

Course Syllabus 2020/2021

Construction Technology

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Program Description:

The construction technology program is designed to prepare students for employment in the construction trades. When students have completed this class, they are prepared to join the work force as laborers, apprentices, and possible trades people and/or they are prepared to go on to a college, university, or trade school to further their education. Eventually, a student's goal may be business ownership in an area of construction trades.

Students learn to use the equipment and technology as it applies to site clearing, building layout, excavation, foundations, framing, roofing, siding, and finish work for a new home. The students will be involved with various construction projects in a lab setting. Safety is strictly emphasized. Prior industrial arts course work is helpful and substantial math skills are needed.

Textbook(s):

W. H. Wagner, H. B. Smith, (2016). *Modern Carpentry 12th Edition*, Goodheart Wilcox Co., Tinley Park, Illinois.
ISBN 978-1-63126-083-4

Instructional Resources and Techniques

The students will be exposed to, but not limited to the following resources.

- Online textbook
- Online workbook
- Math exploration relating to business and construction
- Math related to construction estimating
- Newspaper and magazines
- Video
- PowerPoint presentation
- Overheads
- Computers
- Field trips
- Guest Speakers
- Building manuals or manufacturer literature
- Lecture
- Hands on performance

Homework

Homework will consist of vocabulary, construction math, the review questions at the end of the chapter, or the workbook. Each student will be given a username and password to access the textbook and workbook from any computer. Most homework will be assigned at the beginning of the week and will be due by the Friday of that week.

Grading Scale

96-100 = A	80-82 = B-	67-69 = D+
90-95 = A-	77-79 = C+	63-66 = D
87-89 = B+	73-76 = C	60-62 = D-
83-86 = B	70-72 = C-	59 and below = F

Grade Determination

40% - Classroom Participation with Daily Work Logs
25% - Tests
15% - Homework
20% - Daily Demonstration of Safety Skills

Proper Attire

You will be required to be prepared for class on a daily basis. Most days we will be in the shop so you will need the proper attire to wear. Think of the shops as a job site; you wouldn't wear flip flops or sandals to the job so you are not to wear them in the shop. You will be required to either wear the right clothes to class or bring them with you to change into. Boots, pants, shirts with sleeves such as t-shirts, and no hoodies with strings that dangle. If you do not come prepared to work in the shop then you will stay in the classroom and do bookwork. If it occurs on a regular basis then you will be referred to the office.

Segments for Construction Trades

Segment 1 - Safety, Health, and Environment

- Complete OSHA 10 hour
- Examine Material Safety Data Sheets
- Describe personal safety at any type of job site

Segment 2 – Industry Overview

- Describe methods used to facilitate smooth workflow by recognizing relationships between trades people/professionals
- Identify permits and licenses required during residential construction projects

Segment 3 – Employability Skills and Technology Skills

- Organize oral and written language
- Model behaviors that demonstrate active listening

Segment 4 – Construction Materials

- Identify common materials used in the construction industry
- Handle, install, position, move, store, and secure materials properly

Segment 5 – Construction Tools and Equipment

- Use and maintain common hand tools in the construction industry
- Use and maintain portable power tools in the construction industry
- Use and maintain common stationary tools in the construction industry

Segment 6 – Building Construction Design, Blueprint etc.

- Demonstrate knowledge of the design of construction projects
- Interpret blueprints/drawing/specifications used in construction projects
- Use geometric formulas to determine areas and volumes of various structures

Segment 7 – Site preparation and infrastructure

- Describe methods used for site planning in construction projects
- Understand the different colors used for utility marking
- Know and apply the rules for digging around various utilities
- Know the procedures to follow if a utility line is hit during digging

Segment 8 – Common Construction Practices – concepts flooring, foundations etc.

- Apply knowledge of specific materials and methods for construction of home components including foundation, walls, roofing, staircases, and flooring (e.g., carpet, tile, stone installation, etc.).
- Identify building systems needed to complete a construction project.
- Identify components of building systems needed to complete a construction project.
- Develop and utilize good craft skills.

Segment 9 – Residential Construction Techniques

- Understand the sequencing of events for constructing residential buildings
- Correctly build or install essential home components including, but not limited to foundations, walls, roofs, staircases, flooring, carpets, fixtures, and cabinetry

Segment 10 – Green Technology Construction Techniques

- Describe construction trends related to green building practices
- Describe methods to select sites for green building practices
- Describe methods to minimize construction waste and demolition debris

Segment 11 – Heavy Equipment/Civil Construction Techniques

- Demonstrate knowledge of road construction components to perform road marking and road pavement operations
- Understand the use of rigid frame trucks: dump trucks, asphalt distribution trucks, broom trucks, transit-mix trucks, fuel/lubrication trucks, maintenance trucks, water trucks
- Describe the use the correct type and size of equipment such as: compaction equipment, loaders, backhoe loaders, scrapers, bulldozers, excavators, telescoping excavators, motor graders, skid steer loaders

- Understand the uses of different types of construction cranes and forklifts
- Demonstrate knowledge of concrete properties when performing methods of mixing, curing, and finishing

Segment 12 – Construction Business Management

- Describe methods used to manage liability on a construction site
- Apply knowledge of business and management principles involved in residential construction.
- Describe common contracts and budgets used in construction projects
- Identify permits and licenses required during residential construction projects
- Analyze blueprints and other documentation to prepare time, cost, materials, and labor estimates

It is the policy of Tuscola County ISD that no person on the basis of race, color, religion, national origin or ancestry, age, gender, height, weight, marital status, or disability shall be subjected to discrimination in any program, service, activity, or in employment for which it is responsible.