Courses Required by Programs Other Than UC Berkeley's Department of IEOR

Service Systems

PENN STATE: IE 460 – Service Systems Engineering

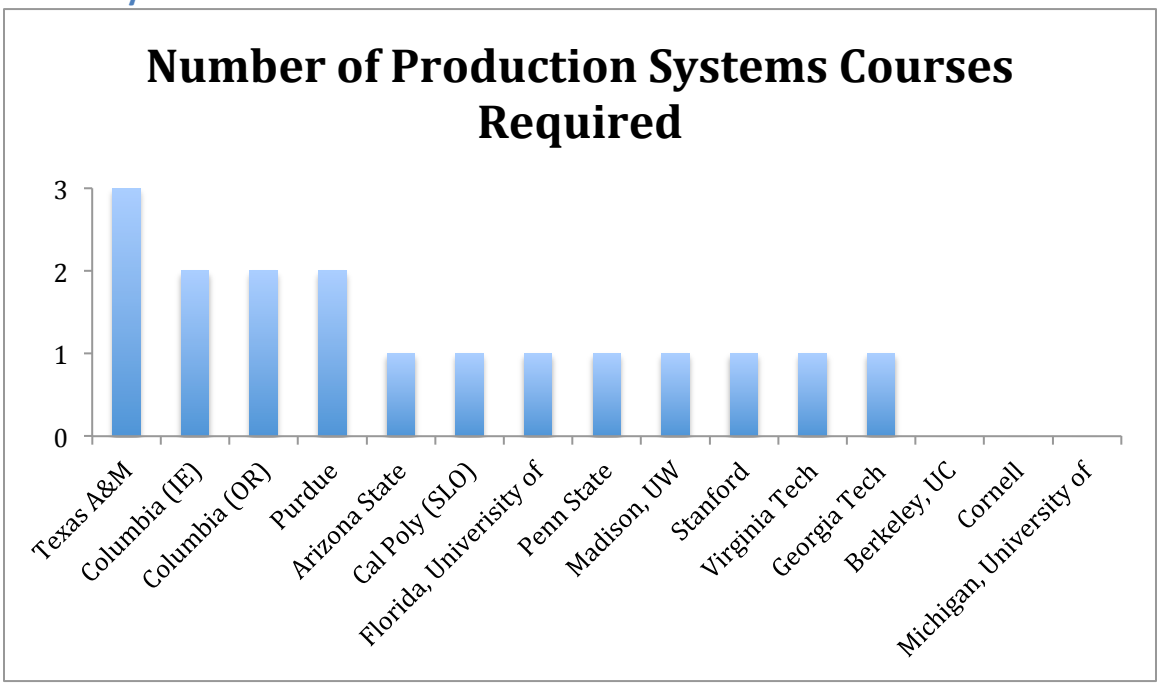
Solve service-system problems using mathematical programming, network analysis and applied probability.
Topics will include measuring service quality, methods for evaluating service systems, financial engineering & portfolio optimization, supply chain design & operations, manpower planning & scheduling, and revenue management. Several case studies will be used to illustrate applications. Course grades are based on homework, case studies, mini-project, midterm and final exams.
Prerequisites: Probabilistic and Deterministic Models in OR
Semester 7

UW MADISON: ISyE 417– Health Systems Engineering. I; 3 cr.

Introduction to the application of industrial engineering methods to the analysis and improvement of health care delivery. Exploration of common problems of decision-making and control in health care. Examination of social, regulatory and economic factors unique to health care. P: ISyE 313, 320, 323 and 349.
Semester 7

Production Systems

Summary



Content

PENN STATE: IE 470 - Manufacturing Systems Design and Analysis

Students will be exposed to the contemporary techniques used to design and analyze manufacturing systems for economic manufacture of products.
Students will learn to design manufacturing systems (human and automated) to satisfy differing types of product demand.
Students taking this course should be familiar with introduction to manufacturing and product specifications and introduction to manufacturing process design and analysis.
Semester 7

UNIVERSITY OF FLORIDA: EIN 4401 – Lean Production Systems

Topics: Design of flow line, cellular and flexible manufacturing systems. Design and control of lean manufacturing systems. Continuous improvement, small lot production, setup-time reduction, equipment improvement and maintenance. Principles and control of push and pull manufacturing systems. Production planning and operations scheduling.
Goals: In this course, we will cover the following topics: history of manufacturing systems, design of different manufacturing systems, design and control of lean manufacturing systems, and planning and control problems encountered in manufacturing systems. At the end of the semester the students should be have a basic understanding of the design, operation and control of lean manufacturing

systems and be able to use quantitative methods to model, analyze, and optimize such systems.
Detailed timeline on syllabus
Semester 8

