

TO: The Engineering Faculty

FROM: The School of Mechanical Engineering

RE: New Concentration in Manufacturing for BS in Mechanical Engineering

The Faculty of The School of Mechanical Engineering has approved the following new concentration from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Description:

This concentration in Manufacturing is intended to provide students with knowledge and skills in manufacturing such that they can be better prepared for their future related study and/or work. By taking courses for the concentration, students will learn additional knowledge on manufacturing and may also gain research or project work experience. The listed courses for the concentration give students flexibility to study one or multiple aspects of manufacturing, including (but not necessarily limited to): physical processes, materials, design, control, automation and inspection for manufacturing, as well as non-traditional manufacturing technologies such as laser-based or additive manufacturing.

Reason:

Manufacturing is the cornerstone for numerous industrial fields and its importance is self-evident. The jobs of many mechanical engineers are directly or indirectly related to manufacturing. Solving industrial problems in manufacturing often requires knowledge and/or skills in multiple areas. To meet the industrial demand for mechanical engineers with a good background in manufacturing, it is highly desirable to offer students in the School of Mechanical Engineering a concentration in Manufacturing for BS in Mechanical Engineering.

See the appended documentation for the specific course requirement of the concentration.



Jitesh Panchal
Associate Head for Undergraduate Studies
Professor of Mechanical Engineering

**Concentration in Manufacturing for
Bachelor of Science in Mechanical Engineering**

Focus of the Concentration: Manufacturing

Proposing [Sub] Area: Manufacturing Subcommittee of the academic area of Design and Manufacturing.

Target Degree: BSME

Concentration requirements: 9 credit hours comprising one 3-credit course from List A and 6 credit hours from List B. At least 6 credit hours for this concentration must be from ME courses.

List A:

- ME 36300: Principles and Practices of Manufacturing Processes
- IE 37000: Manufacturing Processes I

Note: Students are not eligible to take both ME 363 and IE 370

List B:

- MSE 33000 - Processing and Properties of Materials
- MFET 34400 - Automated Manufacturing Processes
- MET 451 - Manufacturing Quality Control
- IE 47000 - Manufacturing Processes II
- ME 49601 - Nondestructive Evaluation for Additive Manufacturing
- ME 49601 - Additive Mfg: Fund, Equip &Appl
- ME 497/498 Research (3 credits) – to be approved by a faculty member in the manufacturing sub-area.
- ME 50700 - Laser Processing
- STAT 513 - Statistical Quality Control
- MSE 530 - Materials Processing in Manufacturing
- ME 55700 - Design for Manufacturability
- IE 57000 - Manufacturing Process Engineering
- ME 57600 - Computer Control of Manufacturing Processes
- ME 59700 - Industrial IoT Implementation for Smart Manufacturing
- ME 59700 - Composites and Polymer Processing
- ME 59700 - Heat, Mass Transfer and Fluid Flow in Manufacturing and Materials Processing.