GREAT PLAINS TECHNOLOGY CENTER
COURSE OF STUDY

Career Cluster: Architecture and Construction (AC)

Career Pathway: Construction

State Program: Carpentry Advanced (AC0036006)

Local Program: Carpentry Level I (AC0030039)

Program Hours: Secondary Students: 960 Hours
Adult Students: 960 Hours

Instructor: Name: Clayton Snodgrass
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Academic Credit: Secondary Students: 3 high school credits per year
Adult Students: Transcript

Prerequisites: None

Program Description:
This program will introduce students to the theory and skills necessary to enter the high-demand field of carpentry. The construction industry is one of the largest employers in the country and carpenters make up the largest building trades occupation in the industry. Carpenters construct, erect, install, finish and repair structures and fixtures made from wood and other building materials. This program combines classroom instruction with hands-on training to enable graduates of the program to work in the residential construction field as framers, roofers, finish carpenters, trim carpenters or cabinet makers. As part of the hands-on training in this program, students will actually build a complete modular house that will be sold in an auction when completed. The proper use of construction equipment, selection of materials, estimating, measuring, blueprint reading, and building code interpretation will be stressed along with the employability skills needed to work well with a construction crew. Students will have the opportunity to compete in the Career Tech SkillsUSA student organization competition in either framing or cabinet making at the regional, state and national levels.

Program Goals:
Students enrolled in this program will be given the opportunity to develop the skills and attitudes needed to successfully enter the construction trades field according to their personal choice, ability, and resourcefulness

Upon achieving the goals of this program, students will:

- Become competent in the basic skills of the occupation.
- Become qualified for further related education and/or entry into the job market.
- Work as a team member.
- Pass at least one Tier 2 certification test.
- Become qualified for further related education and/or enter the job market.
- Demonstrate independence in using problem solving and critical thinking techniques in completing all work assignments.
- Develop the ability to work with limited supervision.

- Accept and abide by the rules and regulations established by the school and/or place of employment.

Related Career Opportunities:

- Residential Carpenter
- Drywall Installer and Finisher
- Cabinetmaker
- Frame Carpenter
- Finish Carpenter

Program Objectives:

After successful completion of this program, the student will be able to:

- Utilize hand tools, power tools, ladders, and scaffolding in a safe, efficient manner.
- Apply basic concepts of math and measurement to perform various construction-related tasks.
- Apply proper layout and construction procedures for building projects.
- Develop an acceptable level of speed and accuracy to perform helper-level skills of the trade.
- Apply proper layout, cutting, and construction procedures for building projects.

DESCRIPTION OF COURSES

Course #	Course Name	Theory	Lab	Total
TI00766	**Construction Core (8952)**	**40**	**80**	**120**

This is an introduction to basic safety, construction math, hand tools, power tools, blueprints, and communication skills and employability skills. Reviews the history of the trade and career opportunities available. Provides an overview of the building materials and the various fasteners and adhesives used in construction work, measurements, Hazcom, MSDS, and fire and electrical safety used in construction. Provides detailed descriptions of the hand tools and portable power tools used by carpenters. Emphasis is on safe and proper operation of tools, as well as care and maintenance.

TI00923	**Plan Reading and Elevations**	**20**	**40**	**60**

Students will learn the techniques for reading and using blueprints and specifications with an emphasis placed on those drawings and types of information that are relevant to the carpentry trade. Introduces the subject of quality takeoffs.

TI00921	**Floor Systems**	**20**	**40**	**60**

This course covers framing basics and the procedures for laying out and constructing a wood floor using common lumber as well as engineered building materials. The ingredients of concrete, the various types of concrete and the uses of concrete reinforcing materials is learned, as well as how to mix concrete. Also covered in this course is basic job-built footing, edge, and wall forms and ties.

TI00408	**Wall and Ceiling Framing**	**20**	**40**	**60**

The framing course describes the procedures for laying out and framing walls and ceilings, including roughing-in door and window openings, constructing corners and partition Ts, bracing walls and ceilings, and applying sheathing.

