

COURSE CON3010: CONCRETE – STRUCTURES & FINISHES

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students develop essential skills to form, place and finish a concrete project.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with specialized training in concrete work.

Supporting Courses: CON1070: Building Construction
CON2010: Site Preparation
CON2020: Concrete Forming

Outcomes: The student will:

1. identify and describe concrete forming, placing and finishing techniques

- 1.1 research the effect aggregate, water and cement ratios have on the workability and quality of a concrete mix
- 1.2 list and describe the purpose of different cement types
- 1.3 identify the types of tests and reasons for concrete testing
- 1.4 describe standard forming and reinforcing practices for a project including:
 - 1.4.1 slab on grade
 - 1.4.2 retaining wall
 - 1.4.3 poured stairs
- 1.5 explain the purpose of a control and expansion joint in a concrete structure
- 1.6 identify the purpose and describe the process of:
 - 1.6.1 screeding
 - 1.6.2 puddling
 - 1.6.3 striking off
 - 1.6.4 floating
 - 1.6.5 trowelling
 - 1.6.6 finishing
 - 1.6.7 curing
- 1.7 describe common methods of installing fasteners in concrete before and after the concrete has set up and cured

2. use the appropriate tools, materials and processes to form, reinforce, place and finish a concrete structure

- 2.1 select a concrete project that requires:
 - 2.1.1 forming
 - 2.1.2 reinforcement
 - 2.1.3 consolidation and finishing
- 2.2 produce a list of materials and schedule of events for an on-site project
- 2.3 use the appropriate tools, materials and processes to:
 - 2.3.1 prepare the grade and base
 - 2.3.2 assemble/build and condition a form
 - 2.3.3 install damp proof member
 - 2.3.4 fabricate and install the required reinforcement
 - 2.3.5 mix/order, place and consolidate

- 2.3.6 impart desired finish/colour
- 2.3.7 provide proper curing conditions
- 2.3.8 remove forms
- 2.4 describe the safe use and storage of explosive actuated tools and supplies
- 2.5 identify power loads and strengths for a given application
- 2.6 describe prefiring and firing routines
- 3. demonstrate basic competencies**
 - 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
 - 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
 - 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
 - 4.1 identify short-term and long-term goals
 - 4.2 identify steps to achieve goals

COURSE CON3020: MASONRY WORK – STRUCTURES & FINISHES

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students develop basic knowledge and skills related to masonry materials, structures and finishes.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with specialized training in masonry work.

Supporting Courses: CON1070: Building Construction
CON3010: Concrete – Structures & Finishes

Outcomes: The student will:

1. identify and describe common types of masonry materials and finishes

- 1.1 explain reasons for using a masonry finish over other types of finishes
- 1.2 analyze a brick veneer wall section and determine the method that is used to:
 - 1.2.1 support the weight of the brick
 - 1.2.2 attach the bricks to the wall surface
 - 1.2.3 prevent moisture build-up between the wall surfaces
- 1.3 describe the different sizes, textures and grades of bricks
- 1.4 identify common types of patterns and bonds used in brick structures and veneering
- 1.5 examine a stucco wall section and identify the:
 - 1.5.1 moisture barrier
 - 1.5.2 corner and stop beads
 - 1.5.3 lath or wire
 - 1.5.4 scratch coat
 - 1.5.5 screeds
 - 1.5.6 finish coat
- 1.6 identify and describe common stucco finishes and application methods; e.g., smooth, spatter, old English
- 1.7 identify the differences and similarities between applying a stucco finish to a frame wall and applying parging to a cement or block wall

2. read and interpret a working drawing to prepare a cost estimate of a masonry surface

- 2.1 estimate the amount of material required to brick veneer a wall section and stucco or parge a surface

3. apply masonry skills to assist in the application of a masonry finish or in the construction of a masonry structure

- 3.1 list and describe the basic tools that are used in laying brick and concrete blocks
- 3.2 describe the techniques that are used to:
 - 3.2.1 cut brick
 - 3.2.2 keep courses level and plumb
 - 3.2.3 build a lead
 - 3.2.4 tool joints
- 3.3 describe the steps that are taken to compensate for extreme weather conditions
- 3.4 describe the proper mixing proportions to prepare a mortar, stucco and parging mix

- 3.5 use appropriate materials, tools and techniques to:
 - 3.5.1 apply a brick veneer finish or build a brick structure
 - 3.5.2 stucco or parge a wall surface
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3030: WALL & CEILING FINISHING

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students develop basic knowledge and skills to insulate, install and finish an interior wall/ceiling surface.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with specialized training in carpentry.