ARIZONA STATE: IEE 461 –Production Control
Techniques for the planning, control, and evaluation of production systems. Forecasting, inventory control, scheduling, enterprise requirements planning, supply chain design, and coordination.
Semester 7

PURDUE: IE 383 – Integrated Production Systems I
Basic concepts in the design and operational control of integrated production systems. Includes topics on facility layout and material handling, material flow and information flow, resource and capacity planning, and shop floor control and scheduling. Typically offered Fall Spring.
Semester 6

PURDUE: IE 474 – Industrial Control Systems
Introduction to automatic controls with reference to automation of industrial machines and processes, including linear dynamic systems, feedback control, and elements of systems analysis. Introduction to digital control. Typically offered Fall Spring.
Semester 7

CAL POLY (SLO): IME 410 – Production Planning and Control Systems
Building blocks of manufacturing resource planning (MRP II). Demand forecasting, production planning, master scheduling development. BOM and inventory files. MRP computations and operational challenges. Capacity analysis and production control in push and pull systems. Enterprise Resource Planning (ERP). Principles of JIT and lean manufacturing. 3 lectures, 1 laboratory.
Prerequisite: IME 405 or IME 342
Quarter 4.2

VIRGINIA TECH: ISE 4204 – Production Planning and Inventory Control
Theory and concepts involved in model formulation for analysis and control of production processes. Systems for planning and controlling production and inventory including material requirements planning (MRP), just-in-time (JIT), and synchronous production systems. A grade of C- or better is required in prerequisite ISE 2404 and STAT 4706. I. Pre: 2404, STAT 4706. (3H,3C)
Semester 7

UW MADISON: ISyE 315 – Production Planning and Control. 3 cr

Techniques and applications of control concepts in the design of inventory, production, quality and project-planning systems; use of the computer as a component in such systems. Prereq: CS 110 or equivalent, Stat 311 . I2; II5; S1
Semester 4

TEXAS A&M: ISEN 220 – Introduction to Production Systems
The course is an introduction to spreadsheet-based modeling and the use of Visual Basic for Applications (VBA). Excel and VBA will be used to code and evaluate models related to production systems.
Semester 4

TEXAS A&M: ISEN 315 – Production Systems Planning. (3-0). Credit 3. I, II
Principles, models and techniques for planning, analysis and design of integrated production systems; optimization principles, including linear programming, unconstrained and equality constrained optimization and dynamic programming applied to production planning; topics to include capacity expansion models, learning curves, aggregate planning models, deterministic and stochastic inventory, MRP and project scheduling.
Semester 6

TEXAS A&M: ISEN 316 – Production systems Operations
Analytical principles of manufacturing systems design, analysis and control; emphasis placed on stochastic analysis; role of variability and impact on cycle time; push versus pull production strategies including Kanban and constant WIP control; probability, queuing theory, Little's Law, heavy traffic approximations, and queuing networks.
Semester 7

COLUMBIA (IE *and* OR): IEOR E3402 – Production Inventory Planning and Control
Prerequisites: SIEO W3600:Introduction to Probability and Statistics and IEOR E3608: Introduction to Mathematical Programming
The course will cover inventory management and production planning; material requirements planning; aggregate planning of production, inventory, and work force; multi-echelon integrated production-inventory systems; and production scheduling. Students will have an opportunity to participate in a computer-simulation game where, as operations managers for a company, they work in teams to manage capacity, inventories, scheduling, and purchasing of parts.
Semester 6

COLUMBIA (IE *and* OR): IEOR E4405 – Production Scheduling
Prerequisites: SIEO W3600 or IEOR E4150: Introduction to Probability and Statistics, IEOR E3608: Introduction to Mathematical Programming or IEOR E4004: Introduction to Operations Research: Deterministic Models.
This class will cover models and algorithms for scheduling problems. We will cover a wide range of scheduling models including single machine, multiple

machine, shop environments. In each environment we will study a variety of scheduling problems and their solution.
Semester 8

STANFORD: MS&E 260 – Introduction to Operations Management
Operations management focuses on the effective planning, scheduling, and control of manufacturing and service entities. This course introduces students to a broad range of key issues in operations management. Topics include determination of optimal facility location, production planning, optimal timing and sizing of capacity expansion, and inventory control. Prerequisites: basic knowledge of Excel spreadsheets, probability, and optimization.
Year 3

Inventory and Supply Chain

UNIVERSITY OF FLORIDA: ESIN 4343 – Inventory and Supply Chain Systems
Demand forecasting. Deterministic and stochastic inventory models for single- and multiple-item systems. Analysis and design of logistics systems. Supply chain management and coordination.
A detailed schedule is available on the course syllabus
Semester 7

