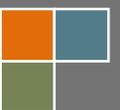


CONSTRUCTION CARPENTRY TECHNOLOGY

Program of Studies
2016-2017



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CARPENTRY

| Course Title | Post-Secondary Connection | Valid Course Code | Recommended Grade Level | | | | Recommended Credit |
|---|---------------------------|------------------------|-------------------------|----|----|----|--------------------|
| | | | 9 | 10 | 11 | 12 | |
| Cabinet Construction and Installation | CAR 240/241 | 460209 | | X | X | X | 1 |
| Ceiling and Roof Framing | CAR 196/197 | 460213 | X | X | X | X | 1 |
| Construction Forms | CAR 150/151 | 460218 | | X | X | X | 1 |
| Construction Prints | BRX 220 | 460217 | | X | X | X | .5 |
| Co-op (Carpentry) | CAR 299 | 460242 | | | X | X | 1 |
| Exterior and Interior Finish | CAR 200/201 | 460219 | | X | X | X | 1 |
| Floor and Wall Framing | CAR 190/191 | 460212 | X | X | X | X | 1 |
| Industrial Safety | ISX 100 | 499930 | X | X | X | X | .5 |
| Introduction to Construction Technology | CAR 126/127 | 460201 | X | X | X | X | 1 |
| Internship (Carpentry) | | 460245 | | | X | X | 1 |
| Site Layout and Foundations | CAR 140/141 | 460214 | | X | X | X | 1 |
| Special Topics (Construction Carpentry) | | 460298 | X | X | X | X | 1 |

CONSTRUCTION CARPENTRY TECHNOLOGY

Program Description

The Construction Carpentry Technology program will prepare students for a meaningful career in residential and commercial construction. Program completion may lead to placement in an apprenticeship program and/or admission to a postsecondary program. Students will have the opportunity to train at construction sites through work-based learning and student projects. Current and traditional building practices, which meet industry standards, include energy efficient construction, health and safety at the workplace, and maintenance of existing structures.

Students will learn the safe and proper use of tools, equipment, and techniques used in the construction industry. Formative and summative assessments will be used to determine student proficiency in hand and power tool operation. Instruction will include proper procedures for constructing residential and commercial projects. Students will complete hands-on projects starting from construction prints to completion.

Course offerings promote career opportunities for those entering the industry. There are multiple options available for program completers which may include apprentice, journeyman carpenter, foreman, and engineer or project manager with additional post-secondary course work. Articulation agreements with post-secondary institutions are available for college credit during or after program completion. Advanced placement is available through the Indiana Kentucky Ohio Regional Council of Carpenters Joint Apprenticeship and Training Fund (IKORCCJATF) apprenticeship program. Students completing the journeyman level of the IKORCCJATF apprenticeship program will obtain an associate's degree from an approved college or university.

The Construction Carpentry Program prepares students for high-skill, high-wage, and high-demand careers.

Link to KOSSA Skill Standards documents via:

<http://education.ky.gov/CTE/kossa/Pages/KOSSAStandardsDocs.aspx>

Work Based Learning

Cooperative experience, internships, shadowing and mentoring opportunities provide depth and breadth of learning in the instructional program and allow students to apply the concepts learned in the classroom. The Work Based Learning Manual is available on the KDE webpage:

<http://education.ky.gov/CTE/cter/Pages/WBL.aspx>

Sample: KENTUCKY CAREER PATHWAY/PROGRAM OF STUDY 2016-2017

| | | | |
|---------------------|-----------------------------------|----------|--|
| COLLEGE/UNIVERSITY: | College / State University | CLUSTER: | Construction |
| | KCTCS Community College | PATHWAY: | Carpenter Assistant/Forms Assistant |
| HIGH SCHOOL (S): | KY ATC/CTC/High School | PROGRAM: | Carpentry |

