Industrial Engineering Program

1. COURSE NUMBER AND NAME	**IE 224 – Production Process Design**
2. CREDITS AND CONTACT HOURS	3 Credits. 4 Contact Hours
3. COURSE INSTRUCTOR	Sanchoy Das
4. TEXT BOOK	Kalpakjian, S. and Schmid, S. R., Manufacturing Engineering and Technology, 5th Ed., Pearson-Prentice-Hall, 2006
4A. OTHER MATERIAL	
5A. CATALOG DESCRIPTION	Introduction to the theory and practice of manufacturing processes. Study covers the fabrication of metallic, plastic, and electrical products, operation of NC and other automatic equipment, and economics of the design and production process.
5B. PREREQUISITES	Sophomore standing
5C. REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
6A. SPECIFIC OUTCOMES OF INSTRUCTION	The students will: 1 Learn the differences between materials at the atomic level and how this effects their physical behavior (a, e, i). 2 Be able to identify and list the common metal fabrication processes and the associated machinery (a, c, e). 3 Be able to identify and list the common plastics materials and the common plastics fabrication processes (a, c, e). 4 Be able to identify and list the common electronic materials and the semiconductor fabrication processes (a, c, e). 5 Learn how to operate and program manufacturing equipment and identify the associated issues of quality and efficiency (b, c, g)
6B. CRITERION 3 OUTCOMES ADDRESSED	The mapping of the five (5) outcomes of instruction of item 6A to the Criterion 3 outcomes (a-k) is as follows: 1. Satisfies Criterion 3 outcomes a, e and i. 2. Satisfies Criterion 3 outcomes a, c and e. 3. Satisfies Criterion 3 outcomes a, c and e. 4. Satisfies Criterion 3 outcomes a, c and e. 5. Satisfies Criterion 3 outcomes b, c and g.

7. TOPICS COVERED	1. Introduction to manufacturing processes 2. Material properties and mechanical behavior 3. Metal forming processes 4. Metal cutting processes & Machine tools 5. Metal finishing processes 6. Introduction to AutoCAD 7. Numerical Control (NC) machining 8. Processing of plastic products 9. Manufacturing of microelectronic devices 10. Introduction to automated manufacturing processes