MECHANICAL TECHNOLOGY (606)

Information provided includes course descriptions by subject only. For complete 2024-2025 programs/academic plans, please refer to Academic Programs (http://catalog.blackhawk.edu/academics/).

606-116 Design of Machines
Credits: 1-3

In this course students will conduct load and stress analysis in the design of a machine. Students will learn about machine elements such as gears, bearings, and shafts and will incorporate these components in a machine design of their own.
Aid Code: 10 - undefined.

Complete Course Listing

606-119 Introduction to SolidWorks
Credits: 1-3

Introduction to SolidWorks is intended to introduce the student to the concepts and commands of parametric solid modeling. Students create sketches and add relationships to the sketch segments, extrude the sketches to create models, add features such as fillets, cut/extrude, chamfers, holes, draft, shell, lofts and sweeps. Emphasis is placed on the design intent of parametric solid models. In addition, students extract 2D documentation from the 3D models and add details to the drawings.
Aid Code: 10 - undefined.
Pre-requisites: 606-127

Complete Course Listing

606-120 Strength of Materials
Credits: 1-3

A study is made of the behavior of machine parts and structural members that are in service. Various types of loads and the effects of those loads are examined. Failure modes are examined and calculated to assure proper machine design and function.
Aid Code: 10 - undefined.
Pre-requisites: 804-114

Complete Course Listing

606-123 Interpreting Engineering Graphics
Credits: 1-2

This is a course designed to introduce the student to the concepts, equipment and tools associated with Mechanical Drafting. The course is a precursor to more advanced subject matter discussed in later program classes.
Aid Code: 10 - undefined.

Complete Course Listing

606-124 Orthographic Projection
Credits: 1-3

ANSI Standards, as related to drafting, are introduced. The principles for orthographic projection and techniques for layout of multi-view drawings are introduced. Subject areas include ANSI regulations/standards, primary planes of projection and applied orthographic projection. Dimensioning basics are covered.
Aid Code: 10 - undefined.

Complete Course Listing

606-125 Drafting Representations
Credits: 1-2

Internal features expressed through sections and drafting conventions are examined. Auxiliary, successive auxiliary, revolution and applied descriptive geometry are used extensively in the course. A brief introduction to pictorials is covered.
Aid Code: 10 - undefined.
Pre-requisites: (606-124) and (606-127)

Complete Course Listing

606-126 Fasteners and Processes
Credits: 1-3

An in-depth look at threaded fasteners and screw thread systems is taken. Working strength of various threads to assess mode of failure as well as specific stress and strain calculations are discussed. Welding terminology and symbology are introduced.
Aid Code: 10 - undefined.
Pre-requisites: (606-124) and (606-127)

Complete Course Listing

606-127 Two-Dimensional Computer Aided Drafting (CAD)
Credits: 1-3

All aspects of two-dimensional computer aided drafting are explored. This is a foundation for more advanced editing and dimensioning as well as three-dimensional computer aided renderings.
Aid Code: 10 - undefined.

Complete Course Listing

606-128 Three-Dimensional Computer Aided Drafting (CAD)
Credits: 1-3

This is a hands-on drawing course in the latest Mechanical Design nuance known as 3-D drafting. The student will learn time saving techniques for constructing solid models for use in the industrial design field.
Aid Code: 10 - undefined.
Pre-requisites: (606-124) and (606-127)

Complete Course Listing

606-129 Kinematics
Credits: 1-3

The student takes an in-depth look at the study of motion as related to machines and the design and selection of belts, gears, cams and eccentrics. Linear and rotational motion is discussed as well as specific displacement. Also discussed are bearings and clutches/brakes.
Aid Code: 10 - undefined.

Complete Course Listing

606-130 Actuators
Credits: 1-3

In this course, the basics of creating movement through the use of electricity, electric motors, hydraulics and pneumatics are discussed. This course is intended to give the student a basic understanding of the various machine design applications he/she may encounter in industry.
Aid Code: 10 - undefined.

Complete Course Listing

606-131 Geometric Dimensioning and Tolerancing
Credits: 1-2

GD&T introduces the student to the differences between conventional tolerancing and geometrical tolerancing. An emphasis is put on interpretation and application of the proper GD&T symbology given the function of the part and according to ANSI Standards.
Aid Code: 10 - undefined.

