Boston University College of Engineering
Division of Systems Engineering
MS (Non-Thesis) Program Planning Sheet

Student Name: ____________________________
Advisor Signature: ____________________________ BU ID

MS (Non-Thesis) students must take 32 credits, all of which must be at the 500 level or higher. The coursework requirements for the MS (Non-Thesis) are as follows: Core (3 courses), Concentration (2 courses), and Elective (3 courses). Among the 32 credits, the Practicum Requirement is satisfied by up to two courses from the approved list. Electives are chosen, with advisor approval, to meet an individual student’s academic needs. MS students must also satisfy the advanced technical course requirement by taking at least two 700-level or higher courses from the Systems courses below, on the reverse, or courses approved by the Systems Engineering Graduate Committee in advance. MS students must maintain a cumulative GPA of 3.00 to remain in good academic standing and to graduate. All graduate courses are counted in the GPA. Grades of “C-” or lower are not acceptable for the MS degree.

CORE Select one course from each of the following three Core areas.
A. SE/EC/MSE 501 Dynamic Systems Theory, or SE/EC/MSE 710 Dynamic Programming and Stochastic Control Semester/Grade ____________________________
B. SE/EC 524 Optimization Theory and Methods Semester/Grade ____________________________
C. SE/ME 714 Advanced Stochastic Modeling and Simulation, or EC 505 Stochastic Processes, or EK 500 Probability with Statistical Applications Semester/Grade ____________________________

CONCENTRATION Select two courses from one Concentration area.
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 Protein and Genomic Systems Engineering
   ENG BE 777 Computational Genomics I

B. Control Systems
   ENG SE/EC/MSE 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/MSE 701 Optimal and Robust Control
   ENG SE/EC/MSE 702 Recursive Estimation and Optimal Filtering
   ENG SE/ME 704-Adaptive Control
   ENG EC 708 Advanced Process Control
   ENG SE/ME/EC 710 Dynamic Programming and Stochastic Control
   ENG SE/ME/EC 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
   ENG SE/EC/MSE 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
   GRS EC 716 Game Theory
   GSM OM 845 Clean Technology Business Models

D. Network Systems
   ENG EC 541 Computer Communication Networks
   ENG SE/EC/MSE 544 Networking the Physical World
   ENG EC 715 Wireless Communications
   ENG SE/ME/EC 725 Queuing Systems
   ENG SE/EC/MSE 741 Randomized Network Algorithms
   ENG SE/ME 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/MSE 524 Optimization Theory and Methods
   ENG SE/EC/MSE 710 Dynamic Programming and Stochastic Control
   ENG SE/ME 714 Advanced Stochastic Modeling and Simulation
   ENG SE/ME/EC 724 Advanced Optimization Theory and Methods
   ENG SE/ME/EC 725 Queuing Systems
   ENG SE/ME/EC 732 Combinatorial Optimization and Graph Algorithms
   ENG SE/ME/EC 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/MSE 543 Sustainable Power Systems
   ENG SE/EC/MSE 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

Concentration/Course/Semester/Grade

Concentration/Course/Semester/Grade

ELECTIVE Select 3 courses from the Concentrations listed above, if not used to satisfy the Concentration Requirement; from the other Suggested Electives listed on the reverse; or no more than one Engineering Management Course from the approved list.

Course/Sem/Grade ____________________________ Course/Sem/Grade ____________________________

Course/Sem/Grade ____________________________

PRACTICUM Indicate up to two courses from the approved list on the reverse.

Course/Sem/Grade ____________________________ Course/Sem/Grade ____________________________

Course/Sem/Grade ____________________________

**ELECTIVE COURSES**

**Other Suggested Electives:**
- CAS EC 513 Game Theory
- ENG MS 700 Advanced Special Topics
- GRS EC 716 Game Theory
- CAS CS 511 Object-Oriented Software Principles
- GSM OM 855 Project Management
- ENG SE 900 Research
- ENG SE 951 Independent Study

**Engineering Management Courses**
- 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
- ENG ME 703 Managerial Cost Accounting
- GSM OB 848 E1 The Leadership Challenge
- GSM SI 833 Technology Commercialization
- 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
- ENG EK 731/GSM HM 801 Bench to Bedside

**Approved Practicum Courses:**

1. SE 925 Graduate Project, OR

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 EC 708 Advanced Process Control
   - ENG SE/EC/ME 710 Dynamic Programming and Stochastic Control
   - ENG EC 715 Wireless Communications
   - ENG SE/EC/ME 724 Advanced Optimization Theory and Methods
   - ENG SE/EC/ME 725 Queueing Systems
   - ENG SE/EC/ME 732 Combinatorial Optimization and Graph Algorithms
   - 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 741 Randomized Network Algorithms
   - ENG EC 744 Mobile Networking and Computing
   - ENG SE/ME 755 Communication Networks Control
   - ENG SE/ME 762 Nonlinear Systems and Control
   - ENG SE/ME 765 Production System Design
   - ENG SE/ME 766 Advanced Scheduling Models and Methods

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 BE 700 Advanced Topics in Biomedical Engineering
   - ENG EC 952 Directed Group Project