

## Research Masters in Materials Science & Engineering

For a research MS the student must:

- (i) Have a research advisor who is a member of the MSE program's Graduate Faculty
- (ii) Have a research project relevant to the MSE graduate program
- (iii) Take a total of 6 research credits
- (iv) Take a total of 24 taught credits
- (v) Write a MS dissertation (thesis) and present this to a dissertation committee

The curriculum for the 30 credits (24 taught plus 6 research) runs over a 18-24 month period.

### **Fall semester (students typically take 9 credits, but may take up to 12 credits)**

Core courses (most students will take these):

635:527 Thermodynamics of Materials Systems (3 credits)

635:513 Mechanical Behavior of Materials (3 credits)

Elective courses (students will typically pick 1, 2 or 3 of these):

635:505 Advanced Optical Materials (3 credits)

635:525 Properties of Materials Surfaces (3 credits)

635:529 Applied Colloid and Surface Chemistry (3 credits)

635:566 Electron Microscopy (3 credits)

635:567 Electron Microscopy Lab (1 credit)

635:601 Materials Seminar (1 credit)\*

635:701 Research in Materials (1 to 3 credits)

### **Spring semester (students typically take 9 credits, but may take up to 12 credits)**

Core courses (most students will take these):

635:503 Theory of Solid State Materials (3 credits)

635:532 Kinetics of Materials Systems (3 credits)

Elective courses (students will typically pick 1, 2 or 3 of these):

635:506 Advanced Glass (3 credits)

635:509 Advanced Electroceramics (3 credits)

635:516 Molecular Behavior or Glasses (3 credits)

635:524 Advanced Materials Characterization (3 credits)

635:528 Modern Electrochemistry (3 credits)

635:602 Materials Seminar (1 credit)\*

635:702 Research in Materials (1 to 3 credits)

### **Summer session (students may take 3 to 6 credits)**

635:603 Special Problems in Materials (credits vary)

635:604 Special Problems in Materials (credits vary)

635:701 Research in Materials (1 to 3 credits)

Any graduate level class offered at Rutgers New Brunswick (one 3 credit course per summer)

**Credits outside MSE graduate Program (see note\*\*)**

You are permitted to take a small number of courses for credit outside of our graduate program, for instance:

Graduate courses offered by other programs at Rutgers – always check with course lecturer first (BME, CBE, MAE, ECE, Physics, Chemistry);

MSE advanced undergraduate courses – always check with course lecturer first (examples are 14:635:433 Optical Materials, 14:635:312 Glass Engineering,...others );

Transferred credits from other institutions – check with graduate program director (typically from prior graduate level study).

**\*Note: MS students may take a maximum of 3 credits of Materials Seminar**

**\*\*Note: Maximum allowed is 9 credits for research MS**