Supporting Courses: CON1070: Building Construction
CON2035: Framing Systems – Floor
CON2045: Framing Systems – Wall

Outcomes: The student will:

- 1. describe the procedures related to the installation of insulation and vapour barrier to an exterior wall and ceiling**
 - 1.1 list and describe the types of wall and ceiling insulation and soundproofing materials
 - 1.2 identify the building codes that relate to the installation of insulation, vapour barrier and drywall
- 2. identify and describe the health hazards and safety precautions associated with the use of insulating, drywalling and finishing materials**
- 3. prepare, apply and finish a wall and ceiling surface**
 - 3.1 estimate the amount and type of drywall, insulation, vapour barrier, paint and decorating supplies required to install and finish a wall or ceiling surface
 - 3.2 describe the different types of drywall and conditions of use
 - 3.3 identify and describe the different types of tapes, corner beads, adhesives and fastening devices used with gypsum board
 - 3.4 describe methods of cutting, attaching, taping, filling, sanding and texturing a gypsum board
 - 3.5 check alignment of studs and identify starting points
 - 3.6 mark stud locations on floor and ceiling
 - 3.7 install metal protectors for wiring and plumbing, where necessary
 - 3.8 identify and locate appropriate personal protective equipment, and describe the working conditions and skills required of a drywall mechanic and/or painter/decorator
 - 3.9 use the appropriate tools, materials and processes to:
 - 3.9.1 install insulation, vapour barrier and gypsum board
 - 3.9.2 tape, fill, sand, texture and paint, as required
 - 3.9.3 repair a gypsum board surface
 - 3.9.4 seal, paint and/or apply a wall covering
 - 3.10 describe methods of making repairs to small and large holes in a drywall surface
 - 3.11 identify the materials used to paint and decorate a wall surface
 - 3.12 research common methods used to apply paint to a surface; e.g., brush, roller, spray

4. demonstrate basic competencies

- 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks

5. create a transitional strategy to accommodate personal changes and build personal values

- 5.1 identify short-term and long-term goals
- 5.2 identify steps to achieve goals

COURSE CON3040: STAIR CONSTRUCTION

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students develop the knowledge and skills required to build a straight flight of stairs.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Supporting Courses: CON1070: Building Construction
CON2035: Framing Systems – Floor
CON2045: Framing Systems – Wall

Outcomes: The student will:

- 1. identify and describe different stair types, component parts and construction techniques**
 - 1.1 identify stair types, materials and methods of construction
 - 1.2 research and identify the parts of a stair and railing system
 - 1.3 identify a typical layout procedure for a wooden stringer
 - 1.4 read and interpret a drawing to determine the:
 - 1.4.1 number of runs and risers
 - 1.4.2 stair width
 - 1.4.3 tread, riser and stringer dimensions
 - 1.4.4 joints
 - 1.4.5 types of materials and fasteners
 - 1.4.6 guard and railing requirements
 - 1.5 research methods of attaching and finishing treads and risers; e.g., housed, semi-housed, built-up stringer, notched stringer
- 2. interpret building code regulations pertaining to residential stair design**
 - 2.1 describe the specific building code regulations regarding headroom, rise, run and railing specifications
- 3. design, lay out and construct a straight flight of stairs**
 - 3.1 prepare a detailed material list and cost estimate
 - 3.2 use the appropriate tools, materials and processes to:
 - 3.2.1 prefabricate a set of stairs
 - 3.2.2 install a suitable railing
 - 3.2.3 check for code conformity
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3050: ROOF STRUCTURES 2

Level: Advanced

Prerequisite: CON2050: Roof Structures 1

Description: Students develop basic competencies in laying out, cutting and assembling common, hip and valley rafters in relation to specialized structures and coverings.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Outcomes: The student will:

- 1. identify and describe the design features of intersecting sloped roofs**
 - 1.1 describe roof types and terminology
 - 1.2 explain the purpose of a roof overhang
 - 1.3 explain how roof dormers and Dutch gables are built
 - 1.4 investigate and describe alternate roof coverings including:
 - 1.4.1 wood shakes
 - 1.4.2 metal shingles
 - 1.4.3 clay tiles
- 2. calculate the length of rafters, using ratio and proportion techniques**
 - 2.1 explain how roof slopes are described and calculated
 - 2.2 from a set of drawings and specifications, calculate the:
 - 2.2.1 roof slope
 - 2.2.2 amount of overhang
 - 2.2.3 length of hip, valley and related jack rafters
 - 2.3 describe three methods of determining the length of a common rafter
- 3. lay out, cut and assemble a set of rafters for a roof assembly**
 - 3.1 sketch a rafter plan for a hip and valley roof system
 - 3.2 describe the types of cuts and features of a:
 - 3.2.1 common rafter
 - 3.2.2 hip rafter and valley rafter
 - 3.2.3 hip rafter and valley jack rafter
 - 3.3 lay out a rafter pattern for a given slope and type of rafter
 - 3.4 prepare and check the condition of required ladders and scaffolding
 - 3.5 create a work schedule and material list
 - 3.6 for a given roof section, use the appropriate tools, materials and techniques to:
 - 3.6.1 lay out the required patterns
 - 3.6.2 cut the appropriate rafters to size
 - 3.6.3 assemble and fasten
 - 3.6.4 sheath and apply a sample of one or more alternative roof coverings
 - 3.7 estimate the cost of at least one alternative roof covering

4. demonstrate basic competencies

4.1 demonstrate fundamental skills to:

- 4.1.1 communicate
- 4.1.2 manage information
- 4.1.3 use numbers
- 4.1.4 think and solve problems

