Boston University  College of Engineering
Division of Systems Engineering
MEng Program Planning Sheet

Student Name: ___________________________ BU ID ___________________________
Advisor Signature: ___________________________

Master of Engineering (MEng) students must take 32 credits all of which must be at the 500 level or higher. The coursework requirements for the MEng degree are as follows: Core (2 courses), Concentration (2 courses from one concentration area), and Electives (4 courses, including 2 Advanced Technical Electives). The Advanced Technical Elective Requirement is satisfied by taking at least two 500-level or higher courses from the SE-designated courses in the Concentration or Elective course lists, or other courses approved by the Systems Engineering Graduate Committee in advance. The Elective courses can be chosen to meet an individual student’s academic needs. The Electives may include no more than two Engineering Management courses listed on the reverse. The choice of courses must form a coherent and balanced program in Systems Engineering. Among the 32 credits, the Practicum Requirement can be satisfied by up to two courses from the approved list. MEng students should make their course selection in consultation with their faculty advisor. MEng students must maintain a cumulative GPA of 3.00 to remain in good academic standing and to graduate. Grades of “C−” or lower are not acceptable for the MEng degree.

NOTE: Courses are color coded to indicate when they are usually offered, in Fall, Spring, either semester (subject to change). Courses may be offered every other year.

Course Requirements

Core  Select one course from each of two Core areas – 8 credits
A. SE/EC/ME 501 Dynamic Systems Theory, or SE/EC/ME 710 Dynamic Programming and Stochastic Control Semester/Grade _________________
B. SE/EC 524 Optimization Theory and Methods Semester/Grade _________________
C. SE/ME 714 Adv Stoch Modeling/Simulation, or EC 505 Stochastic Processes, or EK 500 Probability with Stat App  Sem/Grade _________________

Concentration  Select two courses from one Concentration area listed on reverse – 8 credits
Circle the Concentration Area:
A. Computational and Systems Biology  Course/Semester/Grade ____________________________
B. Control Systems  Course/Semester/Grade ____________________________
C. Energy and Environmental Systems  Course/Semester/Grade ____________________________
D. Network Systems
E. Operations Research
F. Production and Service Systems

Electives  Select 4 courses (16 credits). Must include at least two 500-level SE-designated courses from the Concentrations listed on the reverse, if not used to satisfy the Concentration requirement; other Suggested Electives listed on the reverse; may include up to 8 credits from the approved Engineering Management courses listed on the reverse. Indicate course number, semester, and grade.
Course/Semester/Grade ____________________________  Course/Semester/Grade ____________________________
Course/Semester/Grade ____________________________  Course/Semester/Grade ____________________________
Course/Semester/Grade ____________________________  Course/Semester/Grade ____________________________

Practicum  Indicate up to two courses (8 cr), from the approved list on the reverse, used to satisfy Core, Concentration or Elective Requirements.
Course/Sem/Grade ____________________________  Course/Sem/Grade ____________________________

Approved Courses on Page 2
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Concentration Areas
A. Computational and Systems Biology
- ENG BE 505 Molecular Bioengineering I
- ENG BE 561 DNA and Protein Sequence Analysis
- ENG BE 562 Computational Biology: Genomes, Networks, Evolution
- ENG BE 567 Nonlinear Dynamics in Biological Systems
- ENG BE 747 Adv. Signals and Systems Analysis for Biomedical Eng
- ENG BE 760 Structural Bioinformatics
- ENG BE 767 Systems Biology
- ENG BE 777 Computational Genomics I

B. Control Systems
- ENG SE/EC/ME 501 Dynamic Systems Theory
- ENG ME/MS 507 Process Modeling and Control
- ENG ME 560 Precision Machine Design and Instrumentation
- ENG ME 570 Robot Motion Planning
- ENG SE/EC/ME 701 Optimal and Robust Control
- ENG EC 702 Recursive Estimation and Optimal Filtering
- ENG SE/ME 704 Adaptive Control
- ENG SE/ME/EC 710 Dynamic Programming and Stochastic Control
- ENG SE/EC/ME 733 Discrete Event and Hybrid Systems
- ENG SE/EC/ME 734 Hybrid Systems
- ENG SE/ME 740 Vision Robotics and Planning
- ENG SE/ME 762 Nonlinear Systems and Control

