to other engineering-related topics or to fulfill a minor. With the remaining professional elective, you can either:

1. choose other courses from the A List
2. choose other engineering-related courses from the B List
3. choose minor courses to fulfill minor requirements (review minor authorization form with advisor)

The ISE faculty will entertain other courses that you might wish to consider as professional electives that are not reflected on the lists below, on a case-by-case basis. These courses will only be accepted if you have discussed the choice with your advisor and received approval from your advisor. Students should not assume that a professional elective deemed appropriate for one will be appropriate for all.

A LIST

ISEE-582	Lean Six Sigma Fundamentals
ISEE-626	Contemporary Production Systems
ISEE-640	Computer-Aided Design and Manufacturing
ISEE-684	Engineering and the Developing World
ISEE 701	Linear Programming
ISEE 702	Integer and Nonlinear Programming
ISEE 704	Logistics Management
ISEE 711	Advanced Simulation
ISEE 720	Production Control
ISEE 728	Production Systems Management
ISEE 730	Biomechanics
ISEE 731	Advanced Topics in Human Factors and Ergonomics
ISEE 732	Systems Safety Engineering
ISEE 740	Design for Manufacture and Assembly
ISEE 741	3D Printing
ISEE 750	Systems and Project Management
ISEE 752	Decision Analysis
ISEE 760	Design of Experiments
ISEE 771	Engineering of Systems I
ISEE 772	Engineering of Systems II
ISEE 785	Fundamentals of Sustainable Engineering
ISEE 786	Lifecycle Assessment
ISEE 787	Design for the Environment
ISEE 789	Special Topics
ISEE 799	Independent Study

B LIST

Industrial Engineering	
ISEE 770	Design Project Leadership
Computer Engineering	
CMPE 160	Digital Systems Design I
CMPE 240	Engineering Fundamentals of Computer Systems (4 credits)
CMPE 480	Digital Signal Processing
CMPE 540	Control Systems
CMPE 570/670	Data and Communication Networks
CMPE 685	Computer Vision
Electrical Engineering	
EEEE 120	Digital Systems I
EEEE 220	Digital Systems II
EEEE 221	Clean and Renewable Energy Systems and Sources
EEEE 281	Circuits I
EEEE 282	Circuits II
EEEE 346	Advanced Programming
EEEE 353	Linear Systems
EEEE 485	Robotic Systems
EEEE 585/685	Principles of Robotics
EEEE 647	Artificial Intelligence Explorations
EEEE 689	Fundamentals of MEMS
EEEE 765	Optimal Control
EEEE 784	Advanced Robotics
Mechanical Engineering	
MECE 110	Thermodynamics I
MECE 210	Fluid Mechanics I
MECE 404	Robotics
MECE 529/629	Renewable Energy Systems
MECE 746	Engineering Properties of Materials
MECE 752	Tribology Fundamentals
Microelectronic Engineering	
MCEE 201	IC Technology
MCEE 503	Thin Films
MCEE 520/620	Photovoltaic Science and Engineering
MCEE 601	Microelectronic Fabrication
MCEE 602	VLSI Process Modeling

B LIST - Professional Electives offered outside KGCOE

Mathematics (College of Science)	
MATH 200	Discrete Mathematics and Introduction to Proofs
MATH 312	Nonlinear Optimization
MATH 321	Game Theory
MATH 341	Advanced Linear Algebra
MATH 351	Graph Theory
MATH 361	Combinatorics
MATH 401	Stochastic Processes
MATH 431	Real Variables I
Computer Science (GCCIS)	
CSCI 630	Foundations of Intelligent Systems
CSCI 631	Foundations of Computer Vision
CSCI 736	Neural Networks and Machine Learning
CSCI 739	Topics in Intelligent Systems
Information Sciences and Technology (GCCIS)	
ISTE-608	Database Design and Implementation
Accounting (College of Business)	
ACCT 500	Cost Management in Technical Organizations
Management Information Systems (College of Business)	
MGIS-755	Information Technology Strategy and Management
Psychology (College of Liberal Arts)	
PSYC 642	Graduate Research Methods
PSYC 712	Graduate Cognition
PSYC 714	Graduate Engineering Psychology
PSYC 715	Graduate Perception