Building Trades Program

Syllabus 2011 - 2012

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Building Trades

Program of Study

June 2011

Recommended courses and activities students should complete prior to enrolling in RTCC Building Trades

PRIOR to enrolling, students should be at or above grade level requirements in:

English Reading comprehension and writing ability are key areas and should be completed before enrolling.

Science A sound foundation in basic science.

Mathematics Completion of at a minimum, Math Connections II or equivalent Recommendation that Algebra 1 and Geometry are taken

History History requirements should be completed

Art Art requirements should be completed

Physical Ed Requirements Completed

Driver's Ed. Requirements completed outside of RTCC or a valid Vermont drivers license.

In addition: Students enrolled in RTCC Building Trades can access a wide variety of career opportunities through Cooperative Education and Introduction to College Studies. We are a project based program with a strong commitment to Safe Building Practices, Construction Estimating, Energy Efficiency/ Weatherization and Community Service. Students should be fully cognizant that we work both inside and out throughout the school year.

Articulation Agreements and Dual Enrollment Courses Available

There is currently no articulation agreement or dual enrollment with Vermont Technical College however we are currently exploring the possibility. Building Trades students completing the "Introduction to College Studies can earn a voucher for three college credits to Community College of Vermont or Vermont Technical College.

Industry Recognized Certifications

Students have the opportunity to become certified in several areas, including but not limited to:

OSHA 10 certification
Associated General Contractor certification, Carpentry Level 1
Associated General Contractor certification, Carpentry Level 2
Associated General Contractor certification, First Aid/CPR
Begin Electrical apprenticeship
Begin Plumbing apprenticeship
Cooperative education starting their career with a contractor

Note: Some certifications may be subject to age restrictions. Some certifications may require student to travel or spend out of school time in related classes.

Occupations and Colleges

Some occupations in these fields prefer that a student obtain a college degree or work for license through an apprenticeship process. Many however can be entered upon graduation at an entry level. There are literally hundreds of occupations available among which are:

Project manager
Job Supervisor
Estimator
Materials Engineer
Solar installation
Cabinet building
Furniture building

Timber Framer
Heating Air Conditioning and Ventilation Installation
Tile setter
Carpenter
Electrician
Plumber

Excavator
Specialty wiring i.e. computer or alarm installation
Painting contractor
Drywall contractor
Weatherization contractor

Concrete contractor

While students obviously have a broad range of schools to choose from the following schools have programs in this area:

Vermont Technical College
Community College of Vermont
State University of New York at Alfred
Military

Flow Chart for Analyzing Program Content, Assessments, and Learning Outcomes

Program Name and embedded credit(s): Building Trades
Math and Science

Units: What essential concepts and skills are taught every year?

Units

Estimating Math
Safety
Leveling devices
Concrete/Masonry
Framing/Post and Beam
Mechanicals - HVAC and Solar
Science/Weatherization
Plumbing, Electrical
Roofing
Exterior Finish
Interior Finish
Interior Trim
Cabinetry
Construction Company
Community Service
Portfolio
Cooperative Education
Introduction to College Studies
Wood Shop
Building

Curriculum support: What is used to teach the units? (materials, syllabus, textbook list, competency list, speakers, collaborative work)

State Competency list
Advisory Board
Computer CAD program
Field Trips
Associated General Contractor trainings
Cooperative Education
Project based learning
Vermont Technical College Solar Training
Program Collaboration
English research papers
Oral Presentations
Trade magazines
Community Service projects
Program resource library

Assessed Learning: What assessments are used for *each* unit? (quizzes, tests, skill demonstrations, practical application, rubrics)

Weekly Employability rubric
Graded Quarterly Portfolio checks
Estimating tests
Graded CAD projects
Graded Cooperative Education rubric
Graded Oral presentation
Safety testing
Company meetings

Final or summative assessment: What exit project demonstrates cumulative learning? What do your students carry away at the end of the year so they know what they have learned? (portfolio, final presentation assessment)