C. Energy and Environmental Systems
- CAS EC 513 Game Theory (both semesters)
- ENG SE/EC/ME 543 Sustainable Power Systems
- ENG ME/MS 545 Electrochemistry of Fuel Cells and Batteries
- CAS EC 571 Energy and Environmental Economics
- CAS EC 572 Public Control of Business
- ENG EC/MS 573 Solar Energy Systems
- GRS GE 712 Regional Energy Modeling

Approved Practicum Courses:
1. EK 691 Lean and Agile New Product Development
2. Two of the following, OR
   - ENG ME/MS 507 Process Modeling and Control
   - ENG ME/MS 514 Simulation
   - ENG SE/EC/ME 543 Sustainable Power Systems
   - ENG SE/EC/ME 544 Networking the Physical World
   - ENG ME 570 Robot Motion Planning
   - ENG SE/EC/ME 701 Optimal and Robust Control
   - ENG EC 702 Recursive Estimation and Optimal Filtering
   - ENG SE/ME 704 Adaptive Control
   - ENG SE/EC/ME 710 Dynamic Programming and Stochastic Control
   - ENG SE/EC/ME 724 Advanced Optimization Theory and Methods
   - ENG SE/EC/ME 725 Queuing Systems
   - ENG SE/ME 740 Vision Robotics and Planning
   - ENG SE/ME 741 Randomized Network Algorithms
   - ENG SE/ME 744 Mobile Ad Hoc Networking and Computing
   - ENG SE/ME 755 Communication Networks Control

3. A Practicum Course from other College of Engineering departments:
   - ENG ME 526 – Simulation of Physical Processes
   - ENG ME 560 Precision Machine Design and Instrumentation
   - ENG EK691 Lean and Agile New Product Development
   - ENG BE 700 Advanced Topics in Biomedical Engineering
   - ENG EC952 Directed Group Project

ELECTIVE COURSES
Other Suggested Electives:
- CAS CS 511 Object-Oriented Software Principles
- ENG SE 700 Advanced Special Topics
- GSM OM 855 Project Management
- ENG SE 951 Independent Study

Engineering Management Courses
- ENG EK 731 Biomedical Innovation
- ENG ME 502 Invention: Technology Creation, Protection, & Commercialization
- ENG ME 517 Product Development
- GRS EC 716 Game Theory
- GSM OM 845 Clean Technology Business Models

D. Network Systems
- ENG EC 541 Computer Communication Networks
- ENG SE/EC/ME 544 Networking the Physical World
- ENG SE/EC/ME 725 Queuing Systems
- ENG SE/EC/ME 741 Randomized Network Algorithms
- ENG EC 744 Mobile Ad Hoc Networking and Computing
- ENG SE/ME 755 Communication Networks Control

E. Operations Research
- ENG ME/EC 514 Simulation
- ENG SE/EC/ME 524 Optimization Theory and Methods
- ENG SE/EC/ME 710 Dynamic Programming and Stochastic Control
- ENG SE/EC/ME 714 Advanced Stochastic Modeling and Simulation
- ENG SE/EC/ME 724 Advanced Optimization Theory and Methods
- ENG SE/EC/ME 725 Queuing Systems
- ENG SE/EC/ME 732 Combinatorial Optimization and Graph Algorithms
- ENG SE/EC/ME 733 Discrete Event and Hybrid Systems
- ENG SE/ME 766 Advanced Scheduling Models and Methods

F. Production and Service Systems
- ENG ME 510 Production Systems Analysis
- ENG SE/EC/ME 543 Sustainable Power Systems
- ENG SE/EC/ME 733 Discrete Event and Hybrid Systems
- ENG SE/ME 765 Production System Design
- ENG SE/ME 766 Advanced Scheduling Models and Methods
- GSM OM 726 Creating Value Through Operations and Technology
- GSM OM 854 Supply Chain Management
- ENG ME 525 Technology Ventures
- ENG ME 550 Product Supply Chain Design
- ENG ME 583 Product Management
- ENG ME 584 Manufacturing Strategy
- GSM OB 848 E1 The Leadership Challenge
- GSM SI 839 Design & Innovation Strategy
- GSM SI 852 Starting New Ventures
- GSM SI 871 Tech to Market
- GSM PL 870 Gov’t, Society, & the New Entrepreneur
- GSM HM 801 Bench to Bedside

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