CONSTRUCTION SYLLABUS

SCHOOL: Tuscola Technology Center  
Instructor: Robert Dice

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COURSE DESCRIPTION: Primarily a hands-on class with many opportunities for projects such as: On site construction, sheds, pouring concrete, wall, floor, and roof construction. Students also have an opportunity to join an apprenticeship program, join competitive clubs, compete at Delta College, and enter programs into the MITES competition.

Resources:
1. Carpentry and Building Construction Fourth Edition
2. Carpentry and Building Construction “Feirer”
4. NCCER module 101 Basic Safety - Prentice Hall
5. CEV multimedia building construction series supplement 803, 806, 807, 808, 809

Textbooks:
Core Curricula
Wheels of Learning NCCER
Standardize Craft Training
Prentice Hall Inc
Upper Saddle River, NJ 07458
Columbus, Oh

Carpentry and Building Construction: Fourth Edition
Glencoe/McGraw Hill
3008 W Willow Knolls Drive
Peoria, IL 61614-1083

Alternative Energy Passport Program:
- Green Building
- Wind energy
- Solar Energy
- Bio-fuel
- Advanced Transportation Systems
- Sustainable Agriculture

Students throughout the school year will be developing skills and knowledge of alternative energy. These skills will be learned through training modules, fieldtrips, and hands on experiences.

Other Instructional Tools/Topic Covered:
- Videos
- Overheads
- Demonstrations
- Guest Speakers
- Demonstrate Hand and Power Tool Safety
- Reading Blueprints
- Demonstrating Employability Skills
- Construction Math
- Establish Grade
- Read a tape measure
- Multiply/Divide
- Add/Subtract Fractions
- Construction Math
- Understand how to connect S1, S3, & S4
- Wire Light Fixtures
- Understand GFCI
- Wire Receptacle Plugs
- Basic House Wiring
- Construct Footings
- Lay Brick and Concrete Block
- Deck Construction
- Erect Walls
- Roof Framing
- Install Doors and Windows
- Install Exterior Wall Coverings
- Install Roofing Materials
- Construct Stairs
- Insulate Exterior Walls and Ceiling
- Map out a Rough-in
- Cut, Solder and Assemble Copper Pipes
- Cut, Glue and Assemble PVC Pipes
- Basic House Plumbing
- Pouring and Finishing Flat Concrete
- Pouring Concrete Footings
- Basic House Plumbing
- Basic House Wiring
- Install Interior Trim & Cabinets/Doors
- Hang Drywall

1ST MARKING PERIOD EXPECTATIONS FOR FIRST YEAR STUDENTS
CONSTRUCTION TECH

Duty 1
_______ Power Tools Unit 11-21
_______ Task Module # 00104
_______ Core Curricular Test

Construction Math
_______ Construction Estimation Handout
_______ Handout A-G Fractions
_______ Reeling Tape Measures
_______ Task Module # 00102 Construction Math
_______ AMP Math Test Score

Roofing
_______ Unit 40 Roof Covering
_______ Lab Exercise
_______ Lecture & Quiz
_______ Lab Performance

Duty 1
_______ Hand Tools 00101
_______ Handout Tool Identify
_______ Handout Saw Cuts
_______ Carpentry Book Unit 10

Weekly Grade Sheets will count as 70% of your marking period grade.

Daily Score Criteria: Safety, participation, interest, work habits, work completed, accountability, dependability, attitude, initiative, and respect. Come Prepared!!!

