CONSTRUCTION TECHNOLOGY

Program Description

Construction Technology offers a series of carpentry courses, green-collar training courses and electrician trainee courses. CT 110 Beginning Construction, the introductory course, is open to all students.

The advanced Construction Technology carpentry courses—CT 111 Beginning Construction Trades, CT 112 Framing, CT 113 Roof Framing, CT 114 Beginning Finish Carpentry, CT 115 Intermediate Finish Carpentry CT 116 Blueprint Reading, CT 118 Measuring and Calculating, and CT 119 Construction Remodel—are designed for students who have completed CT 110 Beginning Construction, or those with a minimum of one year of carpentry experience. CT 290 Work Experience in Construction Trades combines on-the-job training with classroom instruction.

CT 122 Building Green, CT 124 Building Performance and CT 125 Introduction to Photovoltaic Systems do not require any previous building classes.

Santa Barbara City College (Division of Apprenticeship Standards, Electricians Certification Unit Approved School #138) offers four Electrician Trainee courses as a “partial” General Electrician curriculum. The courses—Blueprint Reading for Electricians, Electrical Mathematics and Introduction to National Electrical Code—are designed for students working as electricians who want to prepare for the state certification exam and those required to be enrolled in order to continue working for a C-10 electrical contractor’s license.

For further information concerning the carpentry courses or the Electrician Trainee courses, contact Dr. Alan Price, Dean, Educational Programs, aprice3@sbcc.edu.

Programs of Study

Credit Programs

- Construction Technology, Certificate of Achievement (C) (https://catalog.sbcc.edu/academic-departments/construction-technology/construction-technology-certificate-achievement)

Noncredit Programs

- Construction Technology, Non Credit Construction Module, Certificate of Completion (https://catalog.sbcc.edu/academic-departments/construction-technology/non-credit-construction-module-certificate-completion)

Credit Courses

Construction Technology (CT)

CT 104 Basic Construction Skills (3 Units)
Hours: 72 (45 lecture, 27 lab)
Introduction to basic construction skills for residential wood construction. Designed for students interested in a career in home construction, focusing on career overview, safety, work ethics, tool use and basic framing.

CT 110 Beginning Construction (4.7 Units)
Hours: 144 (54 lecture, 90 lab)
Introduction to a career in building trades. Topics include safety, planning, foundations, floor framing, wall framing roof framing, plumbing, electrical and siding.
Transfer Information: CSU Transferable

CT 111 Beginning Construction Trades (4.7 Units)
Hours: 144 (54 lecture, 90 lab)
Introduction to basic construction skills and concepts of the sub-trades involved in residential wood construction: concrete work, roofing, sheetrock, insulation, plumbing and electrical. Overview of trades, designed for students interested in a career in home construction.
Transfer Information: CSU Transferable

CT 112 Framing (3 Units)
Course Advisories: Eligibility for English 98.
Hours: 72 (45 lecture, 27 lab)
Intermediate-level class in rough framing skills and concepts in residential framing. Designed for continuing students who have taken CT 110 and for carpenters with some experience in residential framing. Topics include safety, foundations, framing hardware, exterior siding, special wall construction, stair framing and special topics in framing.
Transfer Information: CSU Transferable

CT 113 Roof Framing (3 Units)
Hours: 72 (45 lecture, 27 lab)
Intermediate-level class in rough framing skills and concepts in residential wood construction, with emphasis on roof framing. Designed for continuing students who have taken CT 110 and for carpenters with some experience in residential framing. Topics include safety, layout, rafter design, rake walls and cornice treatment.
Transfer Information: CSU Transferable

CT 114 Beginning Finish Carpentry (3 Units)
Hours: 72 (45 lecture, 27 lab)
Introduction to finish carpentry, with emphasis on residential wood construction. Designed for students who have already taken CT 110 or who have some prior experience in carpentry or construction. Topics include safety, tool care, door hanging, door and window casing, baseboard, crown molding, flooring and closet shelf and pole.
Transfer Information: CSU Transferable

CT 115 Intermediate Finish Carpentry (3 Units)
Hours: 72 (45 lecture, 27 lab)
Intermediate finish carpentry, with emphasis on residential wood construction. Designed for students who have taken CT 110 or have some prior experience in carpentry or construction. Topics include cabinet installation and construction, built-ins, paneling and wainscoting.
Transfer Information: CSU Transferable

