Course Number | Course Title | Credits
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BCT120 | Construction Graphics | 4

Hours: 4 Studio/Lab, 2 Lecture

Co- or Pre-requisite | Implementation
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BCT110 Construction Materials & Methods | sem/year Fall 2014

Course description:

BCT120 Construction Graphics (3)

Introduction to the interpretation of Construction drawings for residential and light commercial construction projects drawing by hand and introduction to CADD software. Students draw plans, elevations, sections, and details to understand how they relate to each other. Informal sketching techniques are practiced and used throughout this course. (2/4)

Required texts/other materials:

Text (s): PRINT READING FOR CONSTRUCTION Residential and Commercial;

Other learning resources:
Online web site in text

Last Revised: Fall 2014

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Available Resources:
Autodesk Student web site; Free software download
BCT120 - Construction Graphics
Students sketch/draw plans, elevations, sections, and details to understand how they relate to each other. Informal sketching techniques are practiced and used throughout this course. Also covers analysis, creation, and organization of construction documents. The intent is to enable the student to communicate and express building construction information using professional graphic techniques in an efficient manner. An introduction to the principles and techniques of print reading using contemporary prints of Single and multifamily dwellings, project plans are covered in the textbook.

I. GENERAL OBJECTIVES
1. To develop the abilities of the student to use the mechanical tools and Computer software to sharpen their visual perception and graphic expression.
2. To heighten student awareness of the typical problems encountered in construction documentation and the related problems in building construction.
3. To present information applicable to the carpentry, electrical, mechanical, and general building trades, and provide experiences reading contemporary construction documents.

COMPETENCIES
1. Define sketching, proper sketching technique and describe common sketching tools and materials.
2. Define and describe the different types of pictorial drawings.
3. Define and describe the purpose of an orthographic projection.
4. Explain dimensioning and Describe the use of symbols and list some dimensioning conventions.
5. Identify key elements used as a reference when reading plans.
6. List elements included on the Site Plan, the Foundation Plan roof design found on the roof plan and details.
7. Describe key components on exterior elevations.
8. Describe types of building information contained on the Section.
9. List information contained on detail sections and elevations.

UNIT I– SKETCHING AND GRAPHICAL COMMUNICATION
The student will be able to...
- Illustrate a proficiently in sketching straight lines and circular lines.
- Demonstrate the use of measurement lines and proportions in sketching.
- Produce an elevation sketch of a building
- Create a Multi-view sketch of the TOP VIEW, FRONT, and RIGHT SIDE of an 3d object.
- Create an Isometric sketch of the same 3d object.
UNIT II – INTRO. TO COMPUTER SOFTWARE FOR CONSTRUCTION DOCUMENTATION
The student should be able to:
• Use the CAD interface to construct drawing information into a computer.
• Describe and use the basic terms, concepts, and techniques of computer-aided drafting
• Set up drawings, use drawing aids, save drawings, and get help when needed
• Draw lines, basic shapes, and geometric constructions, and edit drawings
• Place text on drawings and insert and edit tables.
• Use proper drafting standards and practices.
• Dimension drawings and use dimension styles properly.
• Create multi-view layouts and plot drawings

UNIT III - SITE & PLOT PLANS
Objectives:
The student should be able to:
▪ Recognize common features of site plans.
▪ Identify property line descriptions.
▪ Explain the difference between True North and Plan North.
▪ Read contour lines on a site plan.
▪ Plot topographic sections.

UNIT IV - Architectural Drawings
Objectives:
The student should be able to:
▪ Identify the types of drawings classified as architectural drawings.
▪ List different types of floor plans used in construction projects.
▪ Describe the purpose of elevations, sections, and details.
▪ Identify materials specified on architectural drawings.
▪ Interpret construction requirements specified on architectural drawings.