TI10153	**Exterior Trim and Roof**[i]	**60**	**120**	**180**

This course provides students with a comprehensive understanding of residential and light commercial roofing, insulation, and exterior finishing techniques. Students will learn about common roofing

materials—including shingles, roll roofing, shakes, tiles, metal, and membrane roofs—along with proper safety practices and application methods. The course also covers the selection and installation of roof vents, insulation materials for walls, floors, and attics, as well as vapor barriers and waterproofing techniques. Additionally, students will explore different types of roofs, learning how to lay out rafters for gable, hip, and valley intersections for both stick-built and truss-built structures. The course also includes the study and installation of various exterior siding materials, windows, skylights, weather-stripping, locksets, and exterior doors, preparing students with the skills needed for high-quality exterior construction and finishing.

TI00404 Drywall Installation and Finishing 40 80 120

Drywall Installation will describe the various types of gypsum drywall, their uses, and the fastening devices and methods used to install them. This course contains detailed instructions for installing drywall on walls and ceilings using nails, drywall screws, and adhesives. Also covered in the course are fire and sound-rated walls. Drywall Finishing covers the materials, tools, and methods used to finish and patch gypsum drywall. Included is the coverage of both automatic and manual taping and finishing tools.

TI00406 Finish Carpentry[ii] 60 120 180

This comprehensive course introduces students to the materials, tools, and techniques used in cabinetmaking, finish carpentry, and flooring installation. Students will gain hands-on experience with various joining techniques, stationary power tools, and the construction of complete cabinet projects, including those from past SkillsUSA national competitions. The course also covers the installation of metal and wooden doors, folding and pocket doors, and the proper selection, cutting, and fastening of trim to achieve a professional finish. In addition, students will develop skills in designing, constructing, and installing countertops, selecting and applying laminates, and performing countertop repairs. The course extends into flooring installation, including tile projects for floors, walls, countertops, backsplashes, and wet areas such as showers and tub enclosures. Students will also be introduced to structural and lightweight concrete floors, in-floor radiant heating, and various flooring finishes, including hardwood, vinyl tile, carpet, and laminate flooring. This course provides students with a well-rounded foundation in essential carpentry and finishing skills, preparing them for careers in cabinetry, interior finishing, and flooring installation.

TI00216 Building Materials, Fasteners, and Adhesives 60 120 180

This course introduces students to surface preparation, finishing techniques, and flooring installation. Topics include safe material handling, biohazard disposal, sanding, priming, and applying finishes such as stains, paints, lacquers, and varnishes. Students will also learn equipment maintenance, stripping, and refinishing. Additionally, the course covers countertop construction and installation, laminate application, and tile work for floors, walls, and wet areas. Other topics include concrete flooring, in-floor heating, and various flooring finishes like hardwood, vinyl, carpet, and laminate. This hands-on course prepares students for professional finishing and flooring applications in residential and commercial settings.

Program Total:	**Theory**	**Lab**	**Total**
High School Student:	320	640	960
Adult Student:	320	640	960

Evaluation Policy:

Employability Grades (100 points per week; 40% of final grade)

The employability skills grade is based on 20 points per day (which may include: attitude, attendance, safety, punctuality, cooperation, participation, clean-up, class preparation, school/classroom rules, and time management). Points will be deducted if these responsibilities are not met at the instructor's discretion. Students will be allowed to make up unearned employability points for **excused** absences only. Full credit will be given for assignments/tests

that have been made up due to excused absences only (see Student Handbook).

Performance Grades (40% of final grade)

- Live projects
- Performance or skill tests
- Homework
- Written Assignments

Test Grades (20% of final grade)

- Test grades will be based on a 100-point scale.
- Test grades include written and/or skills tests.
- A test will be given for each unit of instruction.
- Tests are to be taken as a unit is completed.
- Tests must be completed within allotted time.