CT 116 Blueprint Reading (3 Units)
Hours: 54 (54 lecture)
Introduction to blueprint reading in residential construction. Topics include the uses of blueprints, types of plans, drafting conventions, contents of plans, focus on floor plans, elevations and sections, using the architectural scale, drafting simple plans, and shop drawings from plans.
Transfer Information: CSU Transferable
CT 118 Measuring and Calculating (3 Units)
Skills Advisories: Math 1.
Hours: 54 (54 lecture)
Introduction to measuring and calculating used in residential wood construction. Topics include working with common and decimal fractions, using the standard tape measure, using a calculator for construction, estimating material, understanding the special triangles used in roof rafter calculations, rafter length calculation, and stair stringer calculation.
Transfer Information: CSU Transferable

CT 119 Construction Remodel (4.7 Units)
Hours: 144 (54 lecture, 90 lab)
Theory and skills for residential home remodeling. Designed for continuing students who have taken CT 110 and carpenters with some experience in residential construction. Topics include design, planning, demolition, tie-in, green applications and safety.
Transfer Information: CSU Transferable

CT 120 Building Green (4 Units)
Hours: 72 (72 lecture)
Overview of Green Building approach and coverage of design, planning and construction details of sustainable building, including site protection, water conservation, solar and electrical energy efficiency, health and indoor air quality, green material and efficient on-site material management.

CT 121 Blueprint Reading for Electricians (3 Units)
Skills Advisories: Eligibility for English 98 and 103.
Hours: 54 (54 lecture)
Overview of blueprints, plans and specifications; symbols used in electrical-related trades; preparation and use of as-built drawings, wiring and line diagrams, schematics and ladder diagrams. (Approved School #138 for California Electrician Trainees)
Transfer Information: CSU Transferable

CT 122 Building Green (6 Units)
Hours: 108 (108 lecture)
Overview of Green Building approach to design, planning and construction details in sustainable building. Includes site protection, water conservation and management, energy efficiency, solar heating and PV, material efficiency, deconstruction, insulation, indoor air quality, building performance, and alternative building techniques.
Transfer Information: CSU Transferable

CT 123 Outdoor Structures (3 Units)
Hours: 72 (45 lecture, 27 lab)
Designing and building outdoor structures (trellises, pergolas, gazebos, sheds, gateways, decks, etc.). Topics include foundations, finished framing, roofs, hardware, joints, weatherproofing, etc.).
Transfer Information: CSU Transferable

CT 124 Building Performance (3 Units)
Hours: 72 (45 lecture, 27 lab)
Overview of building performance (assessment, diagnosis, and remediation) in residential construction. Topics include: building science, diagnostic testing, visual inspection, remediation, customer relations, and business and job opportunities.
Transfer Information: CSU Transferable

CT 125 Introduction to Photovoltaic Systems (3 Units)
Hours: 90 (36 lecture, 54 lab)
Overview of Photovoltaic (PV) systems and installations. Topics include: solar radiation, site survey, system components and configurations, batteries, inverters, system sizing, mechanical and electrical integration.
Transfer Information: CSU Transferable

CT 126 Basic Electrical Theory (3 Units)
Hours: 54 (54 lecture)
Basic Electrical Theory. Topics include ohms law, series/parallel circuits, voltage, magnetism, 3-phase systems, AC/DC theory, inductance and capacitance, etc.
Transfer Information: CSU Transferable

CT 127 Sustainability Audit (3 Units)
Hours: 72 (45 lecture, 27 lab)
Overview of whole-house or sustainability audit, (energy, water, indoor air quality, landscape), in residential construction. Topics include: career and business opportunities, comprehensive audit categories, the audit process, auditing tools and diagnostic tests, site inspection, surveys and recommendations.
Transfer Information: CSU Transferable

CT 128 Beginning Plumbing (3 Units)
Hours: 72 (45 lecture, 27 lab)
Overview of plumbing in residential construction. Topics include supply and DWV systems, materials, connections, tools used, fixtures, code requirements, etc.
Transfer Information: CSU Transferable

CT 129 Construction Estimation (3 Units)
Hours: 54 (54 lecture)
Introduction to estimating in residential construction. Topics include current estimation programs, software, material and labor calculations, take-offs from blueprints, carpentry and other-trade estimating, etc.
Transfer Information: CSU Transferable

CT 130 Contractors License Prep (3 Units)
Hours: 54 (54 lecture)
A combination online and mandatory in-class course, divided into two eight-week sessions, law and trade, to prepare the student for taking the California State Contractors License Exam in the General Contractor (B-1) category.

