GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: IT 115 DIVISION: 50 ALSO LISTED AS:

TERM EFFECTIVE: Spring 2014 **Inactive Course**

SHORT TITLE: INTRO TO CONSTRUCTION INDUSTRY

LONG TITLE: Introduction to the Construction Industry

Units	Number of Weeks	Type	Contact Hours/Week	Total Contact Hours
3	18	Lecture:	3	54
		Lab:	0	0
		Other:	0	0
		Total:	3	54

COURSE DESCRIPTION:

This course is an introduction to the construction industry. It will cover the basic skill sets required to earn an entry-level position in various trades in construction. Students will learn basic math, vocabulary, blue print reading and safety skills along with the soft skills required to gain employment. This course has the option of a letter grade or pass/no pass. ADVISORY: Eligible for English 250 and English 260.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES
- L - Standard Letter Grade
- P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:
- 02 - Lecture and/or discussion

STUDENT LEARNING OUTCOMES:

1. The student will describe the obligations of the employer and the employee specific to the construction industry and defend them in given situations.

Measure: oral report, Role playing

ILO: 2,6,1,7

2. The student will explain the requirements of a safe construction workplace and be able to access unsafe workplaces and conditions.

Measure: test, report

ILO: 1,7,2,4

3. The student will use math as a tool of the construction trade by analyzing which math method to utilize and applying them to practical situations.

Measure: exam, demonstration

ILO: 2,1,7

4. The student will read, explain, and evaluate blueprints used in the construction industry.

Measure: written report, exam

ILO: 7,2,1,3

5. The student will utilize the process of problem solving specific to construction workplace situations.

Measure: exam, project, role playing

ILO: 2,1,7

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Inactive Course: 10/28/2013

13.0 Hours

Introduction to the workplace and class expectations:

Topics will be presented concurrently throughout the course. The first week will include a safety orientation and math assessment test. The safety topic for this session will be Personal Protective Equipment. Eye protection will be emphasized during this session.

SPO: The student will - Identify the importance of working in and promoting a safe working environment. They will apply mathematics as a tool in the work place. Safety Topic-Hearing Protection.

Math Topic-Basic Arithmetic. Operations of Whole Numbers. The necessity of hearing protection at the job site will be discussed. The results of math assessment test will be presented along with an introduction to the four basic arithmetic operations. Application of these operations as they relate to construction will be discussed

HW: A math assignment will be given. Read appropriate written material.

SPO: The student will - Explain the benefits of wearing hearing protection in the work environment. They will discuss the need for using whole numbers in the work environment and be able to apply this knowledge. Safety Topic-Respiration.

Math Topic-Order of Operations:

Basic arithmetical operations will continue with an emphasis on the order of operations. Construction applications will be demonstrated.

Previous assignment will be reviewed.

HW: A new math assignment will be given. Read written handouts.

SPO: The student will - Describe the importance of wearing respiratory protection in the work environment. They will be able to distinguish the various types of respiratory devices and explain the environmental requirements for each. The order of operations as it relates to the construction industry will be applied by the student. Safety Topic-Body Protection. Math Topic-Fractions. Head, hand and foot protection will be discussed. The previous assignment will be reviewed. Basic operations using fractions will be introduced. A quiz on the previous three topics will be given.

HW: A new assignment regarding fractions will be given. Read appropriate material.

SPO: The student will - Explain the necessity of wearing body protection in the work environment. They will discuss the need for fractions in the work place and apply the use of them.

14.0 Hours

Safety Topic-Right to Know/Communication. Math Topic-Algebra. Measurement Topic-Linear Measurement: A discussion of "Right to Know/Communication" on the work site will be presented. The previous math assignment will be reviewed. The previous quiz will also be reviewed. An introduction to simple algebraic formulas will be undertaken. The concept of linear measurement will be introduced.

HW: Assignments will be given.

SPO: The student will - Summarize the importance of hazardous material communication in the work place. They will apply fractions and they will use linear measurement. The concept of the basic formulas presented will be restated by the student.

Safety Topic- Hazard Material. Math Topic-Algebraic Formula Manipulation. Measurement Topic-Linear and Area Measurement. A discussion regarding hazardous materials in the workplace will be presented along with an explanation on interpreting MSD Sheets. The previous math assignment will be reviewed. The concept of algebraic formulas will be reviewed. Simple formula manipulation will be discussed. Linear measurement and the use of fractions will be reviewed. The concept of area and its use of simple formulas will be introduced.

HW: Assignments will be given. Read corresponding handouts.