Final Grade

Semester grade will be calculated by averaging grades in each category and summing each category according to their assigned weight. Progress reports will be sent to home schools at six and twelve-week intervals each semester as required or requested. Grades are accessible on-line at http://sonisweb.greatplains.edu/studsect.cfm

Grading Scale:

The grading scale as adopted by the Board of Education is as follows:

A = 90 – 100
B = 80 – 89
C = 70 – 79
D = 60 – 69
F = Below 60
S = Satisfactory
W = Withdrawn
I = Incomplete
N = No Grade (Refer to Student Handbook)

Make-Up Work Policy:

All Make-Up Work Is The Responsibility Of The Student. Make-up work will be handled as specified in the Student Handbook. Please be sure to read and understand all student policies, especially make-up of assignments, tests and employability due to absences. Students should always arrange for any make-up work with the instructor as per the Student Handbook. Students should keep track of his or her progress and grades.

Attendance Policy:

For specific information related to attendance and tardiness refer to the Student Handbook. Students should keep a written record of their absences and tardiness.

Course Requirements and Expectations:

The general course requirements and expectations include:

- Teaching methods consist of both lecture and “hands on” projects.
- The student must demonstrate the ability to apply safety to all aspects of the construction field.
- It is recommended that the student meet with the teacher and their parents at least once per semester.

- All students must adhere to the policies and procedures in the GPTC Student Handbook.
- SkillsUSA is the student organization for the residential construction carpentry field. This club offers an outstanding opportunity to develop leadership and social skills. Students are highly encouraged to participate. The dues, $10.00 are paid by the student.
- It is highly recommended that the student have purchased or attained the required tools and equipment for employment as a carpenter. Possessing a valid driver's license will also benefit the student and is recommended.
- The required class dress is a program t-shirt with jeans or shorts and work boots or shoes. T-shirts cost $10.00 each and are paid for by the student.

Student Behavior Includes:

- Wear safety glasses at all times when in the shop area.
- Wear the designated program t-shirt, work boots or shoes at all times while in class.
- Wear the student name badge at all times.
- Follow the proper procedure if you are absent, tardy or have a school activity.
- Abide by the rules in the student handbook, as well as those established inside the classroom.
- Follow all rules and regulations of the Great Plains Technology Center.

NOTE: For additional information or questions regarding the GPTC School policies and procedures, please refer to the Student Handbook and/or the Instructor.

Industry Alignments:

- National Center for Construction Education and Research (NCCER)
- National Association of Home Builders (NAHB)
- Association of General Contractors (AGC)

Certification Outcomes:

Tier 2 – Certifications Endorsed by Industry Organizations

- ODCTE: Construction Trainee (3001)
- ODCTE: Cabinetmaker Trainee (3101)
- ODCTE: Finish Carpenter (3003)
- ODCTE: Frame Carpenter (3005)

Tier 6 – Certifications Administered/Proctored by Instructor

- OSHA 10-Hour Construction

CIP Code and SOC Code Crosswalk:

- CIP Code – 46.0201
- SOC Code – 47-2031

OCAS program codes:

- 9053 – Carpentry
- 9078 – Carpentry

Instructional Materials: *Students are not required to purchase textbooks or supplemental materials.*

Textbooks:

National Center for Construction Education and Research (NCCER). Cabinetmaking. 0-13-103264-6. Saddle Hill: Pearson Prentice Hall, 2003.

National Center for Construction Education and Research (NCCER). Carpentry Level I: Carpentry

Fundamentals Trainee Guide. 4th ed. 0-13-229268-8. Saddle Hill: Pearson Prentice Hall, 2006.

National Center for Construction Education and Research (NCCER). Carpentry Level II: Framing and Finishing Trainee Guide. 4th ed. 0-13-614410-1. Saddle Hill: Pearson Prentice Hall, 2007.

National Center for Construction Education and Research (NCCER). Core Curriculum; Introductory to Craft Skills. 4th ed. 0-13-608636-5. Saddle Hill: Pearson Prentice Hall, 2009.

Umstattd, William D., Charles W. Davis, and Patrick A. Molzahn. Modern Cabinetmaking. 5th ed. 978-1-63126-071-1. Tinley Park: Goodheart-Willcox, 2014.

Wagner, Willis H., and Howard Bud Smith. Modern Carpentry. 11th ed. 978-1-59070-648-0. Tinley Park: Goodheart-Willcox, 2007.

[i] Residential Exterior Trim and Roof
[ii] Installation of Interior Doors