Complete Course Listing

606-132 Design Applications
Credits: 1-2

A culmination of the total program is reached in this course. Multiple projects are assigned to strengthen the student's ability to perform in the design field. This course allows the student to be creative in their design selection, and to defend/explain the selection based on necessary criteria.
Aid Code: 10 - undefined.

Complete Course Listing

606-133 Descriptive Geometry
Credits: 1-2

Descriptive Geometry is designed to broaden the applicable knowledge of different techniques employed in the graphical solution of problems involving spatial relationships between points, lines, planes and solids. Within the course, special consideration is given to the techniques of rotation, auxiliary and surface development, as well as surface classification in the practical application of trade problems. The student learns when to use the most appropriate technique, given a specific problem, as well as alternate techniques to solve for the same problem.
Aid Code: 10 - undefined.

Complete Course Listing

606-152 Engineering Graphics - Parametric Modeling
Credits: 1-3

In this course solid modeling CAD software is utilized to design parts, assemblies, and blueprints to allow for effective communication between stake holders. Drafting methods are a focus to provide for efficient and flexible design, manufacturability, and quick turnaround. Finite element analysis will also be introduced to aid in design integrity, performance, and reliability.
Aid Code: 10 - undefined.
Co-requisites: (606-176)

Complete Course Listing

606-155 Statics & Dynamics 1
Credits: 0.5-1

Students analyze and operate simple machines such as levers and pulleys, as well as gears and linkages. Students will be introduced to force calculations for trusses and frames, and free body diagrams.
Aid Code: 10 - undefined.
Co-requisites: (804-197)

Complete Course Listing

606-156 Statics & Dynamics 2
Credits: 0.5-1

Students will examine kinematic analysis of rigid bodies, force-acceleration analysis, and work-energy analysis.
Aid Code: 10 - undefined.
Pre-requisites: (804-197)
Co-requisites: (606-155)

Complete Course Listing

606-157 Statics & Dynamics 3
Credits: 0.5-1

Students will be examine impulse momentum analysis, impact, and forced vibrations.
Aid Code: 10 - undefined.
Pre-requisites: (804-197)
Co-requisites: (606-156)

Complete Course Listing

606-176 CAD Fund-Solid Modeling
Credits: 0.5-1

Students use the basics of 3-D modeling software to create parts, assemblies and drawings that are in typical use in industry. Students also apply effective technical communication skills.
Aid Code: 10 - undefined.

Complete Course Listing

606-310 GD&T Interpretations
Credits: 0.5-1

In this course students will practice the use of Geometric Dimensioning and Tolerancing as it pertains to mechanical specifications and relationships in technical drawings. Students will practice interpretation of these symbols, as well as basic inspection methodologies.
Aid Code: 32 - undefined.
Co-requisites: (421-310)

Complete Course Listing

606-311 Basic CAD
Credits: 0.5-1

In this course students will demonstrate the use of CAD software to create blueprints for the manufacturing sector.
Aid Code: 32 - undefined.
Pre-requisites: (421-310)

Complete Course Listing

606-312 Intermediate CAD
Credits: 0.5-1

In this course students will demonstrate the use of CAD software to create complex blueprints for the manufacturing sector.
Aid Code: 32 - undefined.
Pre-requisites: (606-311)

Complete Course Listing

606-400 Intro to Pro-E Software
Credits: 0.1-3

This course is designed to provide participants with an understanding of three dimensional CAD engineering software technology.
Aid Code: 47 - undefined.

Complete Course Listing

606-411 3D Design for Entrepreneurs
Credits: .2

This course will introduce how 3D modeling can be used for product design and prototyping tailored to the needs of entrepreneurs and small business owners.
Aid Code: 47 - undefined.

Complete Course Listing

606-480 CAD Fundamentals - 2D Drawing
Credits: 0.5-1

In this course students will demonstrate the use of CAD software to create blueprints for the manufacturing sector.
Aid Code: 10 - undefined.

Complete Course Listing

606-999 Design of Machines
Credits: 1-3

In this course students will conduct load and stress analysis in the design of a machine. Students will learn about machine elements such as gears, bearings, and shafts and will incorporate these components in a machine design of their own.
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