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. Circle the course used for A 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 521 Continuum Mechanics for Biomedical Engineers
ENG MS/ME/BE 524 Skeletal Tissue Mechanics
ENG BE 526 Fundamentals of Biomaterials
ENG BE 533 Biorheology
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/ME/BE 727 Principles & Applications of Tissue Eng
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 Matls Processing
ENG MS/ME 532 Atomic Structure & Dislocations in Matls
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 ME/EC 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