CAL POLY (SLO): IME 417 – Supply Chain and Logistics Management (4)
Overview of key logistics and supply chain management concepts. Models and solution methods for the design, control, operation, and management of supply chains. Techniques that are used to analyze supply chains. Team projects in partnership with industry sponsors. 4 lectures. Prerequisite: IME 342, or IME 410 or consent of instructor.
Quarter 4.3

Facilities Planning

CAL POLY (SLO): IME 443 – Facilities Planning and Design
Design concepts and input requirements in planning and design of new or renovation of existing manufacturing systems. Product, process, and flow and activity analysis techniques. Flow lines and buffering techniques. Computer-aided layout design and evaluation. Design of handling systems. Math models of location problems. Multidisciplinary team project. 3 lectures, 1 laboratory. Prerequisite: IME 144, IME 223, IME 405 or IME 342, IME 314, or equivalent. Recommended: IME 319, IME 420.
Quarter 4.3

VIRGINIA TECH: ISE 3214 – Facilities Planning and Material Handling

Theory and concepts involved in model formulation for design and analysis of facility plans. Includes facility layout, facility location and material handling system design. Application of quantitative tools and techniques for flow analysis, layout planning, and automated material handling system design. A grade of C- or better required in ISE prerequisites 2014, 2404, and 3414. II, IV Pre: 2014, 2404, 3414, ENGE 2344. Co: 3424. (3H,3C)
Semester 6

TEXAS A&M: ISEN 416 – Facilities, Location, Layout and Material Handling

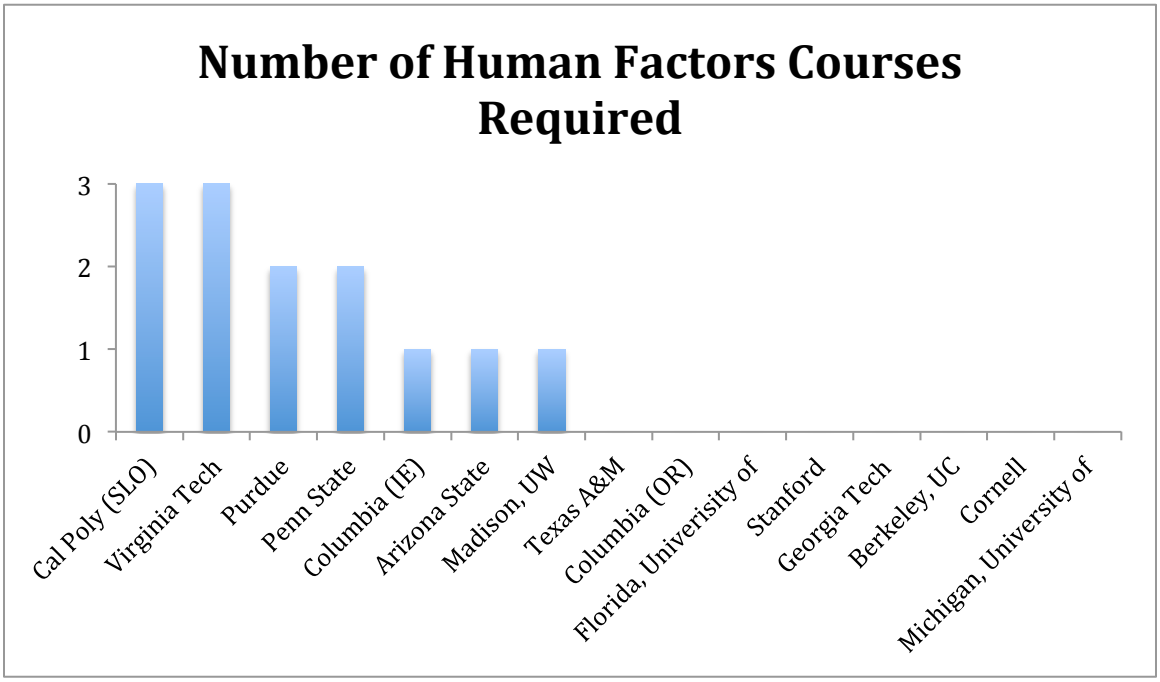
Analytical treatment of facilities location, physical layout, material flow and handling, combined with heuristic algorithms to assist in the design of production/service facilities; fundamental concepts applied through a sequence of design projects.
Semester 8

UNIVERSITY OF FLORIDA: Facility Planning and Work Design

This course introduces fundamental concepts in several main areas of industrial engineering such as facility planning, material handling systems, work analysis and design. Topics such as analysis and design of work space and flow, facility location and layout, material handling systems, motion and time studies and work sampling are covered.
Summer between Semester 6 and Semester 7

Work Design and Human Factors

Commentary



Virginia Tech is currently in the process of addressing significant overlap in human factors courses.

