

# CONSTRUCTION TECHNOLOGY (CT)

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## **CT S100 Woodworking I**

3 credits (2+2)

Introduction to woodworking and woodworking equipment, wood project design and construction, and finishing products and procedures.

## **CT S102 Introduction to the Construction Trades**

1 credit (1+0)

Provides a survey of the skills necessary to be successful in the construction industry. Students will learn basic employment expectations, refresh their construction math skills, learn how to read and interpret construction drawings, and practice communicating these concepts to coworkers, supervisors, and potential employers.

## **CT S103 Construction Tools and Materials**

1 credit (1+0)

Introduces students to the proper use and care of common hand and power tools deployed in the construction industry. Students will develop the knowledge to select and safely operate the appropriate tool for various conditions, and maintain equipment in good working order. The course provides a broad overview of materials commonly encountered in light construction. Special attention will be given to safety guidelines for workers handling materials on the job site.

## **CT S104 Construction Safety: OSHA 10-Hour Training**

1 credit (1+0)

Provides students with training on the recognition, avoidance, abatement, and prevention of hazards to health and safety in the construction industry. Students will discuss the most common cause of accidents in the construction workplace and the impact on the worker and employers. Reviews the roles of the worker, employer, and OSHA in creating a safe workplace. Provides information regarding workers' rights, employer responsibilities, and how to file a complaint. Students will receive an OSHA 10-Hour Card upon successful completion of the course. Pass/Fail grading.

## **CT S119 Deck Building and Design**

2 credits (1.5+1)

Introduction to designing and building a residential deck. The two first weekends consist of planning, material estimating, and design instruction. The final weekend will be reserved for building a deck chosen from designs created during the previous sessions.

## **CT S121 Light Wood Frame Construction**

1 credit (1+0)

Course provides a lecture based overview of residential light wood frame construction. Students will learn wood frame construction for typical residential floor, wall and roof structures and to identify and select appropriate materials and techniques for building in a cold maritime environment. Students will estimate material quantities; explore best building practices; review plans, specifications and code requirements. May be taken concurrently with CT S121L.

**Prerequisite:** CT S103 or concurrent enrollment.

## **CT S121L Light Wood Frame Construction Lab**

2 credits (0+4)

Examines techniques for laying out, cutting and erecting wood floor, wall, and roof frame assemblies. Students will learn to select and use the correct tools and materials for each phase of the construction process. Class will typically meet on an off-campus project site or in the TEC construction lab.

**Prerequisite:** CT S103 and CT S121, or concurrent enrollment.

## **CT S122 Residential Renovation, Retrofit and Repair**

3 credits (3+0)

An introductory course in residential renovation, energy retrofitting, and repair. Subjects will include sequences, considerations, and consequences of exterior and interior retrofits and repairs.

## **CT S125 Introduction to Drywall**

2 credits (1+2)

Introduces the different types of gypsum drywall; uses, fastening, and finishing techniques.

## **CT S127 Introduction to Residential Foundations**

1 credit (.5+1)

Examines several prevalent foundation systems for residential buildings. Students learn to build a foundation appropriate to soil and site conditions and techniques for cast-in-place concrete construction.

**Prerequisite:** CT S103 or concurrent enrollment.

## **CT S135 Residential Wiring**

3 credits (2+2)

Hands-on class on the basic electrical requirements of the National Electric Code (NEC) and local codes as they apply to planning and installing circuits in a residential dwelling. Electrical codes and safety are emphasized along with wire sizes and wiring circuit drawings.

## **CT S140 Residential Plumbing and Heating**

3 credits (2+2)

A hands-on introduction to residential plumbing and heating. Basic drain/waste/vent (DWV), cold and hot water supply systems and an overview of heating systems are covered. Includes up-to-date materials, code requirements, system requirements and design.

## **CT S155 Woodworking II**

3 credits (2+2)

Special methods in wood construction and wood finishing, emphasizing furniture and precision woodcraft. May be stacked with CT S260 Cabinet Construction.

**Prerequisite:** CT S100.

## **CT S170 Residential Design, Codes and Standards**

3 credits (3+0)

Covers basic architectural drafting and residential design. Students will learn to read a set of house plans, complete a conceptual design for a house following current International Residential Codes, will understand standard building practices for a cold maritime climate, and will be aware of green building practices.