4.2 demonstrate personal management skills to:

- 4.2.1 demonstrate positive attitudes and behaviours
- 4.2.2 be responsible
- 4.2.3 be adaptable
- 4.2.4 learn continuously
- 4.2.5 work safely

4.3 demonstrate teamwork skills to:

- 4.3.1 work with others
- 4.3.2 participate in projects and tasks

5. create a transitional strategy to accommodate personal changes and build personal values

5.1 identify short-term and long-term goals

5.2 identify steps to achieve goals

COURSE CON3060: DOORS & TRIM

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students apply basic finish carpentry knowledge and skills to install doors, railings and mouldings.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Supporting Course: CON1070: Building Construction

Outcomes: The student will:

1. identify common types of doors, hardware and trim products

- 1.1 list and describe the types of components and mouldings that are used in conjunction with the installation and finishing of:
 - 1.1.1 railings
 - 1.1.2 doors
 - 1.1.3 columns
 - 1.1.4 floors and ceilings
- 1.2 describe the different ways doors are constructed
- 1.3 label the parts of a panel door
- 1.4 describe the common types of joints and methods of measuring and cutting used to install various mouldings and casings such as mitre, coped and butt joint
- 1.5 from a set of drawings, identify the styles of mouldings and calculate the amounts of material to be ordered to finish a door

2. install doors, mouldings and other trim products

- 2.1 use the appropriate tools, materials and processes to:
 - 2.1.1 install a prefabricated door or bifold unit
 - 2.1.2 install a lock set
 - 2.1.3 prefinish mouldings and casing, where possible
 - 2.1.4 install room mouldings and casings

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

- 4. create a transitional strategy to accommodate personal changes and build personal values**
 - 4.1 identify short-term and long-term goals
 - 4.2 identify steps to achieve goals

COURSE CON3070: FLOORCOVERING

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students develop skills in selecting and installing typical floor coverings used in residential, institutional and commercial buildings.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with specialized training in floorcovering.

Supporting Course: CON1070: Building Construction

Outcomes: The student will:

1. identify and describe common types of residential, institutional and commercial floorcoverings

- 1.1 list and describe common types of residential and commercial floorcovering materials; e.g., resilient (vinyl, rubber, cork), carpet, ceramic tile, wood
- 1.2 identify the factors that are used to determine the selection of a floorcovering
- 1.3 explain how concrete and wood floors differ in the way they are prepared for a floorcovering
- 1.4 identify appropriate adhesives and fasteners for a given covering

2. apply flooring skills to assist in the installation of a floorcovering

- 2.1 describe the appropriate flooring for a given application
- 2.2 calculate the cost of materials and supplies for a given area
- 2.3 measure an area and prepare a layout sketch of starter courses
- 2.4 describe the processes used to:
 - 2.4.1 rough fit, seam and stretch a carpet
 - 2.4.2 rough fit and seam a vinyl covering
 - 2.4.3 lay out a floor surface for tile, parquet and wood flooring
 - 2.4.4 nail square edge and tongue-and-groove wood flooring
 - 2.4.5 fill, sand and finish a wood floor
 - 2.4.6 set, grout and seal ceramic tile
- 2.5 use the appropriate tools, materials and processes to:
 - 2.5.1 prepare a floor surface
 - 2.5.2 install a floorcovering
 - 2.5.3 seal and finish, where applicable

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely

- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
 - 4.1 identify short-term and long-term goals
 - 4.2 identify steps to achieve goals

COURSE CON3080: ENERGY-EFFICIENT HOUSING

Level: Advanced

Prerequisite: CON1070: Building Construction

Description: Students investigate construction practices and support systems to create an energy-efficient housing design.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with specialized training in carpentry.

Outcomes: The student will:

- 1. identify and describe energy-efficient construction materials and techniques**
 - 1.1 identify the factors that have contributed to more energy-efficient housing
 - 1.2 describe the construction techniques that are used in energy-efficient buildings
 - 1.3 list and describe the materials that are used to improve the energy efficiency of a building
 - 1.4 define the term R factor
 - 1.5 describe the ways heat can enter or escape from a building
 - 1.6 describe corrective measures that can be undertaken in existing buildings to improve energy efficiency
 - 1.7 identify and describe passive and active heating and cooling systems
 - 1.8 research the effects of landscaping on energy efficiency
- 2. calculate the energy efficiency of a typical residence or commercial structure**
 - 2.1 analyze an existing structure to estimate the heat loss through ceilings, walls, doors and windows
- 3. write a proposal outlining how to improve the energy efficiency of a given building**
 - 3.1 prepare a proposal for an existing building outlining the work to be done to improve efficiency and its cost effectiveness
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3090: RENOVATIONS/RESTORATIONS

Level: Advanced

Prerequisite: CON1070: Building Construction

Description: Students work with a client to plan and complete a building renovation and/or restoration.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Outcomes: The student will:

1. complete a feasibility study and cost estimate of a renovation/restoration project

