GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: CMGT 103 DIVISION: 50 ALSO LISTED AS:

TERM EFFECTIVE: Fall 2020 CURRICULUM APPROVAL DATE: 10/8/2019

SHORT TITLE: CON MATERIAL/SYSTEM

LONG TITLE: Construction Materials and Systems

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
		Total Learning Hrs:	162	

COURSE DESCRIPTION:

This course explores the various materials, systems, and processes found in the construction industry and how these materials and systems interact together to produce a complete design.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES
L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:
02 - Lecture and/or discussion
05 - Hybrid
72 - Dist. Ed Internet Delayed

STUDENT LEARNING OUTCOMES:

1. Analyze the methods used within the industry and the associated materials, equipment, and techniques used to construct projects.

Measure of assessment: Homework Assignments, Quizzes, Exams, Class Activities/Projects

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2020

2. Explain how and where to use all major systems and materials used in typical construction projects.

Measure of assessment: Homework Assignments, Quizzes, Exams, Reports/Logs

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2020

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

Curriculum Approval Date: 10/8/2019

6 Hours

Content: Introduction. Overview of Building Structures and Systems. Building Site and Site Work.

Student Performance Objectives: Identify the different phases and activities that make up the building design and construction planning process. Describe the role of sustainable construction in the industry and how to integrate sustainability into construction projects. Describe when and where to use specific techniques/systems. Define the types of site surveys that are required to document site conditions. Recall the CSI classifications used in site construction.

6 Hours

Content: Soils. Foundations.

Student Performance Objectives: Define the processes and procedures for ensuring and managing construction quality. Define the major types of soils and their classification systems. Explain how factors related to soils can affect construction activities. List the factors to be considered when designing foundations. Discuss the features and construction of common types of foundations. Describe when and where to use specific techniques/systems.

9 Hours

Content: Concrete. Cast-In-Place Concrete. Midterm.

Student Performance Objectives: Define the processes and procedures for ensuring and managing construction quality. Recall the CSI classifications used in concrete. List the types of aggregate used in concrete and their desirable characteristics. Discuss how commonly used concrete tests are conducted and what they reveal about a mix. Explain how cast-in-place concrete walls, beams, and columns are formed, reinforced, and poured.

6 Hours

Content: Pre-Cast Concrete. Concrete Masonry. Masonry Construction.

Student Performance Objectives: Discuss the advantages and disadvantages of specific material. Define the processes and procedures for ensuring and managing construction quality. Describe and identify the major types of pre-cast concrete units. List standard types sizes of pre-cast concrete columns, beams, girders, and wall panels. Recognize the many types of concrete masonry units and be able to choose those suitable for various applications. Recognize the types of brick and concrete masonry wall constructions and the properties associated with them. Recall the CSI classifications used in masonry.

6 Hours

Content: Steel Frame Construction. Midterm.

Student Performance Objectives: Describe the procedure for fabricating and erecting the structural steel frame of a building. Discuss steel framing systems using manufactured components. Recall the CSI classifications used in metals.

9 Hours

Content: Wood, Plastics, and Composites. Products Manufactured from Wood. Wood and Metal Light Frame Construction. Heavy Timber Construction. Finishing the Exterior and Interior of Light Wood Frame Buildings.

Student Performance Objectives: Discuss the advantages and disadvantages of specific material. Apply the structural properties of wood when designing structural members. Use technical information on industrial plywood to make construction product decisions. Develop an understanding of the methods used to construct light-frame buildings. Examine the requirements of the building code as it pertains to heavy timber construction. Recognize the many materials and design possibilities available for finishing the exterior of light wood frame buildings and the installation of light wood frame building interiors. Recall the CSI classifications used in wood and plastics.

10 Hours

Content: Bituminous Materials. Roofing Systems. Doors, Windows, Entrances, and Storefronts. Cladding Systems. Conveying Systems. Fire Suppression Systems. Plumbing Systems. Final Review.

Student Performance Objectives: Discuss the advantages and disadvantages of specific material. Describe the properties of bitumen and how these properties influence decisions as to how bituminous materials might be used. Select the proper roofing system for various applications and explain the proper installation of those roofing systems. Recall the CSI classifications used in doors and windows. Know the types of doors, windows, entrances, and storefronts available and apply this information to the decision-making processes as these units are selected for a building. Identify the forces that must be considered when designing cladding systems. Recognize the codes related to the design and installation of conveying systems. Develop a working knowledge of the various types of fire-suppression systems. Relate plumbing codes to plumbing system design. Recall the CSI classifications used in conveying systems and plumbing.

2 Hours

Final

METHODS OF INSTRUCTION:

lecture, discussion, multi-media presentation

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours: 27

Assignment Description: Complete assigned readings.

Required Outside Hours: 27

Assignment Description: Review and study for quizzes and exams.

Required Outside Hours: 54

Assignment Description: Assignments, such as: notebook, evaluation logs, homework, calculations, product data paper, group project.

METHODS OF EVALUATION:
Objective examinations
Percent of total grade: 50.00 %
40% - 60% Quizzes and Exams

Problem-solving assignments
Percent of total grade: 40.00 %
30% - 50% Homework Assignments, Calculations, Group Assignments

Other methods of evaluation
Percent of total grade: 10.00 %
10% - 20% Notebook, Class Participation

REPRESENTATIVE TEXTBOOKS:
Eva Kultermann, William P. Spence. Construction Materials, Methods and Techniques (4th Edition). Boston, MA: Cengage Learning,2017.

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

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education: N
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department: CMGT
CSU Crosswalk Course Number: 135
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: D
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000608377
Sports/Physical Education Course: N
Taxonomy of Program: 095700