

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.

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.

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

Students will apply information from reference sources, follow relevant codes and standards, and follow Enterprise Resources Planning (ERP) and Material Resources Planning (MRP) procedures. They will describe the design intent of the assembly, source manufactured components, and prepare assembly and sub-assembly detail drawings. Students will prepare drawings of discrete parts, weldment drawings and sheet metal drawings. They will apply methods of dimensioning and specify machining techniques. Students will follow document control procedure for revised parts and identify quality control procedures. They will prepare bill of materials and material pull sheets, and follow document control procedures.

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 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.

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 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)