| | GRADE | ENGLISH | MATH | SCIENCE | SOCIAL STUDIES | REQUIRED COURSES RECOMMENDED ELECTIVE COURSES OTHER ELECTIVE COURSES CAREER AND TECHNICAL EDUCATION COURSES | | | CREDENTIAL CERTIFICATE DIPLOMA DEGREE | SAMPLE OCCUPATIONS |
|----------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------------|--------------------------------|--|--|--|---|--------------------------------|
| | | | | | | | | | | |
| SECONDARY | 9 | English I | Algebra I | Earth Space Science | World History | Health and PE | Car 126 Intro to Constr Tech 460201 | CAR 190 Floor & Wall Framing 460212 | | |
| | 10 | English II | Geometry | Biology I | World Civics | History and Appreciation of Fine Arts | BRX220 Constr. Prints 460217 | CAR 140 Site Layout & Foundations | | |
| | 11 | English III | Algebra II | Physics or Chemistry | U.S. History | Foreign Language | CAR 150 Construction Forms 460218 | CAR 200 Exterior & Interior Finish 460219 | NCCER Carpentry Level 1 | Carpenter Assistant |
| | 12 | English IV | Math Elective | Computer Aided Drafting (elective) | World Geography | CAR 196 Ceiling & Roof Framing 460213 | CAR 198 Carpentry Internship 460245 | CAR 299 Co-op Carpentry 460242 | | Finish Carpenter Assistant |
| POSTSECONDARY | Year 13 | ENG 101 Writing I | MT 110 Applied Mathematics | ASTR 104 Astronomy | College Chemistry | PSY 100 Intro Psychology | CAR 205 Introduction to Acoustical Carpentry | Occupation Safety | Construction Carpenter | Industry Apprenticeship |
| | Year 14 | ENG 200 Intro/Literature | Math 200 | WLD 221 Certification Lab | HIS 109 US History | CAR 140 Surveying & Foundations | Materials Science | INF 125 Introduction to Drywall | Associates Degree in Applied Science | Construction Foreman / Manager |
| | Year 15 | ENG 200 Intro/Literature | MAT 250 CALCULUS | PHY 236 UNIV. PHYSICS I | CIV 102 WORLD CIV. II | PHY 195 ENG. PHYSICS | CIV 102 WORLD CIV. II | CAD 200 Intermediate Computer Aided design | | |
| | Year 16 | PHY 140 INTRO. COMPUTING APPS. | MAT 308 CALCULUS II | PHY 259 STATICS | MAT 309 CALCULUS III | MAT 411 DIFFERENTIALS | TECHNICAL | PHY 330 DYNAMICS | | |
| | Year 17 | PHY 344 FLUID MECHANICS | PHY 370 INTRO. MODERN PHYSICS | CHE 201 GEN. COLLEGE CHEM. I | HUM 211 HUMANITIES | ITD 102 CAD APPLICATIONS | PHY 346 HEAT TRANSFER | PHY 375 MATERIALS SCIENCE | PHY 390 ENGR. MEASUREMENT | TECH.ELECTIVE |
| Year 17 | PHY 359 MECHANICS OF MATERIALS | PHY 470 OPTICS | PHY 498 SENIOR ENGR. DESIGN I | ECO 231 PRINC. OF MICROECONOMICS | PHY 499 SENIOR ENGR. DESIGN II | TECHNICAL ELECTIVE | MAT DEPTH ELECTIVE | FREE ELECTIVE | HUM/FA ELEC. | |

| | | |
|-------------------------------------|------------------------------------|-----------------|
| BACHELORS DEGREE ENGINEERING | Western Kentucky UNIVERSITY | ENGINEER |
|-------------------------------------|------------------------------------|-----------------|

Other Elective Courses

Career and Technical Education Courses

Credit-Based Transition Programs (e.g. Dual/Concurrent Enrollment, Articulated Courses, 2+2+2)

(♦ = High School to Comm. College) (• = Com. College to 4-Yr Institution) (■ = Opportunity to test out)

Mandatory Assessments, Advising, and Additional Preparation

TECHNICAL COLLEGE CREDIT GIVEN THROUGH THE KCTCS DUAL ENROLLMENT PROGRAM

Certificate given through the Warren County Area Technology Center

Degree given through the Bowling Green Technical College KCTCS

DEGREE GIVEN THROUGH THE MURRAY STATE UNIVERSITY

Funded by the U. S. Department of Education (V051B020001)
Revised Jan. 2005
October, 2006-CTE/Kentucky



**CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2016-2017**

**CARPENTER ASSISTANT
CIP 46.0201.01**

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

Complete (2) TWO CREDITS:

- 460201 Introduction to Construction Technology
- 460212 Floor and Wall Framing

Choose (2) TWO CREDITS from the following:

- 460213 Ceiling and Roof Framing
- 460217 Construction Prints* AND 499930 Industrial Safety*
- 460214 Site Layout and Foundations
- 460242 Co-op (Carpentry) OR 460245 Internship (Carpentry)

Note: (*) Indicates half-credit course

Carpenter
Construction Laborer
Construction Manager
Construction
Tradesperson
Drywall Installer

**CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2016-2017**

**CONSTRUCTION FORMS ASSISTANT
CIP 46.0201.03**

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

Complete (2) TWO CREDITS:

- 460201 Introduction to Construction Technology
- 460218 Construction Forms

Choose (2) TWO CREDITS from the following:

- 460212 Floor and Wall Framing
- 460213 Ceiling and Roof Framing
- 460214 Site Layout and Foundations
- 460242 Co-op (Carpentry) OR 460245 Internship (Carpentry)

Carpenter
Construction Laborer
Construction Manager
Construction
Tradesperson
Drywall Installer
Flooring Installer

**CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2016-2017**

**FINISH CARPENTERS ASSISTANT
CIP 46.0201.05**

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (3) **THREE CREDITS:***

- 460201 Introduction to Construction Technology
- 460212 Floor and Wall Framing
- 460219 Exterior and Interior Finish

*Choose (1) **ONE CREDIT** from the following:*

- 460209 Cabinet Construction and Installation
- 460217 Construction Prints* AND 499930 Industrial Safety*
- 460242 Co-op (Carpentry) OR 460245 Internship (Carpentry)

Note: (*) Indicates half-credit course

Carpenter
Construction Laborer
Construction Manager
Construction
Tradesperson
Flooring Installer
Furniture Finisher
Production
Woodworker

**CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2016-2017**

**RESIDENTIAL CARPENTER ASSISTANT
CIP 46.0201.02**

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE COURSES

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

Complete (2) TWO CREDITS:

- 460201 Introduction to Construction Technology
- 460212 Floor and Wall Framing

Choose (2) TWO CREDITS from the following:

- 460213 Ceiling and Roof Framing
- 460214 Site Layout and Foundations
- 460219 Exterior and Interior Finish
- 460209 Cabinet Construction and Installation
- 460242 Co-op (Carpentry) OR 460245 Internship (Carpentry)

**EXAMPLE
ILP-RELATED
CAREER TITLES**

Carpenter
Construction Laborer
Construction Manager
Construction
Tradesperson
Drywall Installer
Flooring Installer
Production
Woodworker

**CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2016-2017**

**CARPENTRY -- TRACK
CIP 46.0201.99**

PATHWAY DESCRIPTION: The Carpentry TRACK is designed as a pre-apprenticeship pathway for students to have the opportunity enter a Registered Apprenticeship training program upon graduation. This *Skilled Trades* TRACK does not require an employer partner. Students must successfully complete the four course sequence, 8 safety modules and an end of program assessment. Upon conclusion, the instructor will fill out a completion form and submit to OCTE. After being processed, the student will receive a pre-apprenticeship industry certification issued by the Kentucky Labor Cabinet. This certification will be recognized by participating partners for an interview and possible credit upon placement. Credit is at the discretion of the training organization. For more information or a list of participating organizations, please visit: http://education.ky.gov/CTE/cter/Pages/Carp_Track.aspx

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (4) **FOUR CREDITS:***

- 460201 Introduction to Construction Technology
- 460212 Floor and Wall Framing
- 460213 Ceiling and Roof Framing
- 460214 Site Layout and Foundations