Content

PENN STATE: IE 327 – Introduction to Work Design

Topics include job and worksite design. Measuring job output. Become familiar with human information processing, basic auditory and visual displays, anthropometry and musculoskeletal principles, cumulative trauma disorders, work measurement and stopwatch time study.
Prerequisites: Statics and Properties of Materials
Semester 5

PENN STATE: Human Factors Elective

IE 408, IE 418, or IE 419

ARIZONA STATE: IEE 369: Work Analysis and Design(L)

Planning, analysis, and design of methods of accomplishing work. Emphasizes human factors, work planning, methods analysis and design, and work measurement. Applications in diverse fields.
Semester 6

PURDUE: IE 386 - Work Analysis and Design I

Fundamentals of work methods and measurement. Applications of engineering, psychological, and physiological principles to the analysis and design of human work systems. Typically offered Fall Spring.
Semester 6

PURDUE: IE 486 - Work Analysis and Deisgn II

Continuation of IE 386. Applications of engineering, computer sciences, information sciences, and psychological principles and methods to the analysis and design of human work systems. Typically offered Fall Spring.
Semester 7

CAL POLY (SLO): IME 223 – Process Improvement Fundamentals

Principles of work simplification and motion analysis. Recording of work flow and methods. Process improvement through work measurement and standards, time study, synthetic data, predetermined time systems and work sampling. Allowances and performance rating, productivity measures. Introduction to lean manufacturing principles. Client based project. 3 lectures, 1 laboratory. Prerequisite: MATH 141. Recommended: IME 101.
Quarter 2.1

CAL POLY (SLO): IME 319 – Human Factors Engineering

Analysis of factors influencing the efficiency of human work. Data on the physical and mental capacities of persons, the physical environment, work organization, and the problem of aging. Design of machines, operations, human computer interface and work environment to match human capacities and limitations, including the handicapped. Multidisciplinary team project. 3 lectures.
Quarter 3.2

CAL POLY (SLO): IME 429 – Ergonomics Laboratory

Investigation of various physiological, sensory, and cognitive capabilities and limitations of people in work and living environments through laboratory data collection, design of experiments and statistical analysis. 1 laboratory. Prerequisite: IME 319, IME 326.
Quarter 4.1

VIRGINIA TECH: ISE 3014 – Work Measurement and Methods Engineering

Survey of methods for assessing and improving performance of individuals and groups in organizations. Techniques include various basic industrial engineering tools, work analysis, data acquisition and application, performance evaluation and appraisal, and work measurement procedures. A grade of C- or better required in prerequisites ISE 2204 and 2214 and STAT 4105. Pre: (2204 or 2214), STAT 4105. (2H,3L,3C) I,III
Semester 5

VIRGINIA TECH: ISE 3614 – Introduction to Human Factors

Survey of human factors engineering emphasizing the systems approach to workplace and machine design. Discussion of basic human factors research and design methods, visual processes and design methods, selection of statistical techniques for application to human factors data, visual and auditory processes, display and control design and effects of environmental stressors on humans. A grade of C- or better required in STAT 4105. Pre: STAT 4105. (2H,3L,3C) I,IV.
Semester 5

VIRGINIA TECH: ISE 3624 – Industrial Ergonomics

Introduction to ergonomics with an emphasis on people at work. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including manual materials handling, cumulative trauma disorders, environmental stresses, safety, and legal issues. A grade of C- or better required in ISE prerequisite 3014. I,II. Pre: 3014, ESM 2104. (3H,3C)
Semester 6

COLUMBIA (IE): IEOR E4207x – Human Factors: Performance

This course provides a survey of human performance engineering in the design of consumer products, user interfaces and work processes.
The goal of the course is to provide the student with the ability to specify human performance variables affecting user performance, safety and satisfaction for a variety of products and task requirements. Topics include task analysis, information processing, anthropometry, control and display design, human computer interaction, usability testing, usability cost/ benefit analysis, forensics, motivation, group dynamics and personnel selection. Course requirements include a research paper and a (group) product redesign project. At the end of the course students will have a deeper understanding of the research and psychological principles underlying human performance capabilities and limitations. The hope is that this course will encourage students to become more of "a user advocate" in their future endeavors.
Semester 7

UW MADISON: ISyE 349 – Introduction to Human Factors. 3 cr

(Same as Psych 349) Design for people-machine interaction, including an introduction to the relevant underlying human sciences. Theory, data, and measurement problems in human information processing, anthropometry, training and industrial safety. Laboratories, discussions, and a design project.
Prereq: Intro. Probability or Statistics. I5; II5; S1
Semester 5

Product Design and CAD

PENN STATE: IE 305 – Product Design, Specifications, & Measurement

Course Description: exposes students to the principles required for designing a product and developing the specifications for its components and the methods for product verification and checking conformance to specifications.
Pre-requisities? Materials, Properties & Processing
Semester 5

