

# DESIGN AND DEVELOPMENT (ETDD)

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## **ETDD 1361. Engineering Graphics. 3 Hours.**

This is a recognized standard course in beginning drawing for engineering and industrial education.

## **ETDD 1366. Machining Technology I. 3 Hours.**

This course serves as an introduction to the problems, techniques, and processes of modern machining technology. Instruction is given in the use of hand and machine tools, introduction to computer numerical control, product planning and development, metric measurement, safety, and opportunities for employment in the machining industry.

## **ETDD 1390. Intro -Computer Aided Drafting. 3 Hours.**

This course is intended to provide the student with an understanding of Computer-Aided Drafting principles. Students will utilize the software command structure of two popular CAD programs, namely AutoCAD and MicroStation, to complete a number of typical and practical drafting application exercises. Approximately one-half of the semester will be spent on each program.

## **ETDD 2367. Metal Building Systems. 3 Hours.**

This course is a study of materials and methods of construction found in metal building systems. Instruction is given in the correct use of hand and power tools, job safety, job-site controls, material handling, equipment and application. Aspects of load design calculations, fastener use, metal coatings, and erection equipment are studied. Laboratory instruction includes basic metal working processes (welding, sheet-metal, foundry, and wrought-iron work) used in metal frame construction. (2-2).

## **ETDD 2396. Special Topic. 3 Hours.**

## **ETDD 3310. Product Design & Development. 3 Hours.**

This course explores the processes by which products are brought to the market place. Processes are examined with special emphasis placed on manufacturing, prototyping, patent and trademark procedures, industrial design, problem solving, and decision-making. In addition, creating and working in cross-functional teams to produce products for consumer use is addressed.

**Prerequisite:** Sophomore standing, ETDD 1390 or ETDD 1361.

## **ETDD 3379. Industrial Systems Drafting. 3 Hours.**

This course includes the illustration and preparation of drawings and the related symbolism used in electrical and fluid fields. Related and required piping and fitting fundamentals are also covered.

**Prerequisite:** ETDD 1390 or ETDD 1361 and Sophomore standing.

## **ETDD 4096. Directed Study. 1-6 Hours.**

Arranged professional and developmental learning experiences incorporating a practical application of design and development skills and practices. To include internships, individual research and industry studies. Variable Credit (1-6).

**Prerequisite:** Sophomore standing.

## **ETDD 4339. Computer-Aided Drafting Produc. 3 Hours.**

This is a computer applications course for design and drafting and introduces students to the techniques used to produce technical models/drawings. Students will learn drafting practices and how to apply them using computer-aided software. Prior knowledge of drafting software and/or prior experience of working with computers is advantageous, but not required/expected. Students will produce technical drawings using various computer design and drafting practices. Concepts of 2D drawings will be covered along with an introduction to three dimensional parametric modeling. The intent is to develop fundamental knowledge and skills that are conceptually applicable to any computer-aided design (CAD) system.

**Prerequisite:** ITEC 1361 or ITEC 1363 and Junior standing.

## **ETDD 4369. Special Topic. 3 Hours.**

## **ETDD 4380. Material Hand & Plant Layout. 3 Hours.**

This course is the study of the basic requirements needed to develop the most efficient layouts of equipment and of operating and service facilities whether in manufacturing plants, warehouses, or other industrial or business applications. Special emphasis is on the necessary coordination between plant layout, materials handling, work simplification and production planning, and operation control. Junior standing.

**Prerequisite:** ETDD 1361.

## **ETDD 4388. 3D Parametric Design. 3 Hours.**

This is a computer applications course for parametric design and drafting, in which the computer is used to produce parametric technical models/drawings. Students will learn drafting practices and how to apply them using computer aided software. Students will further be able to produce technical drawings using 3D CAD packages. Concepts of creating 2D drawings will be covered along with introduction to 3D parametric modeling. The course will enable the student to use Autodesk Inventor in advanced parametric design/drafting and other courses.

**Prerequisite:** ETDD 1390 or ETDD 1361.