Carpenter
Construction
Tradesperson

| |
|---|
| COMPLIMENTARY OR ADVANCED COURSEWORK BEYOND CONSTRUCTION/CARPENTRY TECHNOLOGY PATHWAY(S) |
|---|

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|--|
| Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complimentary Coursework “Beyond the Pathway” may not be substituted for pathway courses in order to achieve Preparatory or Completer status. |
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| <ul style="list-style-type: none">• 460298 - Special Topics (Construction Carpentry) |
| <ul style="list-style-type: none">• Career Options |
| <ul style="list-style-type: none">• JAG Courses |

Cabinet Construction and Installation

460209

| Course Description | | |
|---|---|--|
| <p>Students will layout and plan the construction of base and wall cabinets. They will prepare wood surfaces for finishing as well as install cabinets and special units.</p> | | |
| Content/Process | | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none"> a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbers b) Use fractions to add, subtract, multiply, and divide parts of numbers c) Convert fractions to decimals and decimals to fractions, and use decimals to find percentages d) Use and understand how to read measuring tools e) Construct layouts using lines, circles, and angles f) Explain square roots, square numbers, and the Pythagorean Theorem g) Use area measure to find the area of: rectangles, squares, and circles h) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none"> a) Assume responsibility for safety of self and others b) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear) c) Identify safety standards and procedures based on “OSHA 1926 Standards” d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | <p>Cabinet Construction and Installation:</p> <ul style="list-style-type: none"> a) Study design layout of the different types of kitchen layouts b) Identify standardized cabinet and appliance dimensions c) Produce a kitchen cabinet layout d) Identify components of the factory built cabinets e) Lay out custom built cabinets f) Construct cabinet frames g) Construct cabinet boxes h) Construct and install drawers i) Construct and install cabinet doors j) Sand, prepare and finish wood surfaces k) Install shelf supporting devices | |

- | | | |
|--|---|--|
| | <ul style="list-style-type: none">l) Install cabinetsm) Install plastic laminatesn) Install counter topso) Install cabinet hardwarep) Construct and install special units such as bookcases, medicine cabinets and window seats | |
|--|---|--|

Connections:

*State Standards

*KOSSA TRACK

*Technical Standards

*New Generation Science Standards

*Post-Secondary: KCTCS CAR 240/241

*CTSO--SkillsUSA

Ceiling and Roof Framing

460213

| Course Description | | |
|---|--|--|
| <p>This course covers roof types and combinations of roof types used in the construction industry. The emphasis of this course is on layout, cutting and installing ceiling joists, rafters, roof sheathing, and roof coverings for both commercial and residential construction.</p> | | |
| Content/Process | | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none">a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbersb) Use fractions to add, subtract, multiply, and divide parts of numbersc) Convert fractions to decimals and decimals to fractions, and use decimals to find percentagesd) Use and understand how to read measuring toolse) Construct layouts using lines, circles, and anglesf) Explain square roots, square numbers, and the Pythagorean Theoremg) Use area measure to find the area of: rectangles, squares, and circlesh) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none">a) Assume responsibility for safety of self and othersb) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear)c) Identify safety standards and procedures based on “OSHA 1926 Standards”d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | <p>Wood and Metal Framing:</p> <ul style="list-style-type: none">a) Understand the applications of wood and metal framing (e.g., workability, varied sizes and shapes, ease of operation, fire resistance, and sound transmission)b) Identify wood and metal framing components and their sizes; gauges of metal; types and shapes of beams, columns, and pilasters; and various trims and fasteners used for interior partition workc) Read prints and specifications to determine the type of partition and its location, layout, and related requirements | |

