MECHANICAL TECHNOLOGY (606)

606-107 - Component Design
Students apply and develop their knowledge and skills in creating engineering drawings and learn the skills to design mechanical products and parts utilized in various machines. Students use CAD software and work on individual projects to develop their understanding and skills in drawing preparation, decision making, information retrieval, organization and creativity. Students will 3-D print a part in this class. (Prerequisites: 606-132 Materials of Industry; 617-115 Jig and Fixture Design)
4 Credit hours
18 Lecture hours
108 Lab hours

606-111 - Integrated Manufacturing Production - Mechanical Design
Students simulate a manufacturing environment by building a workcell, producing a product in production and performing quality assurance checks. Emphasizes implementation of a project plan, teamwork, problem solving and decision making. It is suggested that the student take this course in the semester after they take 606-112 Integrated Manufacturing Planning - Mechanical Design. (Prerequisite: 606-112 Integrated Manufacturing Planning - Mechanical Design)
2 Credit hours
72 Lab hours

606-112 - Integrated Manufacturing Planning - Mechanical Design
Students complete a project from concept to the point where a product is designed and its manufacturing process is planned. Emphasizes the project management process, teamwork, problem solving and decision making. It is suggested that the student take 606-111 Integrated Manufacturing Production - Mechanical Design in the semester after this course. (Prerequisite: Completion of or concurrent enrollment in 606-107 Component Design)
2 Credit hours
72 Lab hours

606-116 - Machine Elements
Presents a comprehensive study of the fundamental principles and analytical methods required for the correct design of the separate components that comprise a machine or product. Emphasizes understanding how the mechanical systems operate, construction details, practical design considerations and current design practices in the field of mechanical design. (Prerequisites: Completion of or concurrent enrollment in 103-159 Computer Literacy - Microsoft Office; 804-195 College Algebra with Applications; 890-101 College 101)
3 Credit hours
54 Lecture hours

606-125 - Product Design
Trains the student to use a systematic process along with technical procedures to plan, coordinate and implement the mechanical design of a machine or product. Students learn to apply fundamental design concepts and develop creativity in determining the functional features and engineering details of a product on a team-oriented project. (Prerequisites: 606-107 Component Design; 606-116 Machine Elements. Completion of or concurrent enrollment in 606-130 Strength of Materials)
4 Credit hours
18 Lecture hours
108 Lab hours

606-128 - Design Statics
Presents an elementary, analytical and practical approach to the principles and physical concepts of the study of forces and their effects on machines. Emphasizes mastery of basic problem-solving methods used in force analysis for the purpose of machine design. (Prerequisite: Completion of or concurrent enrollment in 804-196 Trigonometry with Applications)
3 Credit hours
36 Lecture hours
36 Lab hours

606-130 - Strength of Materials
Develops the relationships between the external forces applied to a part and the internal stresses and strains generated by these forces. In application, it provides a first step in the design analysis to ensure that a component is safe with respect to strength, rigidity and stability. (Prerequisite: 606-128 Design Statics)
3 Credit hours
36 Lecture hours
36 Lab hours

606-132 - Materials of Industry
Examines the varying usages of common and unique materials used in the design and engineering fields. Emphasis is placed upon the selection of appropriate materials for specific applications, both from a technical aspect and a cost perspective. Significant exposure is devoted to areas of nonmetallic materials and their increasing uses in product design.
3 Credit hours
54 Lecture hours

606-175 - CAD 2-D, Introduction to AutoCAD
Introduces computer-aided drafting (CAD) using AutoCAD 2-D software. Students draw and edit objects, create complex geometries using orthographic projection principles, add dimensions and text, utilize layers to control line types, line weights, and colors, and create plots. No previous computer experience, blueprint reading or drafting skills are required.
1 Credit hours
36 Lab hours