GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: CMGT 102 DIVISION: 50 ALSO LISTED AS:

TERM EFFECTIVE: Spring 2022 CURRICULUM APPROVAL DATE: 05/10/2022

SHORT TITLE: CONSTRUCTION GRAPHICS

LONG TITLE: Construction Graphics

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 develops the graphic communication knowledge and skills needed by the construction management professional. ADVISORY: Fundamental knowledge of MS Operating System, Microsoft Office, and Adobe Acrobat software.

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
71 - Dist. Ed Internet Simultaneous
72 - Dist. Ed Internet Delayed

STUDENT LEARNING OUTCOMES:

By the end of this course, a student should:

1. Recognize the application of virtual construction and modeling in the design and construction industry.
2. Analyze construction documents for planning and management of construction processes.
3. Apply the principles and concepts of 2D construction graphics and 3D modeling.

COURSE OBJECTIVES:

By the end of this course, a student should:

1. Identify key construction graphics and modeling terminology.
2. Demonstrate skills in the basic building and manipulation of 3D computer models.
3. Explain how SketchUp, Revit, and Navisworks software functions and perform various modeling exercises using this software.

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

Curriculum Approval Date: 05/10/2022

12 Hours

Content: Introduction. Visualization and Projections. Shapes, Scaling and Calculations: such as Numbers, Basic Algebra, Fractions and Percentages, Graphs, Geometry, Areas and Volumes. Computer Techniques: Software Demonstration/SketchUp 3D Modeling Software. Drawing and Layout. Vocabulary. Exam.

12 Hours

Content: Construction Documents: such as Bidding Documents, Construction Contractor Agreement, Architectural Drawings, Specifications, Bill of Quantities, Schedules, Work Orders, Subcontractor Applications, Blanket Subcontractor Agreement, Form W-9, Insurance Requirements/Certificate of Insurance, Daily Reports, Safety Reports, Workers Compensation Waiver, State Sales Tax Exempt Certification. Project Plans: Creating Development Plans. Costing: Materials and Labor. Exam.

16 Hours

Content: Introduction, Demonstration and Practice of Revit Software - Building Information Modelling. Exam.

12 Hours

Content: Introduction, Demonstration and Practice of Navisworks Software - Navigating and Manipulating Models.

2 Hours

Final Exam

METHODS OF INSTRUCTION:

lecture, discussion, guided practice, multi-media presentation

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours 24

Assignment Description

Review drawings and video presentations.

Required Outside Hours 24

Assignment Description

Read textbook. Study for exams and quizzes.

Required Outside Hours 60

Assignment Description

Out of class assignments, class exercises, and project. Such as: drawings, calculations, construction documents plans, Revit homework, Navisworks homework, and 3D model exercise.

METHODS OF EVALUATION:

Problem-solving assignments

Evaluation Percent 60

Evaluation Description

50% - 70% Assignments/Class Activities

Skill demonstrations

Evaluation Percent 20

Evaluation Description

10% - 20% Exercises

Objective examinations

Evaluation Percent 20

Evaluation Description

10% - 20% Exams/Quizzes

REPRESENTATIVE TEXTBOOKS:

A Visual Dictionary of Architecture, 2nd Edition, Francis Ching, Wiley Publishing, 2011.

ISBN: 978-0-470-64885-8

Rationale: Most current edition. This classic, bestselling reference is used in the field.

12th Grade Verified by: MS Word

REQUIRED OTHER TEXTBOOKS AND OTHER MATERIALS:

Required course tools:

(1) Laptop Computer

(2) SketchUp 3D modeling software (student version available free online

(3) Autodesk Revit Architecture and Navisworks software (student version available free online

(4) Architectural scale, Engineering scale, straight edge (triangle), graph paper, pencils and eraser.

(5) Autodesk Revit Architecture by Eric Wing, Sybex Publishing

(6) Mastering Autodesk Navisworks by Jason Dodds and Scott Johnson, Sybex Publishing

RECOMMENDED REFERENCE TEXTS:

1. Architectural Graphics, Francis Ching. Wiley Publishing. (any edition) 2. Construction Mathematics, Virdi, Baker & Virdi. Routledge Publishing, 2nd edition.

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 202070

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:
CSU Crosswalk Course Number:
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: CCC000609127
Sports/Physical Education Course: N
Taxonomy of Program: 095700