

DESE Model Curriculum

GRADE LEVEL/COURSE TITLE: Carpentry, Introductory Craft Skills –
Module 00105-09 Introduction to Construction Drawings

Course Code:

COURSE INTRODUCTION:

17003 Carpentry

Carpentry courses provide information related to the building of wooden structures, enabling students to gain an understanding of wood grades and construction methods and to learn skills such as laying sills and joists; erecting sills and rafters; applying sheathing, siding, and shingles; setting door jambs; and hanging doors. Carpentry courses may teach skills for rough construction, finish work, or both. Students learn to read blueprints, draft, use tools and machines properly and safely, erect buildings from construction lumber, perform finish work inside of buildings, and do limited cabinet work. Carpentry courses may also include career exploration, good work habits, and employability skills.

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| UNIT (#) TITLE: Carpentry, Introductory Craft Skills (00105-09) – Introduction to Construction Drawings [This module discusses blueprint terms, components, and symbols. Trainees will learn how to interpret blueprints, recognize classifications of drawings, and use drawing dimensions.] | SUGGESTED UNIT TIMELINE: CLASS PERIOD (min.): | | | | | |
| ESSENTIAL QUESTIONS: 1. How does information on a blueprint translate into the built structure? 2. Which types of construction drawings are most useful in which situations? | | | | | | |
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| ESSENTIAL MEASURABLE LEARNING OBJECTIVES | CCSS LEARNING GOALS (Anchor Standards/Clusters) | CROSSWALK TO STANDARDS | | | | |
| | | GLEs/CLEs | PS | CCSS | OTHER | DOK |
| 1. Recognize and identify basic construction drawing terms, components, and symbols. | | | | RST 11-12.4, L 11-12.6, G-MG 1-3 | 00105-09 | Level 1 |
| 2. Relate information on construction drawings to actual locations on the print. | | | | SL 11-12.5, G-CO 2, G-CO 3, G-CO 5, G-CO 6, G-SRT 2, G-SRT 5, G-SRT 8, G-GMD 4, G-MG 1, G-MG 2, G-MG 3 | 00105-09 | Level 1 |
| 3. Recognize different classifications of construction drawings. | | | | RST 11-12.2, L 11-12.6, N-Q 1, N-Q 2, N-Q 3, G-CO 5, G-SRT 2.44 | 00105-09 | Level 1 |
| 4. Interpret and use drawing dimensions. | | | | SL 11-12.1.a, G-CO 5, G-CO 12, G-GMD 4, G-MG 1, G-MG 2, G-MG 3 | 00105-09 | Level 2 |
| ASSESSMENT DESCRIPTIONS*: (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.) | | | | | | |
| *Attach Unit Summative Assessment, including Scoring Guides/Scoring Keys/Alignment Codes and DOK Levels for all items. Label each assessment according to the unit descriptions above (i.e., Grade Level/Course Title/Course Code, Unit #). | | | | | | |

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| Obj. # 1-4 | INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods) <input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Experiential <input type="checkbox"/> Independent Study <input type="checkbox"/> Interactive Instruction |
| Obj. # 1-4 | INSTRUCTIONAL ACTIVITIES: (What Students Do) 1. 2. 3. |
| UNIT RESOURCES: (include Internet addresses for linking) <p>(MCCE Resource) TE VIDEO 72 Collapse: Failure by Design Discovery Channel School BETHESDA, MD, DISCOVERY COMMUNICATIONS, INC., 2001. VIDEO When builders use innovative materials or implement creative design, sometimes the result is disastrous. Explore the flaws of four structures that failed the test of integrity and collapsed. Grades 6 - 12. 25:50 minutes.</p> <p>(MCCE Resource) TE DVD ROM 13 The Future of Home Construction: New Techniques, New Technologies Meridian Education Corporation MONMOUTH JCT., NJ, MERIDIAN EDUCATION CORPORATION, 2001. VIDEO This program travels to the National Association of Home Builders' Research Center to study four townhouses constructed using some of today's most innovative building materials and energy-saving technologies. Filmed at each stage of construction, these houses showcase foundations made of precast, pre-insulated, high-strength reinforced concrete or insulating concrete forms; walls made of ICFs, Hebel blocks, or steel framing; exterior finishes that incorporate thermally elastic stucco; and standing seam steel roofs. Photovoltaic roofing panels, a natural gas heat pump that uses a non-CFC refrigerant, an electronic home energy management system, gas fireplaces, doors made from sawmill residue and wood scraps, a geothermal heat pump, a pellet stove, and a combined space heating and water heating system are also featured. 11 minutes.</p> <p>(MCCE Resource) T&I DVD ROM 12.1 Green Architecture: Environmentally Friendly Housing Films for the Humanities & Sciences</p> | |

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HAMILTON, NJ, FILMS FOR THE HUMANITIES & SCIENCES, 2008.

DVD ROM This program tracks the teams from the University of Maryland, MIT, The University of Texas at Austin, and Lawrence Technological University as they seek out corporate sponsors, research available materials, and hone their construction skills to create appealing living spaces that require zero energy. 31 minutes.

(MCCE Resource) FCS DVD ROM 63.2

Home Performance: The First Step to Green

Shopware

HAMILTON, NJ, FILMS MEDIA, 2010.

DVD ROM This program takes viewers through a home performance audit and shows how insights into the thermal envelope, energy footprint, and structural soundness can guide the remodeler and homeowner through the first steps toward creating a greener home. An overview of high-efficiency HVAC and geothermal technologies and the role they play in a house's energy efficiency is also explored. 40 minutes.

(MCCE Resource) TE DVD ROM 10

Deconstruction: The Science of Building a House-Foundation to Roof

Discovery Channel University

LAWRENCEVILLE, NJ, SHOPWARE, 2004.

DVD ROM

This video highlights scientific aspects of concrete, steel, wood, and nails and the forces that impact them. Experiments done on the building site and at materials testing labs investigate the strengths of concrete, rebar, and engineered lumber; the chemical properties of Portland cement and galvanized nails; and the effects of dead load and live load, torque and shear induced by wind and earthquakes, and Bernoulli's Principle as it relates to the effects of tornadoes on roofs. Microscope and infrared imaging plus animations give extra angles of insight. So do field trips to a concrete batch plant, a tree farm to study silviculture, and a saw mill to see how computerized cutting and sorting are done. 50 minutes.

(MCCE Resource) TE DVD ROM 11

Deconstruction: The Science of Building a House-Plumbing to Paint

Discovery Channel University

LAWRENCEVILLE, NJ, SHOPWARE, 2004.

DVD ROM

A home is more than a house; technologically speaking, it's an engineered habitat. This video explains how electrical, plumbing, and HVAC systems work with selected parts of the building envelope — building wrap, windows, fiberglass insulation, gypsum wallboard, and paint — to keep the weather out and comfort in. Animated diagrams, microscopic and thermal imaging, on-site demonstrations, and off-site tests are used to show how things like circuit breakers and P-traps work; to define U-factor, R-value, permeance, and other technical terms and concepts; to demonstrate color-matching and paint-making; and to isolate envelope failures leading to moisture infiltration and mold. A visit to a USG

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wallboard plant is also included. 50 minutes.