| | | |
|---|---|--|
| | d) Identify, estimate and describe installation of floor, ceiling, and wall covering (e.g., suspended ceiling, drywall, paneling) | |
| 4 | Hand and Power Tools: <ol style="list-style-type: none"> a) Identify and demonstrate the safe and proper use of hand tools (e.g., fastening devices, leveling devices, edge cutting devices) b) Identify and demonstrate the safe and proper use of power tools (e.g., electric portable and stationary, powder-actuated, pneumatic) | |
| 5 | Wood Framing: <ol style="list-style-type: none"> a) Plan a roof system b) Calculate, layout, cut and erect rafters to build a gable roof c) Calculate, layout, cut and erect rafters to build a hip roof and/or other type of roofs d) Cut and install jack rafters e) Cut and install ceiling joists f) Install purlins, collar ties, and knee walls g) Frame roof openings and roof saddles h) Frame dormers i) Install roof sheathing j) Install roof underlayment k) Install roof flashing and drip edge l) Install various types of roof coverings m) Install various types of attic vents n) Install prefabricated trusses o) Cut, construct, and install trusses | |
| <p>Connections:</p> <ul style="list-style-type: none"> *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 196/197 *CTSO--SkillsUSA | | |

Construction Forms

460218

| Course Description | |
|---|---|
| <p>This course will introduce the student to heavy and commercial construction. The student will receive information about rigging, wall forms, vertical piers and columns, grade curb forms, horizontal beam forms, above-grade slab systems, fireproof encasement forms, stair forms, bridge and bridge deck forms.</p> | |
| Content/Process | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none"> a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbers b) Use fractions to add, subtract, multiply, and divide parts of numbers c) Convert fractions to decimals and decimals to fractions, and use decimals to find percentages d) Use and understand how to read measuring tools e) Construct layouts using lines, circles, and angles f) Explain square roots, square numbers, and the Pythagorean Theorem g) Use area measure to find the area of: rectangles, squares, and circles h) Use volume measure to calculate the volume of three-dimensional objects |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none"> a) Assume responsibility for safety of self and others b) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear) c) Identify safety standards and procedures based on “OSHA 1926 Standards” d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) |
| 3 | <p>Construction Forms:</p> <ul style="list-style-type: none"> a) Discuss basic properties of concrete b) Identify different soil conditions and the effects on footing design c) Name important structural components that can be fabricated from formwork and concrete d) Describe and/or build various types of foundation systems e) Identify form systems and components used to construct wall forms f) Identify form systems and components used to construct vertical piers and columns |

| | | |
|--|--|--|
| | <ul style="list-style-type: none"> g) Describe the construction of horizontal beam forms h) Explain the construction of above grade forms (piles, piers, columns, caps, and forming) i) Describe the construction of fire-proofing encasement forms j) Layout and estimate materials for concrete stair forms k) Calculate the quantity of concrete blocks and common face brick needed for a concrete block wall l) Calculate the amount of concrete needed for footings and foundation walls | |
|--|--|--|

Connections:

*State Standards

*KOSSA TRACK

*Technical Standards

*New Generation Science Standards

*Post-Secondary: KCTCS CAR 150/151

*CTSO--SkillsUSA

Construction Prints

460217

| Course Description | | |
|--|---|--|
| <p>This course will provide a series of lectures, demonstrations, and practice exercises in the study of symbols, views, sections, details, and material lists found on architectural working drawings, building materials and specifications lists, and construction dimensioning systems and charts/schedules.</p> | | |
| Content/Process | | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none"> a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbers b) Use fractions to add, subtract, multiply, and divide parts of numbers c) Convert fractions to decimals and decimals to fractions, and use decimals to find percentages d) Use and understand how to read measuring tools e) Construct layouts using lines, circles, and angles f) Explain square roots, square numbers, and the Pythagorean Theorem g) Use area measure to find the area of: rectangles, squares, and circles h) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none"> a) Assume responsibility for safety of self and others b) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear) c) Identify safety standards and procedures based on “OSHA 1926 Standards” d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | <p>Construction Prints:</p> <ul style="list-style-type: none"> a) Demonstrate view projection techniques as applicable to the construction trades b) Identify different architectural line types c) Identify standard listings on construction working drawings and details d) Interpret a list of architectural terms associated with planning including various symbols and uses e) List procedural construction requirements from notations on working drawings, details and specifications f) Specify duty-specific uses of contour and grade notes | |