Review goals with Paraprofessional! Is student meeting or exceeding their goals?
Remarks:

Grading 1st Marking Period:

_______ 70% Work Habits
_______ 10% Employability
_______ 20% Written Work
_______ TOTAL SCORE
**2nd MARKING PERIOD** EXPECTATIONS FOR FIRST YEAR STUDENTS
CONSTRUCTION TECH

Duty 3 Reading Blueprints
- Study unit 2 Reading Blueprints
- Task module #00105 Introduction to Blueprint Reading
- Core Curriculum Test Score

Duty 6 Using Scaffold, Safety, and Rigging
- Study Unit 7 Safety
- Study Unit 20 Scaffold and Ladders
- Task module #00101 Basic Safety
- Task module #00106 Basic Rigging

Duty 5 Identifying Building Materials
- Study Unit 4 Wood as a Building Material
- Study Unit 5 Plywood and Composite Panels
- Task module #10104 Nails, Fasteners, Adhesives
- Task module #10105 Wood Building Materials

Employability Skill
- Resume
- Application
- Job Interview Day
- Job Applicant Rating Form

Grading 2nd Marking Period:

________ 70% Work Habits
________ 10% Employability
________ 20% Written Work
________ TOTAL SCORE

**3rd MARKING PERIOD** EXPECTATIONS FOR FIRST YEAR STUDENTS
CONSTRUCTION TECH

Interior Walls
- Correct Layout
- Install Double Plt.
- Cathedral Framing
- Ceiling Nailers

Siding House
- Apply starter
- Soffit Facia Inst
- O.S.C. & ISC Ins
- J-Channel Openings
- Utility Trim
Duty 14 Deck Construction
Unit 27 Floor Framing
ABC Task Module #10201 Floor Systems
Lab Deck Construction

Roofing
Unit 40 Roof Coverings
Lab Exercise
Lecture & Quiz
Lab Performance

Grading 3rd Marking Period

80% Work Habits
20% Written Work
TOTAL SCORE

4th MARKING PERIOD EXPECTATIONS FOR FIRST YEAR STUDENTS
CONSTRUCTION TECH

Carpentry
Wall Framing
Roof Framing
Floor Framing
Layout
Correct Nail Procedures

Masonry
Mix Mortar
Finish Flatwork
Lay Brick
Lay Block
Pour/Square footings

Plumbing Rough – In
Cut/Layout Pipe
Glue/Prime (puc)
Solder/Flux copper

Electrical Rough – In
Layout/Box placements/staple
Wire single pole switch
Wire 3-way
Wire Receptacle

Grading 4th Marking Period

70% Work Habits
10% SOCAT Testing
20% Written Work
TOTAL SCORE
1st MARKING PERIOD EXPECTATIONS FOR SECOND YEAR STUDENTS
CONSTRUCTION TECH

- 5 Page Paper Apprenticeships for safety on jobsites
- 1 Individual Project (with drawing)
- Site Project/performance
- Scrapbook - 4 to 5 pages with pictures, Internet/Newspaper articles Cultural diversity
- Behavior - Time usage
- Complete Core Curriculum (should have started last year)
- 8 x 8 Shed-to-Scale - Add 9” overhangs/4’ Doors (Group of 4-6)

Grading
- 40% Lab Activities (Site project, shed lab)
- 40% Behavior – Maturity/Responsibility
- 20% Papers, scrapbook

2nd MARKING PERIOD EXPECTATIONS FOR SECOND YEAR STUDENTS
CONSTRUCTION TECH

- Submit an article to Tech Times newspaper
- 1 Individual Project (with drawing)
- Site Project/performance
- Scrapbook 4-5 pages with pictures, Internet/Newspaper articles Cultural diversity, work experiences.
- Behavior – Time usage
- Complete Core Curriculum (should have started last year)
- Participate in MITES or SkillsUSA