**CT S175 Introduction to Computer Aided Drafting**

3 credits (2+2)

An introduction to computer aided design and drafting using the industrial standard AutoCAD software. Includes the basics of computer hardware and software, computer skills required for creating and editing drawings.

**CT S181 Intermediate Computer Aided Drafting**

3 credits (2+2)

Develops intermediate level CADD (computer-aided design drafting) skills for architectural, civil, structural, mechanical and electrical drawings used in building construction.

**Prerequisite:** CT S175 or instructor permission.

**CT S201 Residential Building Science**

3 credits (3+0)

An introduction to basic building science for residential construction. Topics include planning, material selection, and best practices for constructing a durable home in Alaska. Upon satisfactory completion, this course meets the prerequisite for the State of Alaska Contractor Residential Endorsement and also for 16 continuing education credits by the State of Alaska, Division of Occupation Licensing for General Contractors with Residential Endorsement.

**CT S212 Interior Finish Carpentry**

1 credit (1+0)

Study of interior finish carpentry materials and techniques. Topics include reviewing construction documents to determine types and quantities of drywall, flooring materials, and interior trim. Students will also review codes applicable to layout and construction of stairs, guardrails, and handrails.

**Prerequisite:** CT S103 or concurrent enrollment.

**CT S212L Interior Finish Carpentry Lab**

2 credits (0+4)

This hands-on lab provides students with experience using materials, tools, and techniques for application of interior finishing in residential construction. Students will learn to lay out and assemble a stair carriage; install insulation, air barrier, and drywall; prepare and install flooring, pre-hung doors and lock sets, and apply interior trim.

**Prerequisite:** CT S103 and CT S212, or concurrent enrollment.

**CT S213 Engineering Graphics**

3 credits (2+2)

Advanced application of mechanical, electrical, civil and structural graphic standards using AutoCAD. Orthographic projections, auxiliary views, sectional views, and dimensioning are included topics.

**Prerequisite:** CT S181.

**CT S214 Exterior Finish Carpentry**

1 credit (1+0)

Students learn to read construction documents to determine type and quantities of materials for exterior finishes. Students also learn techniques, tool selection, and types of fasteners used for installing roofing material, weather barriers, exterior doors, windows, insulation, siding, and trim.

**Prerequisite:** CT S103 or concurrent enrollment.

**CT S214L Exterior Finish Carpentry Lab**

2 credits (0+4)

Students will practice techniques for lay out, preparation, and installation of exterior finish assemblies including windows, doors, roofing, and siding. Students will learn to identify and use correct tools and materials for each assembly. Class will typically meet on an off-campus project site or in the TEC construction lab.

**Prerequisite:** CT S103 and CT S214, or concurrent enrollment.

**CT S227 Residential Construction Planning and Estimating**

3 credits (3+0)

Overview of organizing, planning and estimating from construction drawings and specifications. A review of codes, materials, and construction methods to establish estimates of time and materials for on-site construction. An overview of construction contracts.

**CT S230 Residential Mechanical Ventilation**

3 credits (3+0)

Specifically designed to meet the needs of contractors and designers of new residential buildings to provide a comprehensive overview of the details involved in designing, installing, and commissioning residential ventilation systems. Heating, Refrigeration and Air Conditioning Institute of Canada, SkillTech Academy certification for Residential Ventilation Installation and 14 continuing education credits from the State of Alaska, Division of Occupational Licensing for General Contractors with a Residential Endorsement.

**CT S252 Construction Documentation**

3 credits (2+2)

Study and application of materials, methods, and codes of construction specifically related to wood structures. Development of details and a complete set of working drawings using AutoCad.

**Prerequisite:** CT S181 or concurrent enrollment.

**CT S260 Cabinet Construction**

2 credits (1+2)

Students will learn methods and materials used in cabinet construction. Topics include design, drawing, joinery, adhesives, and finishing. In conjunction with the theory of cabinetmaking, students will design and construct a cabinet to develop skills using wood shop power tools for producing a professional quality cabinet. May be stacked with CT S155 Woodworking II.

**Prerequisite:** CT S100.

**CT S291 Internship**

**CT S291A Construction Technology Drafting Internship**

1-6 credits (0+0+ 4-24)

Supervised workplace experience in selected industry settings. Integrates knowledge and practice to strengthen basic level skills working as a drafting technician's assistant.

**Prerequisite:** CT S181 and program advisor approval.