CT 131 Technical Drafting (3 Units)
Hours: 54 (54 lecture)
Overview of blueprints, plans and specifications; symbols used in electrical-related trades; preparation and use of as-built drawings, wiring and line diagrams, schematics and ladder diagrams. (Approved School #138 for California Electrician Trainees)
Transfer Information: CSU Transferable

CT 132 Lighting Systems (3 Units)
Hours: 54 (54 lecture)
Basic function, operation, installation, and characteristics of various lighting systems.
Transfer Information: CSU Transferable

CT 133 Motors, Motor Controllers and Process Controllers (3 Units)
Hours: 54 (54 lecture)
Basic function, operation, installation, and characteristics of various types of motors (AC, DC, Dual Voltage, Repulsion, Universal, 3 Phase, Squirrel Cage, Synchronous).
Transfer Information: CSU Transferable

CT 134 Transformers (3 Units)
Hours: 54 (54 lecture)
Basic function, operation, installation, and characteristics of transformers.
Transfer Information: CSU Transferable

CT 135 Grounding Systems (3 Units)
Hours: 54 (54 lecture)
Basic function, operation, and characteristics of grounding systems.
Transfer Information: CSU Transferable

CT 136 Electrical Theory (3 Units)
Hours: 54 (54 lecture)
Basic Electrical Theory. Topics include ohms law, series/parallel circuits, voltage, magnetism, 3-phase systems, AC/DC theory, inductance and capacitance, etc.
Transfer Information: CSU Transferable

CT 137 Specialty Systems (3 Units)
Hours: 54 (54 lecture)
Basic function, operation, and characteristics of specialty electrical systems. Topics include fire alarms, security alarms, voice/data/tv/video, signaling systems, lighting protection systems, fiber-optic systems, etc.
Transfer Information: CSU Transferable
CT 101 Construction Technology (Noncredit)
Hours: 54 (54 lecture)
Introduction to management projects in residential construction. Topics include overview of management programs and software, bidding, preconstruction set up, project budget, daily work plan, team roles, safety plan, job completion. Transfer Information: CSU Transferable
Skills Advisories: Eligibility for ENGL 98 and 103.

Noncredit Courses
Construction Technology (Noncredit)

CT NC001 Construction Framing (0 Units)
Hours: 12 (12 lecture)
This is a beginning course in residential construction framing (house building). Take as a stand alone course or as part of a 4-course series of construction classes. (It is a good transition course to the credit Construction Technology program at SBCC.) Topics include introduction to hand tool and power tool use, scope of residential finish work, demonstration and practice of finish work (base, case, crown, closets, doors, floors). Hands-on practice will use the typical tools of the trade. This class is intended to give an overview of residential finish work and practice in basic tool use. Course restricted to 98 repetitions

CT NC002 Construction Finish Carpentry (0 Units)
Hours: 12 (12 lecture)
This is a beginning course in residential construction finish carpentry (house building). Take as a stand alone course or as part of a 4-course series of construction classes. (It is a good transition course to the credit Construction Technology program at SBCC.) Topics include introduction to hand tool and power tool use, scope of residential finish work, demonstration and practice of finish work (base, case, crown, closets, doors, floors). Hands-on practice will use the typical tools of the trade. This class is intended to give an overview of residential finish work and practice in basic tool use. Course restricted to 98 repetitions

CT NC003 Construction Electrical (0 Units)
Hours: 12 (12 lecture)
This is a beginning course in residential construction electrical work. Take as a stand alone course or as part of a 4-course series of construction classes. (It is a good transition course to the credit Construction Technology program at SBCC.) Topics include introduction to home electrical systems, electrical and jobsite safety, tool use and materials identification. Hands-on practice will use the typical tools of the trade. This class is intended to give an overview of the house electrical systems, and practice in basic tool use. Course restricted to 98 repetitions

CT NC004 Construction Plumbing (0 Units)
Hours: 12 (12 lecture)
This is a beginning course in residential construction plumbing. Take as a stand alone course or as part of a 4-course series of construction classes. (It is a good transition course to the credit Construction Technology program at SBCC.) Topics include introduction to home plumbing systems and materials, working with piping, installing fixtures, and trouble shooting. Hands-on practice will use the typical tools of the trade. This class is intended to give an overview of the house plumbing systems, and practice in basic tool use. Course restricted to 98 repetitions

CT NC011 Intermediate Construction Framing (0 Units)
Hours: 12 (12 lecture)
An intermediate course in residential construction framing. Take as a stand-alone course or as part of a four-course series of construction classes. Offers more advanced topics in framing including rake walls, l-joists, roof trusses, horizontal openings, etc. Hands-on practice will use the typical tools of the trade.