Grading
- 70% Work Habits
- 10% MITES/SkillsUSA
- 20% Written Work

3rd MARKING PERIOD EXPECTATIONS FOR SECOND YEAR STUDENTS
CONSTRUCTION TECH

BASIC RIGGING COMPETENCY
RECOMMENDED CLASS TIME 12.5 HOURS

Basic Rigging Competency (12.5 hrs)
1. Properly uses safety equipment
2. Demonstrates understanding of OHSA regulations
3. Able to determine size and weight of objects
4. Selects appropriate rigging equipment
5. Demonstrates frequently used knots in rigging
6. Selects correct size of planking material
7. Able to erect pre-manufactured scaffolding
8. Selects appropriate ladder for each use
9. Demonstrates safe use of ladders and scaffolds
10. Demonstrates correct use of roof jacks and planking
### Nails, Fasteners, and Adhesives Competency (12.5 hrs)
1. Identify the different types of nails, staples and screws
2. Select appropriate fastener adhesive for a specific construction activity
3. Differentiate where one fastener would be appropriate and another not
4. Demonstrate knowledge of how to use the MSDS sheets
5. Demonstrate proper procedures when using the pneumatic nailer
6. Understands the proper fastener use in each pneumatic tool
7. Demonstrates proper safety procedures for pneumatic tool usage, as recommended by tool manufacturer

### Wood Building Material C competency (12.5 hrs)
1. Identify building materials used in the construction industry
2. Calculate board feet accurately
3. Able to list types of wood preservatives
4. Identify common types of wood defects
5. State how and why lumber is graded
6. Identify the grade of lumber and plywood from the grade markings
7. Identify the difference between plywood, OSB, and interior and exterior sheathings.

### Site Preparation Competency (12.5 hrs)
1. Develop a plot plan on paper
2. Set up and level a builders level
3. Layout a structure in a field
4. Establish and construct batter boards
5. Determine ground elevations and a place on a plot plan
6. Establish footing and other foundation lines
7. Locate physical feature in the field and place in on a plot plan
8. Consider utility hook-up when developing a plot plan
9. Understands what zoning requirements and local building codes are formatted for plat locations
10. Can access computer usage to search for house plans

### Wood and Concrete Foundation Competency (12.5 hrs)
1. Understand the makeup of concrete
2. Able to mix a 1:2:3 batch of concrete
3. Understand what effect climate may have on drying time and strength of concrete
4. Can determine the thickness of a footing
5. Can determine the width of a footing pad
6. Know how to construct a damproof basement
7. Able to construct batter boards
8. Knowledge of proper, waterproofing, backfill soils, drain tiles and sumps

### Floor System Competency (12.5 hrs)
1. State the various types of framing systems
2. State the cause and effect of wood shrinkage
3. Layout and construct a floor frame including
4. Install bridging
5. State the effects of notching and drilling holes
6. Install sub-flooring using proper fasteners
7. Identify the various types of prefabricated floor joist
8. Identify the difference between an I-beam and a W-beam
9. Identify different type of floor joist
10. Competent in joist size in comparison to floor span
4th MARKING PERIOD EXPECTATIONS FOR SECOND YEAR STUDENTS
CONSTRUCTION TECH

Wall System Competency (12.5 hrs)
1. Identify the various types of house framing
2. Layout a complete wall
3. Construct a complete wall
4. Layout, construct and understand wall intersection
5. Layout, construct and understand window and door openings
6. Define panelized and modular framing systems
7. Identify wall components with proper name
8. Understand temporary bracing procedures
9. Able to determine bearing and non-bearing wall
10. Understands structural purpose of sheathing, let in bracing, and the metal wind bracing

Roof Framing convention/Trusses Competency (12.5 hrs)
1. Develop an understanding of truss construction in comparison
2. Able to layout common rafter
3. Able to calculate and layout hip and valley rafter
4. Able to calculate and layout hip and valley jack rafters
5. Construct a truss
6. Understands terminology printed on a framing square
7. Knowledgeable in roof sheeting techniques (thickness spacing)
8. Understands four basic roof shapes or styles
9. Understands the meaning of the work dropping
10. Able to assemble trusses using gussets