| | | |
|--|---|--|
| | <ul style="list-style-type: none"> g) Determine overall measurement (lengths, heights, and depths) h) Describe various materials' usage in sectioned drawings i) Describe assembly techniques used in various sectioned drawings j) Complete various sectioned views k) Identify various prefabricated materials from vendor catalogs l) Display an understanding of estimating procedures m) Construct a materials control chart for a construction project n) Display an understanding of door and window schedules o) Determine structural calculations p) Identify plumbing, air conditioning, electrical, concrete construction, and building procedures and techniques from various related details and drawings q) Compile a duty-specific hardware list for a construction project r) List duty-specific fire prevention techniques s) Identify and list duty-specific problems in a multi-story dwelling t) Identify all construction documents required in the completed building process | |
| 4 | <p>Metal Framing:</p> <ul style="list-style-type: none"> a) Read prints and specifications to determine the type of partition and its location, layout, and related requirements | |
| 5 | <p>Building Layout:</p> <ul style="list-style-type: none"> a) Identify and read relevant sections of the building plan | |
| <p>Connections: *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS BRX 220 *CTSO--SkillsUSA</p> | | |

Co-op (Carpentry)

460242

| Course Description | |
|---|--|
| Co-op provides supervised on-the-job work experience related to the student's educational objectives. Students participating in the Co-op Education program receive compensation for their work. | |
| Content/Process | |
| 1 | Co-op (Carpentry): <ul style="list-style-type: none">a) Gain career awareness and the opportunity to test career choice(s)b) Receive work experience related to career interests prior to graduationc) Integrate classroom/lab studies with work experienced) Receive exposure to facilities and equipment unavailable in a classroom settinge) Increase employability potential after graduation |
| Connections: <ul style="list-style-type: none">*State Standards*KOSSA TRACK*Technical Standards*New Generation Science Standards*Post-Secondary: KCTCS CAR 299*CTSO--SkillsUSA | |

Exterior and Interior Finish

460219

| Course Description | | |
|---|---|--|
| <p>This course presents basic concepts of building trim, gypsum wallboard, paneling, base, ceiling and wall molding with instruction on acoustical ceilings and insulation, wood floors, tile, inlaid adhesive and tools of the flooring trade. This course will continue to refine the techniques and skills taught in the previous carpentry courses. In this course, cost control, speed, and precision are emphasized. In addition, students will demonstrate the skills associated with the exterior finishing of a house.</p> | | |
| Content/Process | | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none"> a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbers b) Use fractions to add, subtract, multiply, and divide parts of numbers c) Convert fractions to decimals and decimals to fractions, and use decimals to find percentages d) Use and understand how to read measuring tools e) Construct layouts using lines, circles, and angles f) Explain square roots, square numbers, and the Pythagorean Theorem g) Use area measure to find the area of: rectangles, squares, and circles h) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none"> a) Assume responsibility for safety of self and others b) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear) c) Identify safety standards and procedures based on “OSHA 1926 Standards” d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | <p>Exterior and Interior Finish:</p> <ul style="list-style-type: none"> a) Install windows, hardware and trim b) Estimate and install insulation c) Install various types of exterior siding d) Estimate, install, and finish interior drywall e) Estimate and install paneling and molding f) Install doors, hardware, and trim g) Erect scaffolds h) Estimate, cut and install floor, wall and ceiling molding | |

| | | |
|--|--|--|
| | <ul style="list-style-type: none">i) Build and install cornices using different types of materialsj) Install soffit ventsk) Install gable ventsl) Install various types of floor coveringm) Layout and construct cabinets (optional task)n) Layout and install cabinets (optional task) | |
| <p>Connections: *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 200/201 *CTSO--SkillsUSA</p> | | |

