Boston University College of Engineering
Division of Materials Science & Engineering
MS (Non-Thesis) Program Planning Sheet

Student Name: ____________________________ BU ID ____________________________
Advisor Signature: ________________________

MS (Non-Thesis) students must take 32 credits, all of which must be at the 500 level. This must include 4 Core Courses, 2 Concentration Courses; Practicum Courses up to 8 credits; Elective Course 4 credits. Only one 400-level course may be taken, with advisor approval, if needed as a prerequisite for another course in the program. 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** Four courses, one each from A, B, C, and D. (16 credits)

A. ENG MS 577 Elec. Opt, Mag Prop of Mtls OR CAS PY 543 Introduction to Solid State Physics (by instructor approval only) Sem/Gr

B. MS 505/ME 505 Thermodynamics and Statistical Mechanics Semester/Grade

C. MS 503/ME 503 Kinetic Processes in Materials Semester/Grade

D. MS 574/EC 574 Physics of Semiconductor Materials or MS 504 Polymers and Soft Materials or MS 582/ME 582 Mechanical Behavior of Materials or MS 508/ME 508 Computational Methods in Materials Science Semester/Grade

**CONCENTRATION** Two courses from one area. (8 credits)

A. Biomaterials
   - ENG BE 506 Phys Chem of Cell Structure and Machinery
   - ENG BE 521 Continuum Mechanics for Biomedical Engineers
   - ENG MS/BE/ME 523 Mechanics of Biomaterials
   - ENG MS/ME/BE 524 Skeletal Tissue Mechanics
   - ENG BE 526 Fundamentals of Biomaterials
   - ENG BE 533 Biochemistry
   - ENG MS/BE/ME 549 Structure & Function Extracellular Matrix
   - GRS CH 550 Materials Chemistry
   - GRS CH 621 Biochemistry
   - GRS CH 629 DNA Nanotechnology
   - ENG MS/BE/ME 727 Principles & Applications of Tissue Eng
   - ENG MS/BE 736 Biomedical Transport Phenomena
   - GRS PY 744 Polymer Physics
   - GRS PY 771 Systems Biology for Physical Scientists & Eng

B. Electronic/Photonic Materials
   - ENG EC 560 Introduction to Photonics
   - ENG EC 575 Physics of Semiconductor Devices
   - ENG EC 578 Fabrication Tech for Integrated Circuits
   - GRS PY 741 Solid State Physics I
   - GRS PY 742 Solid State Physics II
   - GRS PY 745 Experimental Surface Physics and Chemistry
   - GRS CH 752 Advanced Topics in Chemical Physics
   - ENG MS/EC 764 Optical Measurement
   - ENG EC 770 Guided-wave Optoelectronics
   - ENG MS/EC 774 Semiconductor Quant. Strctrs & Phot Dev
   - ENG EC 777 Nano-Optics

C. Materials for Energy and Environment
   - ENG MS/ME 527 Trans. Phenomena in Mats Processing
   - ENG MS/ME 532 Atomic Structure & Dislocations in Mats
   - ENG MS/ME 535 Green Manufacturing
   - ENG MS/ME 545 Electrochemistry of Fuel Cells & Batteries
   - EK 546 Assessment of Sustainable Energy Technologies
   - GRS CH 550 Materials Chemistry
   - GRS CH 631 Structure and Bonding
   - ENG MS/EC 573 Solar Energy Systems
   - GRS PY 741 Solid State Physics I
   - GRS PY 742 Solid State Physics II
   - GRS PY 745 Experimental Surface Physics and Chemistry
   - ENG MS/ME 781 Electroceramics

D. Nanomaterials
   - GRS CH 550 Materials Chemistry
   - ENG MS/ME 555 MEMS Fabrication and Materials
   - ENG ME 576 Nanomanufacturing and Hierarchical Materials
   - GRS CH 631 Structure and Bonding
   - ENG MS/ME 735 Computational Nanomechanics
   - GRS PY 745 Experimental Surface Physics and Chemistry
   - ENG EC 777 Nanostructure Optics
   - ENG MS/ME 778 Micromachined Transducers

☐ A ☐ B ☐ C ☐ D (select area completed)
Course/Semester/Grade ____________________________
Course/Semester/Grade ____________________________

**PRACTICUM** One to two courses. (4 to 8 credits) Course/Sem/Grade ____________________________ Course/Sem/Grade ____________________________

ENG MS 539 Intro to Materials Science and Engineering
ENG MS 782 Advanced Materials Characterization
ENG MS 951 Independent Study
ENG MS 952 Mentored Project

**ELECTIVE** If only 4 credits of Practicum are taken, 4 credits from the list below, or from above if not used to satisfy the core, concentration, or practicum requirements. Course/Semester/Grade ____________________________

ENG MS 500 Special Topics
ENG MS/ME 507 Process Modeling and Control
ENG ME 516 Statistical Mechanical Concepts in Engineering
ENG MS/ME 526 Simulation of Physical Processes
ENG MS/ME 534 Mats Technology for Microelectronics
ENG MS/ME 579 Microelectronic Device Mfg
ENG MS/ME 580 Theory of Elasticity
ENG MS 700 Adv Special Topics
GRS CH 751 Advanced Topics in Physical Chemistry

Fall 2021