- 1.1 identify the types of renovations that are most common; e.g., changing or adding windows, creating a new entrance or opening a room, building an addition, replacing exterior finish
- 1.2 identify types of renovations that require local permits or work that requires special skills and certification
- 1.3 predict, by considering the age of the original building, the types of materials and construction techniques used in the original construction
- 1.4 identify sources of information regarding construction methods and materials used in historic buildings
- 1.5 list the materials that, for health reasons, require special care when renovating
- 1.6 identify local regulations regarding the disposal of hazardous materials
- 1.7 prepare a feasibility study by determining the:
 - 1.7.1 usefulness of the renovation
 - 1.7.2 cost of materials and labour
 - 1.7.3 disruption to the use of other living space
 - 1.7.4 structural as well as aesthetic considerations
 - 1.7.5 impact on support systems such as heating, lighting and plumbing
- 1.8 prepare a working drawing of a typical renovation
- 1.9 prepare a work schedule for a typical renovation/restoration project

2. apply construction skills to assist in a building renovation/restoration project, using traditional and modern construction materials and techniques

- 2.1 apply planning, management and construction skills to complete a renovation and/or restoration project

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely

- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
 - 4.1 identify short-term and long-term goals
 - 4.2 identify steps to achieve goals

COURSE CON3105: COMMERCIAL STRUCTURES

Level: Advanced

Prerequisite: CON1070: Building Construction

Description: Students investigate structural designs, construction techniques and work site practices related to commercial construction.

Parameters: Access to a commercial construction site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Outcomes: The student will:

1. compare the differences between residential, institutional and commercial construction

- 1.1 identify the major differences between a residential and a commercial/institutional construction project
- 1.2 compare structural steel framing techniques with those of reinforced concrete framing
- 1.3 describe the various floor systems and components that are used in commercial/institutional construction

2. describe common types of materials and construction techniques used in commercial construction

- 2.1 describe the techniques used to build a shallow and a deep foundation for commercial/institutional buildings
- 2.2 explain the advantage of using curtain walls in highrise buildings
- 2.3 describe typical methods of installing utilities in commercial buildings
- 2.4 identify common methods of finishing exterior and interior surfaces

3. demonstrate commercial construction job site expectations and skill requirements

- 3.1 identify the personal protective equipment that is required on the job site
- 3.2 describe worker expectations on a typical job site
- 3.3 describe the role of a safety supervisor on a job site
- 3.4 produce a scale model or illustrated log that features common materials and techniques used in commercial/residential construction

4. identify and describe typical crane, hoisting and rigging equipment methods and procedures

- 4.1 identify typical rigging techniques that are used to transport materials
- 4.2 demonstrate the basic lift signals used on the construction site
- 4.3 demonstrate the proper use of:
 - 4.3.1 slings and hitches
 - 4.3.2 knots
 - 4.3.3 hand signals
- 4.4 define the term “safe working load”
- 4.5 describe correct methods of installing and securing scaffolding

5. demonstrate basic competencies

- 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems

- 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
- 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. create a transitional strategy to accommodate personal changes and build personal values**
 - 6.1 identify short-term and long-term goals
 - 6.2 identify steps to achieve goals

COURSE CON3110: SITE MANAGEMENT

Level: Advanced

Prerequisite: CON1070: Building Construction

Description: Students consider the efficient and timely delivery of a quality product. They investigate and report on site management theories and practices to produce a project management plan.

Parameters: Access to appropriate in-school and community resources.

Outcomes: The student will:

- 1. identify and describe the key elements of project management related to commercial and residential construction**
 - 1.1 identify the key elements of project management including:
 - 1.1.1 planning
 - 1.1.2 scheduling
 - 1.1.3 implementing
 - 1.1.4 controlling
 - 1.2 describe the need for good communication and cooperation between various trades and occupations on a construction site
- 2. outline the roles and responsibilities of the principal players on a construction project**
 - 2.1 describe the roles and responsibilities of the project manager in relation to:
 - 2.1.1 reviewing contractual agreements and deliverables
 - 2.1.2 establishing effective lines of communication with: clients, suppliers, contractors, inspectors
 - 2.1.3 determining site conditions and amenities; e.g., electrical, plumbing and gas supplies
 - 2.2 report on the roles and responsibilities for one or more of the following job site positions:
 - 2.2.1 site superintendent
 - 2.2.2 safety supervisor
 - 2.2.3 subtrade contractor
 - 2.2.4 foreman
 - 2.2.5 skilled worker
- 3. apply site management theories and practices to create a management plan for a construction project**
 - 3.1 compare the advantages and disadvantages of using the critical path and bar chart methods for scheduling a project
 - 3.2 identify strategies to help bring a project back on schedule
 - 3.3 identify the primary tasks of completing a project in relation to:
 - 3.3.1 managing supplies
 - 3.3.2 managing contractors
 - 3.3.3 arranging inspections
 - 3.3.4 communicating with the client
 - 3.3.5 keeping records

- 3.4 research procedures to control:
 - 3.4.1 safety on the work site
 - 3.4.2 quality of work
 - 3.4.3 removal and disposal of materials
 - 3.4.4 project costs
- 3.5 develop a work plan for a given project by determining:
 - 3.5.1 what is to be done
 - 3.5.2 how it will be done
 - 3.5.3 who will do it
 - 3.5.4 when it should be done
- 3.6 schedule the work using a bar chart or critical path technique
- 3.7 analyze a project and identify procedures to improve:
 - 3.7.1 time management
 - 3.7.2 quality of work
 - 3.7.3 health and safety
 - 3.7.4 cost efficiencies
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3120: TOOL MAINTENANCE

Level: Advanced

Prerequisite: CON1010: Construction Tools & Materials

Description: Students develop skills in preventive maintenance by routinely inspecting and servicing production tools and equipment.

