

COMPUTER AIDED DESIGN & DRAFTING: STRUCTURAL (CADS)

This is a list of the Computer Aided Design & Drafting: Structural (CADS) courses available at KPU.

CADS 1200 **4 Credits**

Introduction to Structural Drafting and Concrete

Students will describe the structural discipline and apply information from appropriate reference drawings and design notes to prepare concrete floor plans and foundation details, and apply reinforcing information. They will identify concrete characteristics, apply geotechnical information and identify principles of foundation design to prepare anchor bolt and equipment pad details. Students will identify precast / prestressed concrete and calculate reinforcing / concrete quantities. They will develop sections and elevations from plans.

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

CADS 1210 **4 Credits**

Structural Steel

Students will apply structural steel shapes, prepare line diagrams and apply bridging and open web steel joist extensions. They will prepare bolted and welded steel connections and prepare shop drawings. Students will calculate structural steel quantities.

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

CADS 1220 **4 Credits**

Wood Frame and Heavy Timber

Students will apply wood framing fundamentals. They will prepare drawings and details for a bridge approach span, a bridge main span and an abutment for a timber bridge. Students will indicate high and low water levels and prepare timber connections and an expansion joint detail.

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

CADS 1250 **3 Credits**

Introduction to Building Information Model (BIM) Software for Structural

Students will identify types of 3-dimensional (3D) used in structural applications. They will use 3D sketch software to model structural components and combine components to create a building model. Students will identify fundamentals of building modeling and will use Building Information Modeling software (BIM). They will identify hierarchies of components, set up drawings and output, import and export information. Students will apply annotation and scheduling.

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

CADS 1251 **4 Credits**

Building Information Modeling (BIM) for Structural

Students will identify types of 3-dimensional (3D) software used in structural applications. They will use 3D sketch software to model structural components and combine components to create a building model. Students will identify fundamentals of building modeling and will use Building Information Modeling software (BIM). They will identify hierarchies of components, set up drawings and output, import and export information. Students will apply annotation and scheduling to drawings. They will create advanced components, prepare structural connections, apply detailing for engineering drawings, and use BIM software to complete a project.

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

Not Transferable

CADS 2100 **4 Credits**

Site Work

Students will indicate contour lines, prepare site layout, and determine site grading. They will prepare site drainage, retaining walls, outline of buildings and prepare site access. Students will complete a site plan drawing.

Prerequisites: Certificate in CADD - Structural Specialty or DRAF 1360

CADS 2150 **4 Credits**

Building Information Model (BIM) for Structural - Project

Students will explain document control procedures and apply a document change-manage process. They will follow health and safety procedures, describe the effects of office ergonomics, and follow appropriate office department related to design and drafting. Students will explain liability issues, follow ethical principles, and explain basic project management principles related to design and drafting. They will identify the roles of Engineering and Architectural professionals, and apply algebraic and trigonometric concepts and methods to solve problems.

Prerequisites: CADS 1250