Requirements for a Concentration in Nanotechnology

Students planning to pursue a concentration in Nanotechnology should declare their intent as early as possible to facilitate course planning, and in no case later than October 1st senior year.

The concentration in Nanotechnology can be earned by any student within the College of Engineering by fulfilling the following requirements.

Concentration requirements:

1. A sequence of four courses (16 cr) consisting of the required course (4 credits) listed below and three additional courses (12 credits) chosen from the list of additional courses below. *

   **Required course taken prior to declaration:**
   ENG EK 481 - Fundamentals of Nanomaterials and Nanotechnology - 4 cr

   **Additional Courses:** (Choose three* - see Notes below)
   CAS PY 313 * - Elementary Modern Physics - 4 cr (see Notes below)
   ENG EK 424 * - Thermodynamics and Statistical Mechanics - 4 cr (see Notes below)
   ENG BE 437 - Nano-meter Scale Processes in Living Systems - 4 cr (spring 2011)
   ENG BE 505 - Molecular Bioengineering - 4 cr
   ENG BE 526 - Fundamentals of Biomaterials - 4 cr
   ENG BE 564 - Biophysics of Large Molecules - 4 cr
   ENG BE 566 - DNA Structure & Function - 4 cr
   ENG EC 471 - Physics of Semiconductor Devices - 4 cr
   ENG EC 560 - Introduction to Photonics - 4 cr
   ENG EC 571 - VLSI Principles and Applications - 4 cr
   ENG EC 574 - Physics of Semiconductor Materials - 4 cr
   ENG EC/MS 577 - Electrical, Optical and Magnetic Properties of Materials - 4 cr
   ENG EC 578 - Fabrication Technology for Integrated Circuits - 4 cr
   ENG ME/MS 526 - Simulation of Physical Processes - 4 cr
   ENG ME/MS 532 - Atomic Structure and Dislocations in Materials - 4 cr
   ENG ME/MS 555 - MEMS: Fabrication and Materials - 4 cr
   ENG ME/EC 579 - Nano/Microelectronic Device Technology - 4 cr
   GRS CH 629 - DNA Nanotechnology - 4 cr
   GRS PY 543 - Introduction to Solid State Physics - 4 cr

   These 700-level courses can be taken by more advanced students with permission of instructor:
   ENG BE 705 - Single Molecule Approaches (by permission of instructor only) - 4 cr
   ENG BE 745 - Nanomedicine (by permission of instructor only) - 4 cr
   ENG EC 777 - Nano-optics (by permission of instructor only) - 4 cr
   ENG ME/MS 718 - Advanced Topics in Nanotechnology (by permission of instructor only) - 4 cr
   ENG ME/MS 778 - Micromachined Transducers (by permission of instructor only) - 4 cr

2. **Experiential Component Requirement:** Completion of a well-defined experiential component in the nanotechnology area. A senior design project, laboratory research, or industrial internship can satisfy this requirement. This requirement must be approved by the Concentration Coordinator and the Experiential Component Approval form must be submitted to the Undergraduate Records Office. After its completion, a written summary of the experiential component must also be submitted for approval (see Experiential Component Approval form and/or college Nanotechnology concentration website: [http://www.bu.edu/eng/academics/programs/concentrations/nanotechnology/](http://www.bu.edu/eng/academics/programs/concentrations/nanotechnology/) for more information).

**Notes:**
* Students can take either CAS PY 313 OR ENG EK 424 as one of their three additional courses, but not both. Only one of these courses can be used toward the requirements for a Concentration in Nanotechnology.