Parameters: Access to a materials and/or construction facility and to instruction from an individual with specialized training in hand and power tool maintenance.

Outcomes: The student will:

- 1. identify and describe the essential elements and desired outcomes of a preventive maintenance program**
 - 1.1 explain reasons for establishing a preventive maintenance program
 - 1.2 identify the essential elements of a preventive maintenance program; e.g., scheduling and performing periodic maintenance functions, repairing faulty equipment, keeping records of service and maintenance work, tagging or removing equipment that is out of order
 - 1.3 identify tools that require safety accessories such as a push stick
- 2. prepare a maintenance schedule for a piece of equipment**
 - 2.1 show a list of parameters for setting up a maintenance schedule; e.g., age of equipment, frequency of use, manufacturer's recommendations, past performance
 - 2.2 list and describe the types of adjustments and service requirements of shop equipment including:
 - 2.2.1 table saws
 - 2.2.2 band saws
 - 2.2.3 scroll saws
 - 2.2.4 jointers
 - 2.2.5 surface planers
 - 2.2.6 portable equipments
 - 2.2.7 drill presses
 - 2.3 prepare a service schedule for a number of production tools and pieces of equipment
- 3. apply established maintenance procedures to assess and maintain hand and power tools**
 - 3.1 identify recommended grinding and honing angles for:
 - 3.1.1 plane irons
 - 3.1.2 wood chisels
 - 3.1.3 wood turning tools
 - 3.2 calculate twist drill point angles and lip clearances for drilling metals and plastics
 - 3.3 design a safety accessory for a specific tool
 - 3.4 demonstrate a routine inspection of laboratory tools and equipment
 - 3.5 perform maintenance services, as required
 - 3.6 build a safety accessory
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3130: FURNITURE – LEG & RAIL

Level: Advanced

Prerequisite: CON1120: Product Management

Description: Students use solid and/or manufactured materials and leg-and-rail or pedestal construction techniques to build a free-standing piece of furniture.

Parameters: Access to a materials and/or construction facility and to instruction from an individual with formal, specialized training in furniture and cabinetmaking.

Supporting Courses: CON2130: Furniture – Box Construction
CON2140: Furniture – Frame & Panel

Outcomes: The student will:

- 1. identify and describe the design features and joinery techniques of a typical leg-and-rail piece of furniture**
 - 1.1 describe typical design and joinery techniques used in leg-and-rail and pedestal construction
 - 1.2 identify common methods and fastening systems to secure a wood top to an under frame; e.g., wood buttons, metal plates, pocket drilling, blocks
 - 1.3 describe common methods of transferring a pattern to a work piece such as a table leg or pedestal
 - 1.4 describe an appropriate method to reed and flute a surface
- 2. apply drawing and estimating skills and techniques to prepare a shop drawing, detailed materials list and cost estimate**
 - 2.1 select a product that requires the use of:
 - 2.1.1 leg-and-rail or pedestal components
 - 2.1.2 solid woods and/or composite materials
 - 2.2 interpret a working drawing to prepare a detailed materials list and event schedule
- 3. plan and build a piece of furniture, using leg-and-rail construction techniques**
 - 3.1 design and build the required jigs and templates
 - 3.2 use the appropriate tools, material and processes to:
 - 3.2.1 measure and lay out stock
 - 3.2.2 cut and shape components
 - 3.2.3 machine appropriate joints
 - 3.2.4 assemble with suitable fasteners
 - 3.2.5 prepare for finishing
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3140: FURNITURE – SURFACE ENHANCEMENT

Level: Advanced

Prerequisite: CON1120: Product Management

Description: Students explore and demonstrate the use of veneer, inlay, carving and/or marquetry techniques to enhance the appearance of a product or component.

Parameters: Access to a materials and/or construction facility and to instruction from an individual with formal, specialized training in furniture and cabinetmaking.