CAL POLY (SLO): IME 144 – Introduction to Design and Manufacturing

Supplemental review of visualization, sketching, and drafting fundamentals. Computer-aided solid modeling of parts and assemblies. Introduction to conventional machining processes on lathes and mills, computer numerical control, quality control, production methods, and design for manufacturing. Open to all majors. 2 lectures, 2 laboratories. Recommended: IME 140, ME 151, or equivalent.
Quarter 1.3

UNIVERSITY OF FLORIDA: EML 2023 – CAD

Semester 3

CAL POLY (SLO): IME 140 – CAD

Quarter 1.2

VIRGINIA TECH: ENGE 2344 – CAD

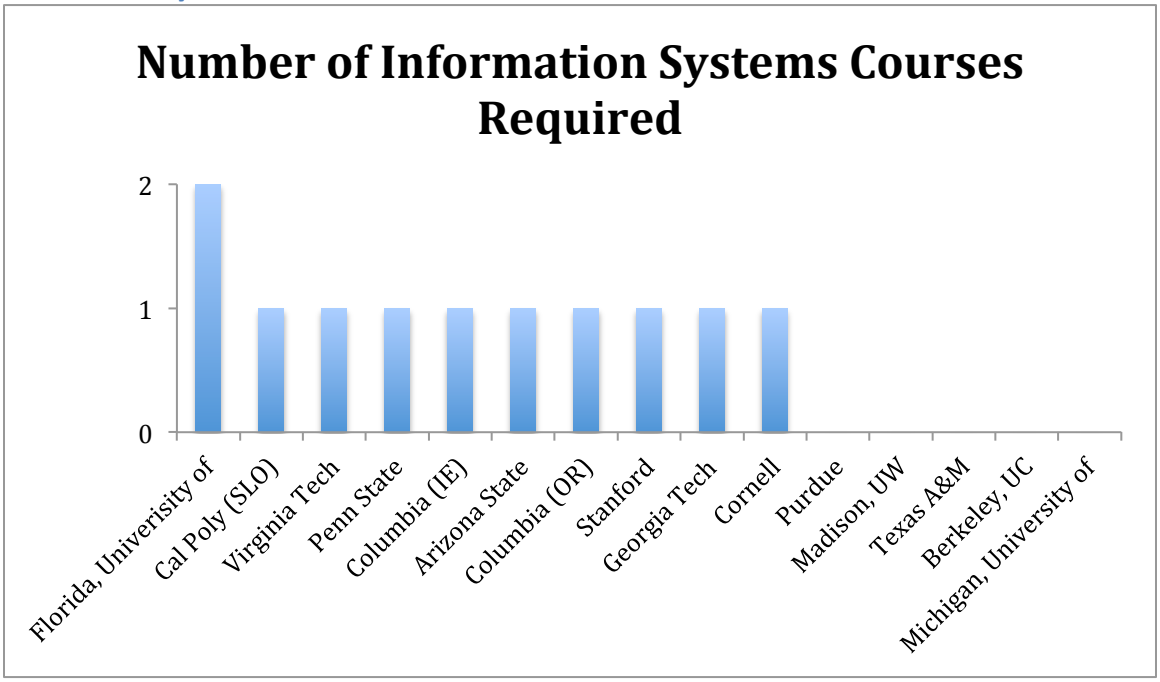
Semester 3

TEXAS A&M: ENGR 111 & ENGR 112

Integrated “engineering fundamentals” courses, covers CAD
Semesters 1 and 2

Information Systems

Commentary



Content

UNIVERSITY OF FLORIDA: ESI 4356 – Spreadsheet Based Decision Support Systems

Applications of decision support systems in industrial and systems engineering; Developing and implementing decision support systems arising in industrial and systems engineering using popular database management and spreadsheet software; Microsoft Excel; Visual Basic for Excel. (3 credits).
Summer between Semester 6 and Semester 7

UNIVERSITY OF FLORIDA: ESI 4357 – Web Based Decision Support Systems

The objectives of the course are (i) to demonstrate to students the usefulness of decision support systems arising in the practice of industrial and systems engineering; (ii) to illustrate to students the essential concepts in database design; (iii) to teach them popular database management systems; and (iv) to enable them to design, develop, and implement integrated decision support systems for industrial and systems engineering applications using latest available IT tools.
Uses Visual Studio .NET
Semester 8

ARIZONA STATE: IEE 305 – Information Systems Engr

Overview of computer and information systems applications. Topics include client/server; distributed computing; networks; process modeling; e-commerce; enterprise applications; Internet.
Semester 5