SPO: The student will - Discuss the hazards of chemicals and the necessity of proper MSDS interpretation in the work place. They will be able to apply fractions, linear measurement, and basic formulas in the use of calculating areas. Safety Topic-Falls. Math Topic-Geometry. Measurement Topic-Volume. A discussion concerning fall hazards on the job will be presented. The previous math assignment will be reviewed Basic geometric shapes will be introduced-circles, squares and triangles. Methods of measuring these shapes will be talked about.

Linear and area measurement will be reviewed using simple formulas. The concept of volume will be discussed along with its relationship to the construction trades. Formula manipulation in respect to volume will be practiced.

HW: Assignments will be given on the topics covered.

SPO: The student will - Explain fall hazards and the importance of prevention of falls in the work place. They will demonstrate measurement skills, apply the concept of basic formulas, and use these skills in determining area and volume.

12.0 Hours

Safety Topic-Equipment. Math Topic-Basic Trigonometry.

Measurement Topic-Pitch and Angle. A discussion regarding various types of construction equipment used on job sites and the hazards they present to the worker on the job site will occur. The previous assignment will be reviewed. A quiz on the previous material covered will be taken in class. The concept of trigonometry will be introduced. The ratios associated with the sine, cosine, and tangent of right angles will be discussed. The concept of "pitch and angle" as used in construction and its relationship with trigonometry will be introduced.

HW: Assignments will be given.

SPO: The student will - Discuss the hazards associated with the operation of equipment used in the work place. They will demonstrate the relationship between "pitch" and "angle" and the methods used for solving this using trigonometry. Safety Topic-Confined Space Entry. Math Topic-Trigonometry. Measurement Topic-Useful Formulas. A discussion of what constitutes "confined space" and the proper procedures for entering the confined space area will be presented. The previous assignment and quiz will be reviewed. The ratios between the components of right triangles will be further explored. A presentation and exercise on "useful formulas for construction" will be made.

HW: An assignment will be given.

SPO: The student will - State the hazards associated with the confined space entry and explain the proper procedures for entering such area in the work place. They will apply the relationship between the components of right triangles and the use of trigonometry to solve for unknowns and the relevance of basic "useful" formulas and their use in determining dimensions, area, and volume in the trades. Safety Topic-Pinch Point Guarding. Math Topic-Review, Solving For Unknowns Using Trigonometry and Algebra. Communication Topic- Vocabulary of Various Trades-Bill of Materials. A discussion of equipment guarding will be presented with particular attention given to "pinch points." The previous assignment will be reviewed. A review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. A dialogue regarding the vocabulary of various trades and terms used in Bills of Material will be held.

HW: Math and reading assignments will be given.

SPO: The student will - Explain the hazards associated with pinch points and unguarded machinery. They will produce solutions for unknowns using trigonometry and algebra. Relevant terminology of various trades in the workplace will be recalled. Safety Topic-Fire.

Math Topic- Review, Solving For Unknowns Using Trigonometry and Algebra. Communication Topic-Safety Signage. Blue Print Topic-Illustrations of Various Types of Blue Prints. A discussion on the hazards and potential for fire on construction sites will be presented.

The previous assignment will be reviewed. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. A discussion concerning various types of signs regarding safety will be held. This topic will help to instruct the student in the relative hazard level of the warning sign and recognize the issuing authority that regulates the hazard. An introduction to the various types of blue prints that are used in construction will be presented with illustrations of each.

HW: Assignments relating to the topics presented will be given.

SPO: The student will - Describe the hazards associated with fire, the potential for fire, and the proper response to a fire. Recognize hazardous warning signs and explain the level of severity indicated.

Recognize the various types of blueprints used in construction.

12.0 Hours

Safety Topic-Arcflash and Burns. Math Topic- Review, Solving For Unknowns Using Trigonometry and Algebra. Communication Topic-Company Reports. Blue Print Topic-Illustrations of Various Components of Title Blocks in Blue Prints. A discussion of arcflash and burns that are common in the work place will be the focus of the safety topic for this session. The previous assignment will be reviewed. A quiz on the previous material covered will be taken in class. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. A discussion will follow regarding company reports. Company reports will include such items as time card reporting, safety checklists, equipment maintenance records, travel logs, material or purchasing orders, etc.

Various components of blue print title blocks will be illustrated and discussed as to their meaning and importance in interpretation.

HW: Out of class assignments will be given.

SPO: The student will - Explain hazards associated with arcflash and types of burns common in construction. Reinforce his/her ability to apply solutions for unknowns using trigonometry and algebra. The importance of filling out and completing company reports in a timely manner will be discussed by the student. They will recognize the various components contained in the title block of blueprints used in construction. Safety Topic-Lifting. Math Topic- Review, Solving For Unknowns Using Trigonometry and Algebra. Communication Topic-Common Spanish Terms in Construction. Blue Print Topic-Illustrations of the Types of Views in Blue Prints. Safe lifting techniques will be demonstrated. The previous assignment will be reviewed. The quiz on the previous material covered will be reviewed. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. Plan and elevation views will be explained in blueprints. Some of the common Spanish terms used in construction will be explored. HW: Assignments will be given based on the material covered.