Exterior Finishes Competency (12.5 hrs)
1. Able to state the three basic types of roof coverings
2. Know different applications for 3 tab and dimensional shingle
3. Understand proper underlayment/reuirements for sloped and flat roofs
4. Understand the half tab offset for applying shingles
5. Demonstrate application of sofit facial & corner coverings
6. Knowledge of application of sofit, facial, drip, and rake edge wall finishes
7. Demonstrate the ability to install windows and doors
8. Point out reference material to show rough openings
9. Knowledge of brick veneer and its support systems
10. Demonstrate the ability to apply vinyl or aluminum

Stair Construction Competency (12.5)
1. Identify two basic types of stair systems
2. Explain the difference between rise and run
3. State the importance of design considerations for stairways
4. Familiar with local buildings codes for stair construction
5. Demonstrate knowledge of stair components (newel, rail sect)
6. Able to use a framing square to layout stringer
7. List steps necessary to calculate stair rise and run lengths
8. Understands the effects of improper layout
9. Understands the difference between use of cleats, cut out and routed stringers
10. Able to construct landing at proper height
### Basic Plumbing Competency (12.5 hrs)
1. Use print to develop a material list
2. Identify plumbing systems and symbols
3. Understand supply systems (cooper)
4. Understand disposal systems (PVC)
5. Knowledge of prefabricate showers and tubs
6. Able to identify cooper, galvanized, PVC, etc
7. Demonstrate correct assembly of cooper
8. Demonstrate correct assembly of PVC
9. Install water shut off to sink
10. Thread a galvanize pipe
11. Knowledge of draw and trap requirements

### Construction (12.5 hrs)
1. Basic rigging
2. Nails, Fasteners and Adhesives
3. Identify Wood Building Material
4. Site Preparation
5. Wood and Concrete Foundations
6. Floor System
7. Wall Systems
8. Roof Framing Conventional and Trusses
9. Exterior Roof and Wall Finishes
10. Stair construction
11. Basic Electrical
12. Basic Plumbing

### COURSE GOALS & OBJECTIVES:
- Prepare individuals for employment, adjustment and advancement in specific occupations or occupational areas.
- To provide an understanding of the contribution of work to the social economic welfare of our nation.
- To provide students with an understanding and appreciation of the American free enterprise system.
- To stimulate students in their chosen occupational fields to provide an understanding of the opportunities in each field.
- To foster an awareness of the civic, social and moral responsibilities of the individuals to society.
- To provide curriculum which is sensitive and adaptable to changes in occupational practices as they are affected by social, economic, technical, and educational developments.
- To strive to develop a greater appreciation of the value of specifically trained personnel amount employers, employees, and consumers.
- To reinforce skills leaned in the school laboratories
- To provide experiences on tools and equipment not available in the school laboratory.
- To supplement and broaden the school curriculum into areas not otherwise available.

### ATTENDANCE POLICY AND GRADE:
The Tuscola Technology Center places a high priority on attendance because the attendance pattern established by the student in school often sets an attendance pattern for employment. To benefit from the primary purpose of the school experience, it is essential that each student maintain regular and
punctual attendance. Class attendance is necessary for learning and academic achievement as well as for developing the habits of punctuality, dependability, and self-discipline demanded by business and industry. Regular attendance in the Technology Center’s labs is essential to allow students to fully participate in class instruction, discussion and skill development. Absences beyond eight days per semester are considered excessive. Both excused and unexcused absences are charge in the student total.

8 days       No credit loss
9 days       Grade reduced 1 letter grade
11 days      Grade reduced 2 letter grades
13 days      Grade reduced 3 letter grades
15 days      No credit – loss of semester

Make up days accepted with instructor’s okay, prior to making the days up.

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CERTIFICATE REQUIREMENTS
Rough Terrain Fork Lift

ARTICULATED CREDIT
Boots, hat, gloves, coveralls are recommended
No clothing with vulgar obscene language, picture, etc.
$70 tool pouch provided by instructor, no charge if tools are returned with only normal wear and tear.

The instructor reserves the right to make adjustments to this syllabus as needed.