Course Outline

COURSE: CMGT 105
DIVISION: 50
ALSO LISTED AS:

TERM EFFECTIVE: Fall 2020
CURRICULUM APPROVAL DATE: 11/13/2019

SHORT TITLE: ELEC, MEC, PLUM SYSTEMS

LONG TITLE: Electrical, Mechanical and Plumbing Systems

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>18</td>
<td>Lecture:</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lab:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total:</td>
<td>3</td>
<td>54</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION:

This course provides the student with an introduction to the electrical, mechanical and plumbing systems used in the construction industry. How these systems integrate into the building design and construction process will also be covered.

PREREQUISITES:
Completion of CMGT 104, as UG, with a grade of C or better.

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:
By the end of this course, a student should:
1. Describe the basic principles of mechanical, electrical and plumbing systems.
2. Examine the basic principles of sustainable construction as it relates to mechanical, electrical and plumbing systems.

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Curriculum Approval Date: 11/13/2019
3 Hours
Student Performance Objectives: Explain the fundamental properties of mechanical and electrical systems. Examine sustainable options for MEP scopes.
3 Hours
Content: Plumbing Materials. Sanitary DWV. Storm-water Drainage.
Student Performance Objectives: Recognize plumbing components using correct terminology and nomenclature. Explain the fundamental properties of plumbing systems, such as pressure, velocity, and flow rate.
3 Hours
Content: Sizing Sanitary DWV. Sizing Water Supply Piping.
Student Performance Objectives: Explain the fundamental properties of plumbing systems. Apply simple plumbing distribution, sanitary drainage, and storm water drainage systems.
5 Hours
Content: Plumbing Fixtures and Appliances. Exam.
Student Performance Objectives: Recognize plumbing components using correct terminology and nomenclature. Explain the fundamental properties of plumbing systems, such as pressure, velocity, and flow rate as they relate to plumbing fixtures and appliances.
3 Hours
Content: Comfort and Psychrometric. Sustainable Options for Mechanical Systems.
Student Performance Objectives: Discuss the psychrometric chart. Explain the fundamental properties of mechanical systems. Examine sustainable options for MEP scopes.
3 Hours
Student Performance Objectives: Differentiate a forced-air heating system from a steam or hydronic heating system. Discuss the fundamental properties of HVAC (Heating, Ventilating, and Air Conditioning) systems.
3 Hours
Student Performance Objectives: Explain the fundamental properties of mechanical and electrical systems as they relate to refrigeration, air conditioning, and heating systems. Discuss the fundamental properties of HVAC (Heating, Ventilating, and Air Conditioning) systems. Calculate loads.
3 Hours
Student Performance Objectives: Explain how forced-air systems work. Analyze a forced-air system design. Discuss how to build automation control systems and heat pumps.
5 Hours
Student Performance Objectives: Describe the fundamental properties of hydronic systems. Discuss the do's and don'ts of hydronic system design.
3 Hours
Student Performance Objectives: Recognize HVAC components using correct terminology and nomenclature. Identify various tools used when working with electricity. State proper safety practices when working with electricity. Recall Ohm's Law. Utilize the Power Formula. Discuss the difference between series circuits and parallel circuits.

3 Hours
Student Performance Objectives: Explain the fundamental properties of electrical systems. Apply advantages and disadvantages of different HVAC systems available for building structures. State the difference between an outlet and a receptacle.

3 Hours
Student Performance Objectives: Explain the fundamental units of electricity, such as resistance, current, voltage, power, and energy, and solve problems using them. Apply advantages and disadvantages of different HVAC systems available for building structures.

3 Hours
Student Performance Objectives: Explain the advantages and disadvantages of different types of electrical systems, such as AC versus DC, and single-phase versus three-phase power.

5 Hours
Content: Sustainable Options for Electrical Systems. Exam.
Student Performance Objectives: Examine sustainable options for MEP scopes.

4 Hours
Content: Plumbing and Mechanical Review Session. Sustainability and Electrical Review Session.
Student Performance Objectives: Describe the fundamental properties of plumbing, mechanical, and electrical systems. Apply correct terminology and nomenclature for electrical, lighting, and communication components. Examine sustainable options for MEP scopes.

2 Hours
Final

METHODS OF INSTRUCTION:
lecture, discussion, multi-media presentation

OUT OF CLASS ASSIGNMENTS:
Required Outside Hours: 54
Assignment Description: Complete assigned readings and study for quizzes and exams.
Required Outside Hours: 54
Assignment Description: Assignments, such as: skill review, homework, weekly check in assignments.
METHODS OF EVALUATION:
Objective examinations
Percent of total grade: 60.00 %
50% - 70% Quizzes and Exams
Problem-solving assignments
Percent of total grade: 30.00 %
20% - 40% Homework Weekly Check In Assignments, Systems Skill Review
Other methods of evaluation
Percent of total grade: 10.00 %
0% - 20% Class Participation

REPRESENTATIVE TEXTBOOKS:
This is the most current edition (3rd) of this book and is the one currently used by CSU, Chico. When the next edition is published it will be adopted for the course.
ISBN: 9780826993632
Reading Level of Text, Grade: 12 Verified by: MS Word
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: CMGT
CSU Crosswalk Course Number: 235
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code:
In-Service: N
Occupational Course: D
Maximum Hours:
Minimum Hours:
Course Control Number:
Sports/Physical Education Course: N
Taxonomy of Program: 095700