PENN STATE: IE 330 – Engineering Analytics

Description: provides students with a quantitative background in descriptive analytics which deals with data mining, predictive analytics which deals with forecasting, and the use of Big Data in analysis. Examples of analytics will be presented in various industries including manufacturing, healthcare, and distribution. The students will learn to work in settings to make data-informed decisions from large data sets.
Pre-requisities? Probabilistic Models in IE, {Matlab, C++, or Fortran}
Semester 6

CORNELL: ORIE 3120 – Industrial Systems and Data Analysis

Database and statistical techniques for data mining, graphical display, and predictive analysis in the context of industrial systems (manufacturing and distribution). Database techniques include structured query language (SQL), procedural event-based programming (Visual Basic), and geographical information systems. Statistical techniques include multiple linear regression, classification, logistic regression, and time series forecasting. Industrial systems analysis includes factory scheduling and simulation, materials planning, cost estimation, inventory planning, and quality engineering.
Semester 4

GEORGIA TECH: CS 4400 – Intro to Database Systems

Class Project: The course will involve a hands-on project to be done in teams of 3-4 students. The project will have three phases. Students will be given the choice of either the full or light version. In the light version, the third phase of the project will be replaced by assignments. The top teams doing the full project version will receive awards and be invited to demo their project to the class.
Prerequisites: Students are expected to already know or be willing to put in extra effort to master basic programming skills.
Semester 5

CAL POLY (SLO): IME 312 – Data Management and System Design

Design and management of industrial databases and reporting systems. Relationships of financial accounting databases and production systems. Efficient data entry and reports, queries, macro function, and Internet based database applications. 3 lectures, 1 laboratory. Prerequisite: CSC 232.
Quarter 3.3

COLUMBIA (IE *and* OR): COMS 4111 – Introduction to Databases

Requires fluency in Java.

The fundamentals of database design and application development using databases: entity-relationship modeling, logical design of relational databases, relational data definition and manipulation languages, SQL, XML, query processing, physical database tuning, transaction processing, security. Programming projects are required.
Semester 5

VIRGINIA TECH: ISE 3024 – Data Management

Investigation of data modeling, storage, acquisition, and utilization in Industrial Engineering via manual and computerized methods. Development of effective spreadsheet applications using Excel. Design and implementation of relational databases via E-R modeling, relational schema, normalization, SQL, and MS Access. Web-based database applications using HTML, JavaScript, and ASP. Interface design and the system development life cycle applied to data management applications. All topics covered within the context of typical Pre: 2214, ENGE 2314. Co: 3214. (3H,3C) Industrial Engineering problems.
Semester 6

STANFORD: MS&E 130 – Information Networks and Services

Architecture of the Internet and performance engineering of computer systems and networks. Switching, routing and shortest path algorithms. Congestion management and queueing networks. Peer-to-peer networking. Wireless and mobile networking. Information service engineering and management. Search engines and recommendation systems. Reputation systems and social networking technologies. Security and trust. Information markets. Select special topics and case studies. Prerequisites: 111, 120, and CS 106A.
Year 3

Materials Science

PENN STATE: MATSE 259 – Materials, Properties, & Processing

Relationship of structure and processing variables to the properties and service behavior of metals, polymers, and ceramics.
Prerequisites: Statics and Material Properties.
Semester 5

UNIVERSITY OF FLORIDA: MAE 3010 – Intro to Materials Science & Engineering

To gain an understanding of the relationships between the structure, properties, processing, and applications of metallic, ceramic, polymeric and electronic materials
Semester 6

ARIZONA STATE: MSE 250 - Structure and Properties of Materials

Basic concepts of material structure and its relation to properties. Application to engineering problems.
Semester 5

