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
- B. Control Systems
- C. Energy and Environmental Systems
- 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.

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**PRACTICUM** Indicate up to two courses (8 cr), from the approved list on the reverse, used to satisfy Core, Concentration or Elective Requirements.

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**APPROVED COURSES ON PAGE 2**
Boston University College of Engineering  
Division of Systems Engineering  
MEng Program Planning Sheet, Page 2

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/ME/EC 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 ME 533 Energy Conversion
   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
   GR5 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/EC 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/ME 714 Advanced Stochastic Modeling and Simulation
   • ENG SE/EC/ME 724 Advanced Optimization Theory and Methods
   • ENG SE/ME 725 Queuing Systems
   • ENG SE/ME/EC 733 Discrete Event and Hybrid Systems*
   • ENG SE/ME 740 Vision Robotics and Planning
   • ENG SE/ME 762 Nonlinear Systems and Control
   • ENG SE/ME 765 Communication Networks Control
   • ENG SE/ME 766 Advanced Scheduling Models and Methods
   • ENG EC 952 Directed Group Project

ELECTIVE COURSES

Other Suggested Electives:
   CAS CS 511 Object-Oriented Software Principles
   CAS CS 542 Machine Learning
   ENG EC 504 Advanced Data Structures
   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 SE/EC/ME 733 Discrete Event and Hybrid Systems*
   • ENG SE/ME/EC 734 Hybrid Systems
   • ENG SE/ME 740 Vision Robotics and Planning
   • ENG SE/EC/ME 741 Randomized Network Algorithms
   • ENG SE/ME 753 Communication Networks Control
   • ENG SE/ME 755 Communication Networks Control
   • ENG SE/ME 765 Production System Design
   • ENG SE/ME 766 Advanced Scheduling Models and Methods
   • ENG ME 502 Invention: Technology Creation, Protection, & Commercialization
   • ENG ME 517 Product Development
   • 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

Fall 2017