

## Guidelines for Students Enrolling in the Non-Degree Conferring Program in Materials Science

Amended and approved by a meeting of the College of Engineering Curriculum Committee on April 8, 2003  
Amended and approved by a meeting of the College of Engineering Curriculum Committee on November 26, 2007  
Amended and approved by a meeting of the National Central University Curriculum Committee on May 22, 2003  
Amended and approved by a meeting of the National Central University Curriculum Committee on December 13, 2007  
Amended and approved by a meeting of the Academic Affairs Committee on June 20, 2003  
Amended and approved by a meeting of the Academic Affairs Committee on December 26, 2007  
Amended and approved by a meeting of the College of Engineering Curriculum Committee on March 2, 2004  
Amended and approved by a meeting of the College of Engineering Curriculum Committee on February 21, 2008  
Amended and approved by a meeting of the National Central University Curriculum Committee on March 16, 2004  
Amended and approved by a meeting of the National Central University Curriculum Committee on March 13, 2008  
Amended and approved by a meeting of the Academic Affairs Committee on March 25, 2004  
Amended and approved by a meeting of the Academic Affairs Committee on March 26, 2008  
Amended and approved by a meeting of the College of Engineering Curriculum Committee on November 14, 2005  
Amended and approved by a meeting of the National Central University Curriculum Committee on December 6, 2005  
Amended and approved by a meeting of the Academic Affairs Committee on December 20, 2005  
Amended and approved by a meeting of the College of Engineering Curriculum Committee on September 10, 2007  
Amended and approved by a meeting of the National Central University Curriculum Committee on October 4, 2007  
Amended and approved by a meeting of the Academic Affairs Committee on October 17, 2007

1. The aim of this program is to integrate the course offerings in the College of Engineering's materials science programs and to equip students with a general knowledge of materials science in the interest of cultivating professional expertise in materials technology.
2. Any undergraduate student in the University may apply for entry into this program.
3. University students will be regarded as having completed this program after earning 20 or more course credit hours, which must include credit hours from two or more specialized subject courses offered by other departments or institutes. They shall have the name of the program as well as the number of credit hours earned clearly indicated on their transcript and shall also be awarded a certificate showing they have completed this program. (One program course and its corresponding laboratory course are considered as one course.)
4. The program's courses are divided into Basic and Core Subject courses and Specialized Subject Courses listed as follows:

## (1) Basic and Core Subjects

Subject	Prerequisite	Subject	Prerequisite
Materials Science (ME2051,3) or Introduction to Chemistry and Materials Engineering I,II	General Physics	Electronics I (EE2001,3. content is electronic materials and devices)	General Physics
Engineering Materials (CI2005,3) and Engineering Materials Experiments (CI2012,1) or Advanced Materials (ME3048,3) and Materials Experiments (ME3095,1), General Chemistry (CH1019,3) or Basic Chemistry (CH4046,3)	None Materials Science None	Organic Chemistry(CH2001,3 & CH2002,3 or CM2031,4 & CM2032,4) and Organic Chemistry Experiment (CH2003,1 & CH2004,1 or CM2033,1 & CM2034,1)	General Chemistry
Physical Metallurgy (ME3046,3)	Materials Science	Solid State Chemistry (CM6063,3)	General Chemistry
Introduction of Modern Physics	General Physics	Introduction to Solid State Physics (CH3055,3)	Introduction to Quantum Physics
Statistical Mechanics (PH6012,3) or Thermal Physics (PH3004,3)	Thermal Physics General Physics	Chemical Engineering and Thermodynamics of Materials I , II (CH3059,3 & CH3060,3)	Materials Science

## (2) Specialized subjects

## 1. Metalurgical Materials

Subject	Prerequisite	Subject	Prerequisite
Tribology (ME6043,3)	Materials Science	Mechanical Properties of Materials (ME6059,3)	Materials Science
Composite Materials Mechanics (ME6027,3)	Mechanics of Materials	Corrosion and Anti-corrosion Engineering (ME7049,3)	Materials Science
Special Topic on Casting Engineering (ME5026,3)	Materials Science		
Metal Fatigue (ME6049,3)	Materials Science	Advanced Materials Thermodynamics (MS5004,3)	Materials Science
Mechanical Metallurgy (ME6058,3)	Materials Science	Advanced Physical Metallurgy (ME5077,3)	Materials Science

## 2. Electronic Materials

Subject	Prerequisite	Subject	Prerequisite
Solid State Electronic Devices (EE3034,3)	Electronics and Electrical	Solid State Engineering (EE6033,3)	Electronics I
Electronic Materials Science (CH8071,3)	Materials Science or Introduction to Materials Science or Engineering Materials	Electronics and Ceramics Materials (CH4051,3)	Materials Science or Introduction to Materials Science or Engineering Materials
Electronic Thin Film Science (CH8080,3)	Materials Science or Introduction to Materials Science or Engineering Materials	Introduction to Insulator Silicon Materials	Materials Science or Introduction to Materials Science or Engineering Materials

## 3. Polymeric Materials

Subject	Prerequisite	Subject	Prerequisite
Instrumental Analysis (CH3012,3) and Instrumental Analysis Experiments (CH4015,1)	General Chemistry	Polymeric Materials and Experiments	General Chemistry and Introduction to Polymer Chemistry
Polymer Chemistry (CH4056,3) Polymer Physics (CH4057,3)	General Chemistry	Advanced Instrumental Analysis (CH8030,3)	General Chemistry or Instrumental Analysis (or Analysis Chemistry) General Chemistry
Fuel Cell (MS5015,3)	Materials Science or Thermodynamics	Electronic Microscope (CH8089,3)	General Chemistry or Materials Science
Bioinspired Materials (CH8097,3)	Materials Science or Introduction to Materials Science or Engineering Materials		

## 4. Construction Materials

Subject	Prerequisite	Subject	Prerequisite
Quality Assurance of Civil Engineering Materials (CI7069,3)	Engineering Materials or Materials Science or Introduction to Materials Science	Behavior of Reinforced Concrete (CI6092,3)	Physics and Chemistry Characteristics of Cement-based Materials (CI7027,3)
Asphalt Concrete Mix Design (CI6065,3)	Engineering Materials or Materials Science or Introduction to Materials Science	Physics and Chemistry Characteristics of Cement-based Materials (CI7027,3)	Engineering Materials or Materials Science or Introduction to Materials Science
Application of Precision Instruments in Civil Engineering Materials (CI6087,3)	Engineering Materials or Materials Science or Introduction to Materials Science		

5. These guidelines shall be implemented and entered into force upon approval by a meeting of the Academic Affairs Committee. The same procedure applies to any amendment of these guidelines.