PURDUE: NUCL 273 – Mechanics of Materials

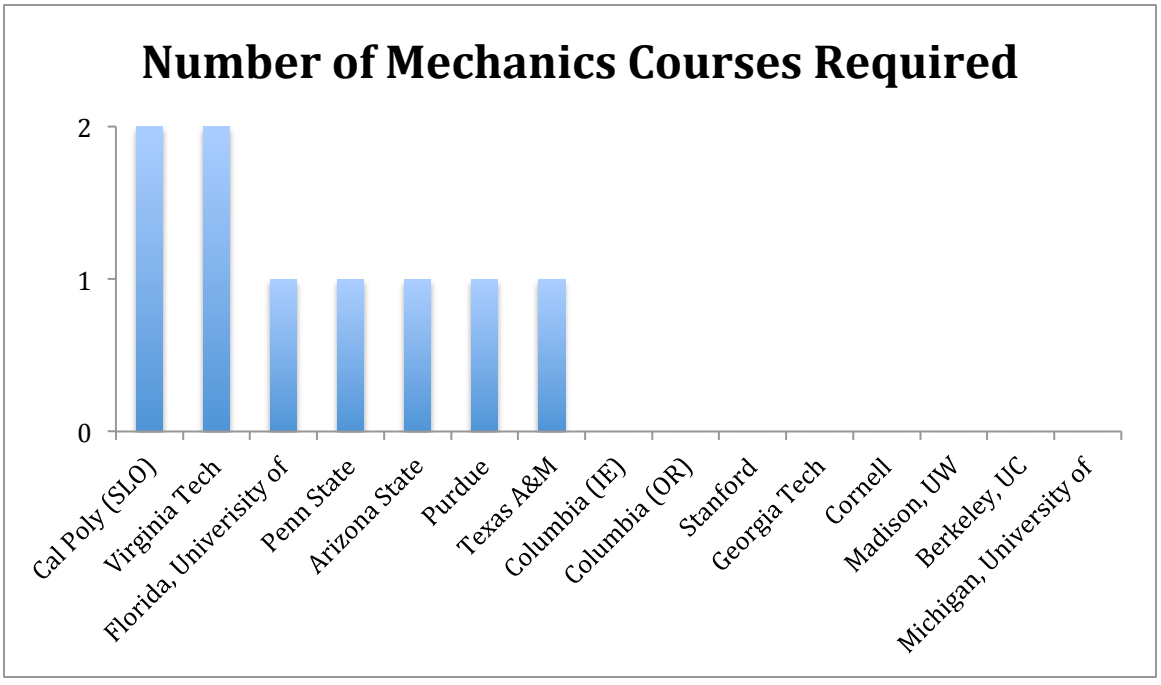
Analysis of stress and strain; equations of equilibrium and compatibility; stress-strain laws; extension, torsion, and bending of bars; membrane theory of pressure vessels; combined loading conditions; transformation of stresses and principal stresses; elastic stability, elected topics.
Semester 4

VIRGINIA TECH: MSE 2034 – Elements of Materials Engineering

This course is designed to introduce the non-MSE student to the structures and properties of metals, ceramics, polymers, and composites. In addition, students will gain an understanding of the processing and design limitations of these materials, as well as being introduced to new classes of materials being developed to meet the ever-expanding range of material requirements.
Semester 4

Statics, Dynamics, and Mechanics

Comments



Content

PENN STATE: Statics and Material Properties

Semester 3

UNIVERSITY OF FLORIDA: EGM 2511 – Engineering Mechanics (Statics)
Semester 5

ARIZONA STATE: MAE 212 – Engineering Mechanics
Semester 4

PURDUE: ME 270 – Basic Mechanics I
Semester 3

CAL POLY (SLO): ME 211 – Statics
Quarter 2.2

CAL POLY (SLO): ME 212 – Dynamics
Quarter 2.3

VIRGINIA TECH: ESM 2104 – Statics
Semester 3

VIRGINIA TECH: ESM 2304 – Dynamics
Semester 4

TEXAS A&M: MEEN 221 – Statics and Dynamics
Semester 3

Thermodynamics

UNIVERSITY OF FLORIDA: EML 3007
Semester 6

PURDUE: ME 200
Semester 6

TEXAS A&M: MEEN 315
Semester 4

Electrical Engineering

UNIVERSITY OF FLORIDA: EEL 3003 – Elements of Electrical Engineering
An introduction to the theory and practice of electrical engineering for students no majoring in electrical engineering; circuits, machines, electronics and systems.

Semester 7

TEXAS A&M: ECEN 215 – Principles of Electrical Engineering

The objective of the course is to give graduates a broad knowledge base with which to become more valuable and versatile engineers in an environment of modern technologies. Graduates should be able to understand the basics of electrical and electronic devices, communicate with electrical engineering consultants as well as with team members, formulate requirements, and operate simple electrical devices.
Semester 4

PURDUE: ECE 201 – Linear Circuit Analysis I

Uses MATLAB
Semester 5

CAL POLY (SLO): EE 201/205 – Electric Circuit Theory

Application of fundamental circuit laws and theorems to the analysis of DC, and steady-state single-phase and three-phase circuits. Not for electrical engineering majors. 3 lectures. Prerequisite: MATH 244, PHYS 133.
Quarter 3.1

CAL POLY (SLO): EE 321 – Electronics

Semiconductor devices and circuits. Instrumentation amplifiers, power control rectifiers, feedback, pulse circuits, digital logic circuits. Not for Electrical Engineering majors. 3 lectures. Prerequisite: EE 201 or BRAE 216 for BRAE majors. Concurrent: EE 361.
Quarter 3.2

VIRGINIA TECH: ECE 3054 – Electrical Theory

Fundamentals of electric circuits: circuit laws and network theorems, operational amplifiers, energy storage elements, response of first and second order systems, AC steady state analysis.
Semester 5

