

# COMPUTER AIDED DESIGN & DRAFTING: MANUFACTURING AND FABRICATION (CADM)

This is a list of the Computer Aided Design & Drafting: Manufacturing and Fabrication (CADM) courses available at KPU.

Enrolment in some sections of these courses is restricted to students in particular programs. See the Course Planner - [kpu.ca/registration/timetables](http://kpu.ca/registration/timetables) - for current information about individual courses.

For information about transfer of credit amongst institutions in B.C. and to see how individual courses transfer, go to the BC Transfer Guide [bctransferguide.ca](http://bctransferguide.ca)

## **CADM 1155** **4 Credits** **Manufacturing Design and Software**

Students will learn to create 2-dimensional (2D) drawings and 3-dimensional (3D) models using Computer Aided Design and Drafting (CADD) software. They will apply dimensions, symbols and annotation to fabrication drawings. Students will apply Computer Numeric Control (CNC) software to 3D models. They will design a project that can be produced using rapid prototyping or manufactured on CNC equipment. Students may be required to participate in field trips.

## **CADM 1200** **3 Credits** **Fundamentals of Manufacturing and Fabrication**

Students will use manufacturing terms and definitions, follow safety procedures, and describe the characteristics of manufacturing materials. They will identify the roles of manufacturing professionals, and describe the manufacturing process flow. Students will identify manufacturing and fabrication equipment, identify heat treatments, and describe manufacturing and fabrication processes. They will describe assembly processes, identify sources of parts and materials, use measuring tools and techniques and apply geometric tolerance and dimensioning. Students will describe tolerancing and its effect on processes. They will identify welding processes, and identify common material stock shapes. Students will write geometric code (G Code).

*Prerequisites: 16 credits from courses in CADD at the 1100 level*

## **CADM 1210** **4 Credits** **Component Assembly and Details**

Students will identify assemblies and discrete parts, follow relevant codes and standards, describe manufactured materials and describe design intent. They will identify manufactured components, use measuring tools and techniques, apply tolerances and fits and describe geometric dimensioning and tolerancing (GDT). Students will prepare drawings of assemblies and discrete parts, follow shop safety procedures and use machines and equipment to make projects in the Millwright and Welding shop. They will use computer numeric control (CNC) software and equipment, employ computer technology skills to collect data, research sustainable materials and fabrication/ construction processes in manufactured objects and practice project management procedures to research, plan and develop a product.

*Prerequisites: 16 credits from courses in CADD at the 1100 level*

## **CADM 1220** **4 Credits** **Integrated Machine Design Systems**

Students will identify the systems involved in machine design, and differentiate between the design concepts; function and form. They will describe alternative approaches to problem solving and the relationship to design. Students will identify structural, mechanical, electrical, electronic, and electro-mechanical principles related to machine design. They will identify software platforms used in industrial applications, apply trouble-shooting techniques, perform diagnostics, and perform analysis of basic designs. Students will describe the principles of design for manufacturing (DFM) and design for assembly (DFA). They will use structural analysis software and apply programming to a programmable logic controller (PLC).

*Prerequisites: 16 credits from courses in CADD at the 1100 level*

## **CADM 1250** **4 Credits** **3 Dimensional (3D) Parametric Solids Modeling Software**

Students will identify 3D software for each discipline, and list types of 3D parametric modeling software. They will use 3D parametric software interface and viewing commands and use 2 dimensional (2D) sketches to create 3D solids and surfaces. Students will create multiple configurations using tables and apply top-down modeling techniques to create assemblies with constraints. They will identify output formats and their applications. Students will create 2D rendered pictorial drawings, exploded assembly drawings and animation of assemblies.

*Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 and DRAF 1306]) and (CADD 1160 or DRAF 1160)*

## **CADM 1900** **4 Credits** **Special Topics - Manufacturing**

Students will engage in an intensive study of a special topic in Manufacturing design and drafting and/or related technology as selected by the instructor. They will receive instruction in and perform research in the topic. They will analyze and demonstrate the theory and application of the selected topic.

*Prerequisites: 16 credits from courses in CADD at the 1100 level or higher*