Floor and Wall Framing

460212

| Course Description | | |
|--|---|--|
| The student will practice floor framing, layout, and construction of floor frames. Cutting and installing floor and wall framing members according to plans and specifications will also be practiced. | | |
| Content/Process | | |
| 1 | Math for the Trades: <ul style="list-style-type: none">a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbersb) Use fractions to add, subtract, multiply, and divide parts of numbersc) Convert fractions to decimals and decimals to fractions, and use decimals to find percentagesd) Use and understand how to read measuring toolse) Construct layouts using lines, circles, and anglesf) Explain square roots, square numbers, and the Pythagorean Theoremg) Use area measure to find the area of: rectangles, squares, and circlesh) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | Health and Safety: <ul style="list-style-type: none">a) Assume responsibility for safety of self and othersb) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear)c) Identify safety standards and procedures based on “OSHA 1926 Standards”d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | Hand and Power Tools: <ul style="list-style-type: none">a) Identify and demonstrate the safe and proper use of hand tools (e.g., fastening devices, leveling devices, edge cutting devices)b) Identify and demonstrate the safe and proper use of power tools (e.g., electric portable and stationary, powder-actuated, pneumatic) | |
| 4 | Wood and Metal Framing: <ul style="list-style-type: none">a) Understand the applications of wood and metal framing (e.g., workability, varied sizes and shapes, ease of operation, fire resistance, and sound transmission) | |

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| | <ul style="list-style-type: none"> b) Identify wood and metal framing components and their sizes; gauges of metal; types and shapes of beams, columns, and pilasters; and various trims and fasteners used for interior partition work c) Read prints and specifications to determine the type of partition and its location, layout, and related requirements d) Identify, estimate and describe installation of floor, ceiling, and wall covering (e.g., suspended ceiling, drywall, paneling) | |
| 5 | <p>Wood Framing:</p> <ul style="list-style-type: none"> a) Building Layout b) Install sill plates to foundation walls c) Install support beams d) Frame built-up girders e) Install Lally posts f) Install floor joists g) Frame floor openings h) Lay subfloors and underlayment i) Calculate layout, cut, and install stairs j) Construct, layout, and install exterior walls k) Frame wall openings l) Install exterior wall sheathing m) Layout, construct, install, and frame partition walls using wood and steel studs n) Frame special partitions (i.e. late blueprint changes) o) Install house wrap | |
| <p>Connections: *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 190/191 *CTSO--SkillsUSA</p> | | |

Industrial Safety

499930

| Course Description | |
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| <p>This course provides practical training in industrial safety. The students are taught to observe general safety rules and regulations, to apply work site and shop safety rules, and to apply OSHA regulations. Students are encouraged to obtain certification in first aid and cardiopulmonary resuscitation.</p> | |
| Content/Process | |
| 1 | <p>Industrial Safety:</p> <ul style="list-style-type: none">a. Apply work site and lab safety proceduresb. Apply personal safety rules and proceduresc. Apply fire prevention rules and proceduresd. Describe and demonstrate universal precautions procedurese. Demonstrate hazardous communications proceduresf. Obtain first aid certificationg. Obtain CPR certification (recommended but not required)h. Obtain OSHA 10 certification (recommended but not required) |
| <p>Connections: *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS ISX 100 *CTSO--SkillsUSA</p> | |

| Course Description | | |
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| This course is the introduction to the construction carpentry industry. The class will emphasize safe and proper methods of operating hand tools, portable power tools, and stationary power tools in the construction industry. | | |
| Content/Process | | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none"> a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbers b) Use fractions to add, subtract, multiply, and divide parts of numbers c) Convert fractions to decimals and decimals to fractions, and use decimals to find percentages d) Use and understand how to read measuring tools e) Construct layouts using lines, circles, and angles f) Explain square roots, square numbers, and the Pythagorean Theorem g) Use area measure to find the area of: rectangles, squares, and circles h) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none"> a) Assume responsibility for safety of self and others b) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear) c) Identify safety standards and procedures based on “OSHA 1926 Standards” d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | <p>Hand and Power Tools:</p> <ul style="list-style-type: none"> a) Identify and demonstrate the safe and proper use of hand tools (e.g., fastening devices, leveling devices, edge cutting devices) b) Identify and demonstrate the safe and proper use of power tools (e.g., electric portable and stationary, powder-actuated, pneumatic) | |