Manufacturing Processes

PURDUE: IE 370 – Manufacturing Processes I

Principal manufacturing processes; metal cutting, grinding and metal forming operations, machine tools, and tools and tooling. Nontraditional machining and welding. Introduction to computer-aided manufacturing and computer-aided graphics and design, N/C programming, robots, and flexible manufacturing systems. Classroom and laboratory demonstrations included.
Semester 5

CAL POLY (SLO): IME 141 – Manufacturing Processes (Net Shape)

Metal casting as a net shape process in manufacturing. Properties of molding materials and methods of casting. Introduction to rapid prototyping. Pattern and casting design principles. 1 laboratory.
Quarter 1.1

CAL POLY (SLO): IME 157 – Electronics Manufacturing

Printed circuit board assembly; printed circuit board fabrication process; electronics packaging; overview of semiconductor manufacturing; design, documentation and fabrication of electronic units with emphasis on CAD/CAM. Open to all majors. 2 lectures, 2 laboratories.
Quarter 1.2

VIRGINIA TECH: ISE 2204 – Manufacturing Processes

Survey of manufacturing processes, including casting, forming, machining, joining, and nontraditional processes such as laser and electrical discharge machining. Emphasis on process capabilities and limitations and design for manufacturability. Also includes topics in product design, material selection, process planning, and manufacturing automation. I,II Pre: ENGE 1104 or ENGE 1114. (2H,2C)
Semester 4

TEXAS A&M: ENTC 181 – Manufacturing & Assembly Processes I

Understand the global manufacturing trend and its impact.
Communicate graphically with 3D or 2D sketches.
Understand the principal of each process described in class and practiced in lab. Be able to compare processes, cite limitation, advantages & disadvantages for each process.
Use both SI and US-customary units competently.
Acquire problem-solving skills to filter out irrelevant information and integrate processes for fabrication of realistic components.
Semester 4

Project Management and Leadership

CAL POLY (SLO): IME 303 – Project Organization and Management

Design and implementation of a major industrial/business systems project. Project planning considerations. Motivational and influence techniques used in project management. Scheduling techniques with risk assessment. Resource leveling and management under constraints. Reducing project duration. Monitoring progress with earned value analysis. Project audit and closure. Planning and implementation of a project. Application of project

management software. 3 lectures, 1 laboratory. Prerequisite: Junior standing, IME 314 or equivalent.
Quarter 3.1

COLUMBIA: IEOR E4510 - Project Management

This course presents fundamental concepts of project management with an emphasis on the complex trade-offs that must be made by project managers - e.g., scheduling, costs, and quality.
The course describes methodologies and tools that have been developed to support project managers using spreadsheet models - e.g., Critical Path Method (CPM), Program Evaluation Research Task (PERT). The course demonstrates how these methodologies and tools can be extended to more realistic problems - e.g., resource management. The course is targeted toward students planning careers in engineering management or technical consulting.
Semester 8

VIRGINIA TECH: ISE 4304 – Global Issues and Industrial Management

Industrial management topics of current interest explored from a global perspective. Current domestic and international challenges resulting from a global marketplace and the proliferation of information and technology. Industrial management and organizational performance, total quality management, business process re-engineering, leadership, organizational change, role of communication and information, and ethics. Examination and comparison across international boundaries. II (3H,3C)
Semester 8

STANFORD: MS&E 180: Organizations: Theory and Management

For undergraduates only; preference to MS&E majors. Classical and contemporary organization theory; the behavior of individuals, groups, and organizations. Limited enrollment. Admission by application. Students must attend first session.
Year 3

Other

UW MADISON: ISyE 350 – Junior Design Lab

Junior level lab will include open-ended problem solving projects or major homework assignments that:

- Develop the student's creativity and problem solving skills
- Require the formulation of design problem statements, and defined objectives and criteria for system synthesis, analysis, and evaluation
- Develop and use the student's concept of modern design theory and methodology Require the consideration and feasibility of alternative solutions

- Address realistic factors related to economics, safety, aesthetics, ethics, and societal impact
- Integrate and build upon basic sciences and knowledge presented in preceding classes Develop teamwork and communication skills
- Focus on designing “processes” to promote the understanding, acceptance, and testing of the solution.

Semester 6

TEXAS A&M: ENGR 482 – Ethics and Engineering

STANFORD: MS&E 152W - Introduction to Decision Analysis

How to make good decisions in a complex, dynamic, and uncertain world. People often make decisions that on close examination they regard as wrong. Decision analysis uses a structured conversation based on actional thought to obtain clarity of action in a wide variety of domains. Topics: distinctions, possibilities and probabilities, relevance, value of information and experimentation, relevance and decision diagrams, risk attitude.
Year 2