CT NC012 Intermediate Construction Finish Carpentry (0 Units)
Hours: 12 (12 lecture)
An intermediate course in residential finish carpentry. Take as a stand-alone course or as part of a four-course series of non-credit construction classes. Offers more advanced topics in finish work including shelf design and install, cabinet install, and fireplace mantle trim. Course uses typical tools of the trade. Course restricted to 98 repetitions

CT NC013 Intermediate Construction Electrical (0 Units)
Hours: 12 (12 lecture)
Intermediate course in constructional electrical work. Take as a stand-alone course or as part of a four-course series of construction classes. Offers more advanced topics in home electrical including circuit design, grounding issues, wire selection, etc. Course uses typical tools of the trade. Course restricted to 98 repetitions

CT NC014 Intermediate Construction Plumbing (0 Units)
Hours: 12 (12 lecture)
Intermediate course in residential construction plumbing. Take as a stand-alone course or as part of a four-course series of construction classes. Offers more advanced topics in residential construction plumbing. Course restricted to 98 repetitions

Skills Advisories: Math 98 and 103.
CT NC014 Construction Measuring and Estimating (0 Units)
Hours: 12 (12 lecture)
A beginning course in residential construction math. Take as a stand-
one course or as part of a four-course series of construction classes.
Topics include working with common, decimal, and carpenter fractions;
using a standard tape measure; estimating material; and using a
construction calculator. Course restricted to 98 repetitions

CT NC121 Blueprint Reading for Electricians (0 Units)
Hours: 54 (54 lecture)
Overview of blueprints, plans and specifications; symbols used in
electrical-related trades; and preparation and use of as-built drawings,
wiring and line diagrams, schematics and ladder diagrams. (Approved
School #136 for California Electrician Trainees). Course restricted to 98
repetitions

CT NC132 Lighting Systems (0 Units)
Hours: 54 (54 lecture)
Basic function, operation, installation and characteristics of various
lighting systems. Course restricted to 98 repetitions

CT NC133 Motors, Motor Controllers and Process Controllers (0 Units)
Hours: 54 (54 lecture)
Basic function, operation, installation and characteristics of various types
of motors (AC, DC, Dual Voltage, Repulsion, Universal, 3-Phase, Squirrel
Cage and Synchronous). Course restricted to 98 repetitions

CT NC134 Transformers (0 Units)
Hours: 54 (54 lecture)
Basic function, operation and characteristics of transformers
Course restricted to 98 repetitions

CT NC135 Grounding Systems (0 Units)
Hours: 54 (54 lecture)
Basic function, operation, and characteristics of grounding systems.
Course restricted to 98 repetitions

CT NC136 Electrical Theory (0 Units)
Hours: 54 (54 lecture)
Basic electrical theory. Topics include ohms law, series/parallel circuits,
voltage, magnetism, 3-phase systems, AC/DC theory, inductance and
capacitance, etc. Course restricted to 98 repetitions

CT NC137 Specialty Systems (0 Units)
Hours: 54 (54 lecture)
Basic function, operation and characteristics of specialty electrical
systems. Topics include fire alarms, security alarms, voice/data signaling
systems, lighting protection systems, fiber-optic systems, etc. Course
restricted to 98 repetitions

CT NC153 Electrical Mathematics (0 Units)
Hours: 54 (54 lecture)
Basic mathematics and its application to electrical and other
technologies. Topics include arithmetic, common fractions, decimal
fractions, percentages, graphs, measurements and introduction to
algebra. (Approved School #138 for California Electrician Trainees.)
Course restricted to 98 repetitions

CT NC194 Introduction to National Electrical Code (0 Units)
Hours: 54 (54 lecture)
Layout and content of the National Electrical Code. Purpose, intent
and scope of electrical codes, as well as utilization and application,
include use of the Code for calculations and hazardous locations. Course
restricted to 98 repetitions

CT NC196 Jobsite Management (0 Units)
Hours: 54 (54 lecture)
Introduction to jobsite supervision in the construction industry. Includes
industry organization, documentation and record-keeping, personal and
financial management, as well as job planning and safety. (Approved
School #138 for California Electrician Trainees). Course restricted to 98
repetitions