

COMPUTER-AIDED DESIGN & DRAFTING: STRUCTURAL (CADS) | FACULTY OF SCIENCE

Registration in some course sections is restricted to students in particular programs. See Timetables - [kpu.ca/registration/timetables](http://www.kpu.ca/registration/timetables/) (<http://www.kpu.ca/registration/timetables/>) - for current section information.

Visit the BC Transfer Guide - [bctransferguide.ca](https://www.bctransferguide.ca/) (<https://www.bctransferguide.ca/>) - for information about course transfer in B.C.

CADS 1200 4 credits

Introduction to Structural Drafting and Concrete

Students will describe structural elements and the engineering design process. They will apply information from appropriate reference drawings and design notes to prepare concrete floor plans and foundation details using Revit. They will apply reinforcing to foundations using AutoCAD and Revit. 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 using AutoCAD and Revit.

Level: UG

Prerequisite(s): 16 credits from courses in CADD at the 1100 level

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

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.

Level: UG

Prerequisite(s): 16 credits from courses in CADD at the 1100 level

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

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.

Level: UG

Prerequisite(s): 16 credits from courses in CADD at the 1100 level

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

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.

Level: UG

Prerequisite(s): All of (a) CADD 1100 or DRAF 1100, (b) CADD 1110 or DRAF 1110, (c) CADD 1150 or DRAF 1150 and 1306, and (d) CADD 1160 or DRAF 1160

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

CADS 1251 4 credits

Introduction to Building Information Modeling (BIM) for Structural

Students will identify types of 3-dimensional (3D) software used in structural applications. They will use 2D and 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 Revit. They will apply attributes of components, set up drawings and import and export information. Students will apply annotation and scheduling to drawings. They will prepare structural connection details and a structural drawing set using Revit.

Level: UG

Prerequisite(s): 16 credits from courses in CADD at the 1100 level or higher

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

CADS 1900 4 credits

Special Topics - Structural

Students will engage in an intensive study of a special topic in Structural 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.

Level: UG

Prerequisite(s): 16 credits from courses in CADD at the 1100 level or higher

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

CADS 2100 4 credits

Site Work

Students will use surveying equipment to measure elevation, distance and direction of physical site properties. They will apply algebra, geometry, and trigonometry to perform calculations from survey data. Students will interpolate contour lines from survey elevation data and perform cut and fill calculations to determine site grading. Students will prepare a site plan drawing. They will explain soil bearing capacities for building sites and describe types of footings and foundations for building sites. Students will determine site grading for optimal drainage. They will prepare horizontal and vertical road alignment drawings. Students will use 3D modeling software for Civil applications to complete drawings.

Level: UG

Prerequisite(s): BOTH: [(a) 8 credits at the CADA 12XX level or higher] AND [(b) 8 credits at the CADS 12XX level or higher]

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/#courseattributestext>)

CADS 2120 4 credits

Structural Steel

Students will draw structural steel shapes, prepare line diagrams and develop bridging and open web steel joist extension details using Revit. They will prepare bolted and welded steel connection details and prepare shop drawings using Revit. Students will calculate structural steel quantities. They will produce design notes and sketches.

Level: UG

Prerequisite(s): BOTH [(a) 8 credits at the CADA 12XX level or higher] AND [(b) 8 credits at the CADS 12XX level or higher]

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/>
#courseattributestext)

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 deportment 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.

Level: UG

Prerequisite(s): CADS 1250

Attribute: SCIH (<https://calendar.kpu.ca/courses-az/>
#courseattributestext)