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| 4 | <p>Task - Hand and Power Tools:</p> <ul style="list-style-type: none"> a) Identify and use various types of fasteners, anchors, and adhesives used in the construction industry b) Demonstrate the safe and proper use of the following types of hand tools: fastening devices, layout and measuring devices, leveling devices, edge cutting devices, etc. c) Demonstrate the safe and proper use of the following types of portable power tools: various saws, surfacing and shaping tools, drills, pneumatic tools, etc. d) Demonstrate the safe and proper use of the following stationary power tools: various saws, drill press, surfacing and shaping tools, drills, pneumatic tools, etc. e) Build a project using tools of the trade: sawhorse, shop bench, tool box, picnic table | |
| 5 | <p>Building Layout</p> <ul style="list-style-type: none"> a. Identify and use various types of building materials | |
| <p>Connections: *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 126/127 *CTSO--SkillsUSA</p> | | |

Internship (Carpentry)

460245

| Course Description | |
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| Includes various Construction Carpentry Technology topics, issues and trends. Topics may vary semester to semester at the discretion of the instructor; course may be repeated with different topics to a maximum of six credit hours | |
| Content/Process | |
| 1 | Internship Carpentry: <ul style="list-style-type: none">a) Gain career awareness and the opportunity to test career choice(s)b) Receive work experience related to career interests prior to graduationc) Integrate classroom/lab studies with work experienced) Receive exposure to facilities and equipment unavailable in a classroom settinge) Increase employability potential after graduationf) Demonstrate a working knowledge of the topic chosen for the class |
| Connections: <ul style="list-style-type: none">*State Standards*KOSSA TRACK*Technical Standards*New Generation Science Standards*Post-Secondary: KCTCS CAR 198*CTSO--SkillsUSA | |

Site Layout and Foundations

460214

| Course Description | | |
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| <p>Students will prepare materials, calculate the cost for a building site, and layout a site with a transit, locating property lines and corners. Students calculate the amount of concrete needed for footing and foundation walls and construct different types of foundations and forms</p> | | |
| Content/Process | | |
| 1 | <p>Math for the Trades:</p> <ul style="list-style-type: none"> a) Add, subtract, multiply, and divide single-, double-, and triple-digit numbers b) Use fractions to add, subtract, multiply, and divide parts of numbers c) Convert fractions to decimals and decimals to fractions, and use decimals to find percentages d) Use and understand how to read measuring tools e) Construct layouts using lines, circles, and angles f) Explain square roots, square numbers, and the Pythagorean Theorem g) Use area measure to find the area of: rectangles, squares, and circles h) Use volume measure to calculate the volume of three-dimensional objects | |
| 2 | <p>Health and Safety:</p> <ul style="list-style-type: none"> a) Assume responsibility for safety of self and others b) Identify personal protection equipment of the trade (e.g., eye protection, harnesses, footwear) c) Identify safety standards and procedures based on “OSHA 1926 Standards” d) Manage personal health and wellness (e.g., substance abuse, air pollutants, chemicals, workplace toxins) | |
| 3 | <p>Building Layout:</p> <ul style="list-style-type: none"> a) Demonstrate an understanding of the building layout process, including safety procedures, tools, materials, survey equipment, points of beginning, and benchmark. b) Identify and read relevant sections of the building plan c) Identify tools and materials required in the building layout process | |
| 4 | <p>Formwork:</p> <ul style="list-style-type: none"> a) Explain the properties of concrete and the purpose and specifications of formwork. | |

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| | <ul style="list-style-type: none"> b) Identify types and components of forms (e.g., footers, wall forms, bridge forms, slab c) Identify basic measures and materials used in formwork (e.g., form material, concrete, reinforcement d) Name important structural components that can be fabricated from formwork and concrete (e.g., piers, columns, pile caps) | |
| 5 | <p>Piers, Columns, Pile caps:</p> <ul style="list-style-type: none"> a) Explain & build the construction of piles, piers, & columns b) Differentiate between proper and improper components and design of piers, columns, pile caps, and pier caps c) Solve equations commonly used in designing and estimating piers, columns, and caps | |
| <p>Connections:</p> <ul style="list-style-type: none"> *State Standards *KOSSA TRACK *Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 140/141 *CTSO—Skills USA | | |