Outcomes: The student will:

1. identify and describe methods of matching wood veneer

- 1.1 describe the principal methods used to produce a wood veneer; e.g., rotary cutting, flat or plain slicing, quarter slicing, right and half round cutting
- 1.2 identify the methods used to match veneer including:
 - 1.2.1 slip
 - 1.2.2 diamond
 - 1.2.3 checkerboard
 - 1.2.4 book
- 1.3 describe successful cutting and applying techniques

2. differentiate between inlay, marquetry and carving techniques

- 2.1 differentiate between marquetry and inlaying
- 2.2 explain how hand and machine carving differ
- 2.3 identify a product or component that:
 - 2.3.1 requires veneering
 - 2.3.2 is enhanced by a carved, inlaid or marquetry feature

3. create a veneer, inlay or carving feature for a product or component

- 3.1 select an appropriate veneer
- 3.2 sketch the desired veneer match
- 3.3 sketch a design for a carved, inlaid or marquetry feature
- 3.4 use appropriate tools, materials and processes to:
 - 3.4.1 cut and fit a veneer
 - 3.4.2 apply and glue a veneer
 - 3.4.3 create an inlay, marquetry or carving feature

4. demonstrate basic competencies

- 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely

- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3150: FURNITURE REPAIR

Level: Advanced

Prerequisite: CON1120: Product Management

Description: Students apply basic knowledge of furniture construction and materials to repair or replace existing components or coverings.

Parameters: Access to a materials and/or construction facility and to instruction from an individual with formal, specialized training in carpentry/cabinetry.

Supporting Courses: CON2150: Finishing & Refinishing
FAS2150: Upholstery

Outcomes: The student will:

- 1. assess the condition of a piece of furniture to determine whether it can be economically repaired or restored**
 - 1.1 identify the factors that determine whether a piece of furniture is worth repairing or restoring
 - 1.2 describe safe and efficient methods to:
 - 1.2.1 loosen old glue and clean joints
 - 1.2.2 remove and replace dowel pins
 - 1.2.3 tighten loose joints
 - 1.2.4 patch or repair a veneer surface
 - 1.2.5 splice a component
 - 1.2.6 repair and/or replace a plastic moulding
 - 1.3 identify practical methods to determine the nature of the original structural materials and finishes
 - 1.4 identify the design features that might have caused a component to fail
 - 1.5 describe the hazards associated with stripping old paint, varnish and lacquer finishes
- 2. prepare a repair/restoration plan and cost estimate**
 - 2.1 describe the overall condition and feasibility of restoring a given piece of furniture
 - 2.2 estimate the time, supply and material cost to:
 - 2.2.1 disassemble
 - 2.2.2 strip down
 - 2.2.3 repair
 - 2.2.4 reassemble
 - 2.2.5 refinish
- 3. repair/restore a piece of furniture**
 - 3.1 use the appropriate tools, materials and processes to repair and restore a piece of furniture
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3160: CABINETMAKING – CABINETS & COUNTERTOPS

Level: Advanced

Prerequisite: CON1120: Product Management

Description: Students develop the knowledge and skills required to build and install a simple cabinet/countertop, complete with an appropriate backsplash and edge treatment.

Parameters: Access to a materials and/or construction facility and to instruction from an individual with formal, specialized training in carpentry/cabinetry.

Supporting Course: CON1160: Manufactured Materials

Outcomes: The student will:

- 1. identify and describe common types of cabinets/countertops and installation procedures**
 - 1.1 identify common countertop materials including:
 - 1.1.1 ceramic tile
 - 1.1.2 plastic laminate
 - 1.1.3 natural and synthetic marble
 - 1.1.4 moulded laminates
 - 1.2 identify typical methods and materials used to seal components
 - 1.3 describe the processes used to:
 - 1.3.1 apply ceramic tile
 - 1.3.2 apply plastic laminates
 - 1.3.3 install manufactured tops
 - 1.4 describe standard procedures to:
 - 1.4.1 cut and trim plastic laminates
 - 1.4.2 cut ceramic tile
- 2. identify and describe a suitable edge treatment for a given application**
 - 2.1 identify and describe typical edge treatments used with a given cabinet/countertop material
 - 2.2 select the appropriate material and edge treatment for a given application
- 3. apply/install a given material to produce a suitable cabinet/countertop**
 - 3.1 prepare a detailed material and procedural list
 - 3.2 identify and note the location of fixtures
 - 3.3 list and demonstrate the safe use of power tools used to install cabinet/countertop materials
 - 3.4 describe the health and safety issues that pertain to the use of specific solvents and adhesives
 - 3.5 use the appropriate tools, materials and processes to:
 - 3.5.1 measure and mark stock
 - 3.5.2 cut and fit materials
 - 3.5.3 attach components
 - 3.5.4 apply materials and edge treatments
 - 3.5.5 locate and prepare openings for fixtures
 - 3.5.6 clean and seal

4. demonstrate basic competencies

4.1 demonstrate fundamental skills to:

- 4.1.1 communicate
- 4.1.2 manage information
- 4.1.3 use numbers
- 4.1.4 think and solve problems

4.2 demonstrate personal management skills to:

- 4.2.1 demonstrate positive attitudes and behaviours
- 4.2.2 be responsible
- 4.2.3 be adaptable
- 4.2.4 learn continuously
- 4.2.5 work safely

4.3 demonstrate teamwork skills to:

- 4.3.1 work with others
- 4.3.2 participate in projects and tasks

5. create a transitional strategy to accommodate personal changes and build personal values

5.1 identify short-term and long-term goals

5.2 identify steps to achieve goals

COURSE CON3170: CABINETMAKING – LAYOUT & INSTALLATION

Level: Advanced

Prerequisite: CON1120: Product Management

Description: Students develop a floor/wall cabinet plan and order and install a set of pre-built cabinets.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry/cabinetry.