SPO: The student will - Demonstrate proper lifting techniques. They will be able to distinguish between plan and elevation views used in blue prints and be aware of some common Spanish terms used in construction. Safety Topic-Heat Exhaustion and Hypothermia. Math Topic- Review, Solving For Unknowns Using Trigonometry and Algebra. Blue Print Topic-Illustrations of the Types of Projections Used in Blue Prints. Problem Solving & Critical Thinking Topic-Analytical Observation Based on Condition. A discussion regarding heat exhaustion and hypothermia will alert the student to these common hazards of the work site. The previous assignment will be reviewed. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. The two most common types of projection used in drafting will be explained. Problem solving and critical thinking based on condition will be explained.

HW: An assignment will be given.

SPO: The student will - Discuss the symptoms of heat exhaustion and hypothermia. Reinforce his/her ability to apply solutions for unknowns using trigonometry and algebra. Be able to distinguish between isometric and orthographic projections used in blue prints. Be able to define problem solving and critical thinking in terms of the condition of an object. Safety Topic-First Aid. Math Topic- Review, Solving For Unknowns Using Trigonometry and Algebra. Blue Print Topic-Using and Understanding Scale. Problem Solving & Critical Thinking Topic-Analytical Observation Based on Measurement. A discussion on the use of first aid in construction will occur. The previous assignment will be reviewed. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. The subject of scale on drawings will be discussed. Analytical observation based on the measurement of an object will be discussed along with an explanation of tolerance.

HW: An assignment will be given. Read appropriate handout material.

SPO: The student will - Be aware of the symptoms of heat exhaustion and hypothermia. Be able to distinguish between isometric and orthographic projections used in blue prints. Be able to define problem solving and critical thinking in terms of the condition of an object. Safety Topic-Company Policy. Math Topic- Review, Solving For Unknowns Using Trigonometry and Algebra. Problem Solving & Critical Thinking Topic-Analytical Observation Based on Analysis from Questioning.

Deciding on a Course of Action Topic-What should I do About the Problem? A discussion will be held regarding company safety policies.

The previous assignment will be reviewed. A quiz will be given on the material previously presented. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. A discussion on problem solving and critical thinking by using a questioning approach will be held. Once a problem has been analyzed and a solution or multiple solutions suggested, the course of action necessary for the employee to take will be discussed. HW: An assignment will be given.

SPO: The student will - Discuss company safety policies. Reinforce his/her ability to apply solutions for unknowns using trigonometry and algebra. Be able to define problem solving and critical thinking in terms of analytical questioning. Be able to decide on a course of action to solve a problem. Safety Topic-Safety Meetings. Math Topic-

Review, Solving For Unknowns Using Trigonometry and Algebra. Soft

Skills Topic-Preparation for the Workplace. A discussion will be held regarding the benefits and necessity of holding safety meetings. The previous assignment will be reviewed. A review of the quiz taken the previous session will be provided. Again, a review exercise in solving for mathematical unknowns using trigonometric and algebraic solutions will be presented. A review of all math topics will be included. A discussion of the "soft skills" required to gain/maintain employment will occur.

HW: The assignment given will be to review all assignments and quizzes from previous sessions.

SPO: The student will - Describe the benefits of safety meetings.

Review the information presented in this course.

2.0 Hours

METHODS OF INSTRUCTION:

Lecture, demonstration, guided practice.

METHODS OF EVALUATION:

The types of writing assignments required:

Reading reports

The problem-solving assignments required:

Homework problems

Field work

Quizzes

Exams

The types of skill demonstrations required:

Field work

Performance exams

The types of objective examinations used in the course:

Multiple choice

True/false

Matching items

Completion

Other category:

None

The basis for assigning students grades in the course:

Writing assignments: 10% - 20%

Problem-solving demonstrations: 10% - 30%

Skill demonstrations: 30% - 80%
Objective examinations: 10% - 20%
Other methods of evaluation: 0% - 0%

REPRESENTATIVE TEXTBOOKS:
Required:
Richard A. Young and Thomas J. Glover, "Handyman in Your Pocket", Sequoia Publishing, 2001

Reading level of text: 11 grade Verified by: dvt

or other appropriate college level text.

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
Transferable CSU, effective 200770
UC TRANSFER:
Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: I
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department: IT
CSU Crosswalk Course Number: 115
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000057178
Sports/Physical Education Course: N
Taxonomy of Program: 095600