UNIT V - FOUNDATIONS & FOOTINGS
Objectives:
The student should be able to:
▪ Identify footings on a foundation plan.
▪ Describe different types of foundation support systems.
▪ Identify various components of a foundation system.
▪ Layout and plan the excavation for a small building.
▪ Draw the width and thickness of non-reinforced footings according to the standard practice method for light construction.
▪ Recognize and detail the various types of foundations used for small buildings.
▪ Locate the local code stating the depth of the frost line and know to what it refers.
▪ Specify and give adequate notes to the builder in order to secure the footing and foundation desired.
UNIT VI - FLOOR, WALL & ROOF CONSTRUCTION
The student should be able to:
- Identify and draw details describing precise methods for the complete construction of floor, wall, and roof construction of light frame buildings.
- Select from given tables the proper size of sill, joists, studs and rafters for incorporation into a light frame structure.
- Graphically show the three main types of frame construction.
- Identify most items or pieces of the structure with proper names.
- Recognize and name the various styles of roofs.
- Sketch the structure of each style of roof using the correct true size of materials.

UNIT VII RESIDENTIAL FRAMING PRINTS
The student should be able to:
- List the differences between heavy framing and light framing.
- Recognize the construction of various floor, wall, and roof framing systems.
- Read framing drawings.
- Explain the differences between platform, balloon, and post-and-beam framing.
- Understand stair details and terms.
- Recognize metal framing systems.

UNIT VIII - DOORS, WINDOWS, & STAIRS
The student should be able to:
- Identify, research and find the styles and types of doors and windows generally used in a residential building.
- Apply to the construction plans proper symbols representing the style of door or window required for the building under consideration.
- Review the literature to find suitable units for incorporation into the building.
- Set up and compile adequate door and window schedules.
- Name and detail the various types of stairways.
- Set up proper runs necessary to keep standard riser dimensions for any given elevation.

UNIT VIII Plumbing, Electrical, and HVAC Prints
The student should be able to:
- Identify various piping systems, plumbing fixture symbols on prints and Read a piping diagram.
- Explain the three stages of plumbing installation.
- Identify electrical symbols.
- Explain various electrical terms.
- Recognize different types of electrical drawings.
- Identify the purpose of HVAC systems.
- Explain different types of heating and cooling systems and identify HVAC symbols on prints.

UNIT VIII Estimating Construction Costs
The student should be able to:
- Recognize the proper estimating method for a given situation.
- Use the approximate and detailed methods of estimating.

II. EVALUATION
Each assignment or project will be evaluated on completeness, appearance, compliance, and effort displayed. Line work and lettering will weigh heavily as they greatly affect appearance. Compliance with directions and effort shown by good work turned in when due and evidence of research will lead to the better grades. Completeness and the use of proper graphic techniques will be taken as evidence of understanding. Project assigned will attempt to cover a good portion of the items mentioned in each unit. Short word tests will be given each week some time during the office practice period which will cover other material, terms, definitions, and items presented in lecture or assigned from the texts or accompanying literature.

- Assignments: All assignments will be graded on an A to F basis. Late assignments will be subject to grade reductions of one letter grade per class session. Assignments not turned in will be recorded as a zero grade.

- Quizzes: Quizzes may be given at any time during the class. They may be written or performance based, and students may or may not be given prior notice. Quizzes missed because of student absence may not be made up and will be recorded as a zero.

- Final Grade Calculation: Your final grade will be calculated by averaging all of your grades and weighing them as indicated above.

- Final Examination or project: The individual instructor may wish to require a comprehensive final examination. Notice of intention to administer a final examination must be given to the students involved, in writing, no later than the fifth (5th) week of the semester. Under no circumstances will the final examination comprise more than twenty-five percent (25%) of the final grade for the course.

V. Academic Integrity Statement:
Students are expected to comply with the college-wide requirements for academic integrity. Mercer County Community College is committed to Academic Integrity—the honest, fair, and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work. Presenting another individual’s work as one’s own and receiving excessive help from another individual will qualify as a violation of Academic Integrity. The entire policy on Academic Integrity is located in the Student handbook and is found on the college website (http://www.mccc.edu/admissions_policies_integrity.shtml).

VI. Special Needs Students Statement
Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services. Ms. Stinson’s office is LB221, and she can be reached at (609) 570-3525.