Outcomes: The student will:

1. design a room layout and prepare a cabinet schedule

- 1.1 identify and describe the principles of various kitchen, bathroom and workroom layouts
- 1.2 use a set of drawings and specifications to determine the size, location and type of modular units
- 1.3 prepare a story pole or master layout on plywood or cardboard for a specified section of a cabinet installation

2. lay out and install a set of cabinets and countertops

- 2.1 describe the procedures used to level a set of cabinets
- 2.2 describe the techniques and fasteners used to attach cabinets together and to floor, ceiling and wall structures
- 2.3 check and note irregularities in walls and floors
- 2.4 identify cabinet modifications owing to irregularities and service outlets
- 2.5 use the appropriate tools, materials and processes to:
 - 2.5.1 locate and level units
 - 2.5.2 assemble and install units
 - 2.5.3 install countertops
 - 2.5.4 apply fillers and mouldings
 - 2.5.5 adjust fit of doors and drawers

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

4. create a transitional strategy to accommodate personal changes and build personal values

- 4.1 identify short-term and long-term goals
- 4.2 identify steps to achieve goals

COURSE CON3190: PRODUCTION PLANNING

Level: Advanced

Prerequisite: CON2200: Product Development

Description: Students plan, individually or as team members, a production system and create the necessary work cells and floor plan to produce a given product in a safe and efficient manner.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with specialized training in production work.

Outcomes: The student will:

1. identify the characteristics of an efficient production system

- 1.1 describe the factors that determine whether a product part or component will be built or purchased
- 1.2 describe the production methods that are used to separate, combine and form materials
- 1.3 describe common methods of material and product handling
- 1.4 identify the conditions that contribute to an efficient production system; e.g., use of flexible equipment, zero tolerance, multi-skilled workteams, authority delegated to the workers
- 1.5 identify methods to control:
 - 1.5.1 inventory
 - 1.5.2 production
 - 1.5.3 quality
- 1.6 list and describe typical safety regulations that govern:
 - 1.6.1 space between equipment
 - 1.6.2 type of floor surfaces
 - 1.6.3 amount of light
 - 1.6.4 air quality control

2. analyze a product to determine the necessary production processes and tools

- 2.1 break a given product down into its separate parts and identify how each part can be fabricated

3. create a production flow chart and/or facility layout

- 3.1 show a flow chart for the movement of materials and products
- 3.2 train personnel for specific tasks
- 3.3 design and build the necessary jigs, fixtures and templates for a given part and process
- 3.4 organize the required equipment to create a required work cell or shop layout
- 3.5 test and improve the production processes, if necessary

4. demonstrate basic competencies

- 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3200: PRODUCTION MANAGEMENT

Level: Advanced

Prerequisite: CON3190: Production Planning

Description: Students identify and enhance management skills in relation to the development and deployment of people and physical resources.

Parameters: Access to a materials and/or construction facility and to instruction from an individual with formal, specialized training in production work.

Outcomes: The student will:

1. describe effective production management strategies

- 1.1 define the role of management in a production system
- 1.2 identify and describe key management elements; e.g., planning, organizing, leading, controlling
- 1.3 identify functions that are the responsibility of a management team; e.g., marketing, research and development, production, servicing, finance, training
- 1.4 identify and describe typical scheduling techniques used by production managers such as a Program Evaluation Review Technique (PERT) chart
- 1.5 differentiate between quality control and total quality management
- 1.6 compare labour-management relations in traditional and automated settings
- 1.7 describe the role government has in overseeing production including:
 - 1.7.1 the Occupational Health and Safety Council
 - 1.7.2 the Workers' Compensation Board
 - 1.7.3 Alberta Environment

2. develop a system to manage, schedule work, control materials and complete products

- 2.1 prepare a PERT chart or another scheduling device for a production project

3. use effective management skills to operate an efficient production system

- 3.1 produce a simple business plan by outlining its purpose, performing a cash flow analysis and predicting its profitability
- 3.2 plan, implement and monitor a safety program for a production project or create a system to improve working conditions and job satisfaction

4. demonstrate basic competencies

- 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely

- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3210: FRAMING SYSTEMS – ADVANCED

Level: Advanced

Prerequisite: CON2035: Framing Systems – Floor
CON2045: Framing Systems – Wall

Description: Students develop appropriate layout and assembly skills to install conventional and/or engineered framing components associated with residential and/or light commercial construction.

Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Outcomes: The student will:

1. compare conventional and engineered framing systems and components

- 1.1 describe the parts of a typical residential floor and wall frame support system
- 1.2 identify and describe two common types of posts used in floor framing support systems
- 1.3 compare the advantages and disadvantages of using:
 - 1.3.1 built-up beams
 - 1.3.2 solid timber beams
 - 1.3.3 laminated beams
 - 1.3.4 steel beams
- 1.4 compare the advantages and disadvantages of using:
 - 1.4.1 conventional framing materials
 - 1.4.2 truss joists
 - 1.4.3 wooden I-beams
 - 1.4.4 metal joists/studs
- 1.5 identify and describe typical procedures that are used to join floor joists to a foundation or wall section
- 1.6 compare different methods used to attach floor joists to steel and to built-up beams
- 1.7 identify typical framing procedures used in relation to:
 - 1.7.1 load- and nonload-bearing partitions
 - 1.7.2 stair, chimney and stack openings
 - 1.7.3 parallel and 90° cantilevers
- 1.8 identify and describe common methods of bridging floors and bracing walls including:
 - 1.8.1 cross-bridging
 - 1.8.2 continuous wood strapping
 - 1.8.3 solid blocking
 - 1.8.4 continuous steel strapping
- 1.9 identify code requirements related to notching and drilling floor joists and wall studs
- 1.10 identify common types of subflooring materials, underlayments and wall sheathing
- 1.11 identify the purpose and types of connectors/ties and adhesives that are used in conjunction with the application of flooring and sheathing components
- 1.12 identify appropriate methods to cover floor/wall openings and construct temporary railings to code
- 1.13 describe the safe operation of portable electric and air-activated hand tools
- 1.14 identify appropriate personal protective equipment used on the job site

- 2. apply print reading and estimating principles to prepare a materials list and cost estimate for a structure that incorporates conventional and/or engineered framing components**
 - 2.1 use the appropriate tables to determine the clear spans and actual lengths of joists/headers for a variety of framing materials and applications
 - 2.2 estimate the size and quantities of materials required to construct a floor/wall/ceiling system
- 3. demonstrate advanced framing, layout and assembly skills**
 - 3.1 develop skills in relation to:
 - 3.1.1 built-up beam and header construction and installation
 - 3.1.2 cutting, layout and installation and sheathing of floor, wall and ceiling components
 - 3.1.3 squaring and applying subfloor materials
 - 3.1.4 framing walls and ceiling
 - 3.2 demonstrate the proper lifting techniques
 - 3.3 use proper personal protective equipment
 - 3.4 demonstrate appropriate temporary bracing techniques
 - 3.5 demonstrate the proper care and use of hand and power assisted tools
 - 3.6 secure all floor, wall and ceiling openings
 - 3.7 check the alignment of crowns and bridging systems, as well as the application of fasteners and adhesives
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3910: CON PROJECT D

Level: Advanced

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Advanced project courses must connect with a minimum of two CTS courses, one of which must be at the advanced level and be in the same occupational area as the project course. The other CTS course(s) must be at least at the intermediate level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3920: CON PROJECT E

Level: Advanced

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Advanced project courses must connect with a minimum of two CTS courses, one of which must be at the advanced level and be in the same occupational area as the project course. The other CTS course(s) must be at least at the intermediate level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE CON3950: CON ADVANCED PRACTICUM

Level: Advanced

Prerequisite: None

Description: Students apply prior learning and demonstrate the attitudes, skills and knowledge required by an external organization to achieve a credential/credentials or an articulation.

Parameters: This practicum course, which may be delivered on- or off-campus, should be accessed only by students continuing to work toward attaining a recognized credential/credentials or an articulation offered by an external organization. This course must be connected to at least one CTS course from the same occupational area and cannot be used in conjunction with any introductory (1XXX) level course. A practicum course cannot be delivered as a stand-alone course, cannot be combined with a CTS project course and cannot be used in conjunction with the Registered Apprenticeship Program or the Green Certificate Program.

Outcomes: The student will:

- 1. perform assigned tasks and responsibilities, as required by the organization granting the credential(s) or articulation**
 - 1.1 identify regulations and regulatory bodies related to the credential(s) or articulation
 - 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities/expectations
 - 1.2.3 code of ethics and/or conduct
 - 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
 - 1.4 demonstrate basic employability skills and perform assigned tasks and responsibilities related to the credential(s) or articulation
- 2. analyze personal performance in relation to established standards**
 - 2.1 evaluate application of the attitudes, skills and knowledge developed in related CTS courses
 - 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
 - 2.3 evaluate adherence to workplace legislation related to health and safety
 - 2.4 evaluate the performance requirements of an individual who is trained, experienced and employed in a related occupation in terms of:
 - 2.4.1 training and certification
 - 2.4.2 interpersonal skills
 - 2.4.3 technical skills
 - 2.4.4 ethics

3. demonstrate basic competencies

3.1 demonstrate fundamental skills to:

- 3.1.1 communicate
- 3.1.2 manage information
- 3.1.3 use numbers
- 3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

- 3.2.1 demonstrate positive attitudes and behaviours
- 3.2.2 be responsible
- 3.2.3 be adaptable
- 3.2.4 learn continuously
- 3.2.5 work safely

3.3 demonstrate teamwork skills to:

- 3.3.1 work with others
- 3.3.2 participate in projects and tasks

4. create a transitional strategy to accommodate personal changes and build personal values

4.1 identify short-term and long-term goals

4.2 identify steps to achieve goals