Manufacturing Engineering Courses

Courses

MFG 5311. Design for Manufacturability.
Design for Manufacturability (3-0) Theoretical and practical aspects of the implications that the manufacturing process has on the design activities will be studied. Issues such as rapid prototyping, tolerancing, geometric modeling, capabilities of manufacturing processes, design for quality and maintainability and others will be covered. The course will consist of lectures, class discussions, and student projects.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5312. Strategic Design-Mfg Processes.
Strategic Design of Manufacturing Processes (3-0) Strategic and tactical aspects of the design of manufacturing processes will be covered in this course. Techniques such as concurrent engineering, quality function deployment, group technology, process planning and others will be covered. The course will consist of lectures, class discussions, and student projects.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5314. Robotics & Flexible Automation.
Robotics and Flexible Automation (3-0) Modern concepts of robotics and flexible automation including power and control mechanisms, flexible material handling systems, programmable controllers, interfacing and end-of-arm tooling.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5315. Analysis-Mat'l Handling System.
Analysis of Material Handling Systems (3-0) Study of the most recent developments in research and applications of material handling systems. Special emphasis will be placed on models and techniques that allow a good design of integrated material handling systems in a discrete production environment. The course will consist of lectures, class discussions, and student projects.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5321. Modeling/Analysis-Mfg Process.
Modeling and Analysis of Manufacturing Processes (3-0) This project-oriented course is designed to be a capstone course for the graduate students of manufacturing engineering. The student will be expected to use the analytical tools to formulate, model, and solve real-life manufacturing problems. At the end of the course the student will give and open presentation of the results of the term project. Prerequisites: MFG 5312 and MFG 5313.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Prerequisite(s): (MFG 5312 w/C or better) AND (MFG 5313 w/C or better)

MFG 5350. Reliability & Maintainability.
Reliability and Maintainability (3-0) This course deals with the application of reliability theory in engineering design. In particular, the course covers reliability functions and gives broad guidelines for designing reliability into a given situation and for determining the appropiate level of reliability. Accelerated testing, reliability management, the relationship between reliability and quality and maintainability and it's management will also be covered.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5358. Industrial Data Analytics.
This course introduces the concepts, algorithm, techniques, and systems of data mining, including (1) an introduction to data analytics, (2) data preprocessing, (3) mining frequent patterns and correlation, (4) classification, (5) cluster analysis, and (6) learning about the software used in data mining and (7) demonstration of how to apply data analytics techniques using python. Keywords: Data Analytics, Industrial Analytics, Industrial data.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Prerequisite(s): (IE 3373 w/C or better)

MFG 5359. Computer-Aided Manufacturing.
Computer-Aided Manufacturing (3-0) Modern concepts of using computers for manufacturing, including the theory of computer numerical control (CNC) and direct numerical control (DNC), CNC mailing, CNC turning and computer-aided process design.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5389. Green Energy Manufacturing.
The course introduces fundamental concepts of green energy and environmentally conscious (benign) manufacturing. This course also acquaints students with the energy and environmental issues surrounding product and process design decisions. Identification and development of strategies, techniques, and methods that can be used to make more environmentally responsible decisions are discussed. The life cycle assessment of (LCA) is implemented and illustrated with software and case studies.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5390. Special Topics.
Special Topics (3-0) Advanced topics of contemporary interest in mechanical engineering. May be repeated for credit when topic varies. Prerequisite: Department approval.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

MFG 5391. Individual Studies.
Individual Studies (0-0-3) Individual variable-credit for non-thesis related research, design or analysis on advanced phases of manufacturing engineering problems conducted under the direct supervision of a faculty member. A maximum of 3 credit hours may be applied towards the M.S. degree. Prerequisite: Department approval.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
0 Lecture Hours
3 Other Hours

MFG 5394. Graduate Research.
Graduate Research (0-0-3) Individual variable-credit research of contemporary topics in manufacturing engineering. Prerequisite: Department approval.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
0 Lecture Hours
3 Other Hours

MFG 5398. Thesis.
Thesis (0-0-3) Initial work on the thesis.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
0 Lecture Hours
3 Other Hours

MFG 5399. Thesis.
Thesis (0-0-3) Continuous enrollment required while work on the thesis continues. Prerequisite: MFG 5398.
Department: Manufacturing Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
0 Lecture Hours
3 Other Hours
Prerequisite(s): (MFG 5398 w/P or better)