State Competency test
Student Portfolio
Technical Project
College

RTCC Program Curriculum Map

May 27. 2011

Term	Unit	Focus of Instruction*	Competency or Assessment Standard	Instructional Materials & Resources	Assessment & Materials
First four weeks of school **Graded observation rubric by instructor throughout school year in shop and project sites**	Safety	Students will learn proper fire extinguisher use. Students will learn, demonstrate and practice basic tool safety. Students will learn, practice and demonstrate shop tools Students will learn, demonstrate and practice how to properly use staging, ladders, roof and ladder jacks Students will learn how to properly use Personal Protective Equipment in their daily work habits.	**Basic Construction Skills – Safety** Safety- B. 001-job site B. 002-housekeeping B. 003 –rules and policy B. 006-substance abuse. B. 012-lock out B. 015 – B. 022-lifting,ladders, scaffolding, MSDS, fire safety, fall protection. D. Hand tools D. 001 – D. 003-safety E. Power tools E.001 – E. 003-safety	UTC safety DVD Complete with worksheet and quiz for building Trades tools. Modern Carpentry – vocabulary Chapter 29, 29.4. Chapter 2, 2.3, 2.3.1, through 2.12 Researching articles on safety in trade magazines/journals English assignments geared to research and present safety scenarios. Associated General Contractors of Vermont Industry Recognized OSHA Certification for completion for 10 hr. training.	1. Fire extinguisher quiz after a worksheet and live demonstration. 2. Students complete a worksheet in classroom for each hand power tool then demonstrate safe operation for instructor. 3.Students complete a worksheet in classroom for each bench tool then demonstrate safe operation for instructor. 4.Students complete a worksheet on staging, ladders, roof and ladder jacks and practice safe operation in field. 5.Students review PPE and demonstrate how to operate in field. 6. IRC through AGC certificate of completion for OSHA 10 training

January AGC First Aid course	Safety	Students take part in AGC sponsored First Aid Training	All of above	AGC hands on Training at their facility	AGC Industry Recognized Certification

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Week 4 - 34	Construction estimating	Classroom instruction- Students will learn estimating a building from foundation layout through completion of exterior finish. Students will build on estimating skills learning to apply math to construction projects. Students will learn how to calculate a set of stairs that are code compliant. They will be able to figure, cut and assemble a set of basic stairs. Construction math basics • Estimating • Building Layout • Floors • Walls • Rafters • Stairs	Math Building Trades Competencies C.001, C004 add, subtract, multiply. C.006 conversion of decimals and Fractions. Construction planning skills – 2.2, 2.3, 1.17,7.3, 7.6, 7.7. Vermont Standards 3.1 Teamwork, 7.7 Geometric+ measurement concepts, 7.11 concepts, 7.6 Arithmetic	Modern carpentry Chapter 7. 7.2, 7.20. Chapter 9 9.12, 9.12.1, 9.12..2 Chapter 10 10.25 Types of construction, including but not limited to residential and light commercial Internet sources – National codes Walker's Building Estimator's Reference Book	Weekly quiz Daily worksheets Portfolio building Semester final State Building Trades assessment test Classroom and worksite observation

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May 2011

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Semester one	Energy efficiency Insulation Sound building practices for multiple building scenarios	Weatherization and energy efficiency Identifying sound insulation practices and diagnosing problems related to poor construction practices. Understanding the basic rules of thermal dynamics	Embedded Building Trades Science credit VT. Frameworks Reports- 1.8 Problem Solving- 2.2, 3.9 Scientific Method- Inquiry, Experimentation and Theory 7.1 Systems – 7.11	Advisory Board members Efficiency Vermont power point and instructional material Modern Carpentry Section 4 Internet sources Local weatherization contractors. Worksite observation Building Performance Institute Instructional material	On site blower door testing Thermal Imaging camera Program camera Modern carpentry Workbook Worksite Observation and practice Weatherization quiz Building Performance Institute testing material

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May 2011

Term	Unit	Focus of Instruction*	Competency or Assessment Standard	Instructional Materials & Resources	Assessment & Materials
Semester two Three weeks	Timber framing	Timber Framing Introduction to Tools used in Timber Framing Introduction to the basics of Timber Frame layout and terminology Introduction to estimating associated with Timber Framing Building a Timber Frame in our shop for sale at RTCC Spring Open House.	Building Trades Competencies Safety – B002, B015 Math – C.001. – C006. Hand tools – D.001 – D.003 Power Tools – E.001 – E.003 Vermont Frameworks- Math – 7.6, 7.7 Relationships- 3.10 Systems	Modern Carpentry – Systems Built Housing Internet Sources Trade magazines – Fine Homebuilding and Journal of Light Construction Guest artisan assisting with project	Math test on estimating Board Footage of materials associated with the Timber Frame we select. Observation of safe tool and workplace practices Employability skills