

CM Program Objectives and Outcomes

1. The student will communicate effectively.
 - 1.1. ... make effective oral presentations.
 - 1.2. ... write business letters and reports using professional English.
2. The student will be aware of important ethical issues in the construction industry.
 - 2.1. ...explain why bid shopping is unethical.
 - 2.2. ...identify unethical change order games.
 - 2.3. ...identify unethical payment games.
 - 2.4. ...identify unethical claims games.
 - 2.5. ...identify characteristics of unethical contractors.
3. The student will know basic scientific theory and analytic procedures.
 - 3.1. ...analyze and solve basic problems in physics.
 - 3.2. ...analyze and solve basic problems in chemistry (optional).
 - 3.3. ...analyze heat flow through wall assemblies.
 - 3.4. ...make recommendations to control moisture in buildings.
4. The student will have mathematical skills.
 - 4.1. ...solve word problems using algebra.
 - 4.2. ...create and use descriptive statistics.
 - 4.3. ...use statistical software.
5. The student will be familiar with basic business and management concepts.
 - 5.1. ...identify basic economic practices relevant to construction.
 - 5.2. ...identify basic accounting practices relevant to construction.
 - 5.3. ...identify basic management concepts.
 - 5.4. ...identify important laws related to construction and their implications.
6. The student will be familiar with design theory.
 - 6.1. ...analyze static forces in structures.
 - 6.2. ...analyze electrical forces including voltage, current, resistance, and power.
 - 6.3. ...identify correct sizes and types of electrical conductors.
 - 6.4. ...identify correct sizes and types of electrical conduit.
 - 6.5. ...cite the NEC for proper installations of electrical systems.
 - 6.6. ...identify proper electrical service entrance and distribution systems.
 - 6.7. ...apply soil mechanics to excavations and foundations.
7. The student will be familiar with the analysis and design of building systems.
 - 7.1. ...apply the height and area tables of the building code.
 - 7.2. ...model the structural frame of a commercial building.
 - 7.3. ...select and size an appropriate HVAC system.
 - 7.4. ...identify the components of and design a legal egress system.
 - 7.5. ...select appropriate fire resistive partitions and components.
 - 7.6. ...select and detail an appropriate cladding system.
 - 7.7. ...determine the LEED rating for a commercial building.

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8. The student will be familiar with construction materials and methods.
 - 8.1. ...define the composition and properties of building materials.
 - 8.2. ...define construction terms and apply units of measurement.
 - 8.3. ...recognize material grade stamps, identify actual and nominal sizes of materials, and define tolerance.
 - 8.4. ...know how to use conformance references established by testing laboratories.
 - 8.5. ...identify potential interface issues between building systems.
 - 8.6. ...identify construction equipment and how the equipment is utilized.
 - 8.7. ...compare costs of different systems and materials.
 - 8.8. ...demonstrate construction techniques and know how to select appropriate tools.
 - 8.9. ...use the IBC and IRC building code manuals and standards.
9. The student will be familiar with construction graphics.
 - 9.1. ...use basic sketching and drawing techniques.
 - 9.2. ...define and identify graphic symbols used in working drawings.
 - 9.3. ...identify detail hierarchies, scale, and content.
 - 9.4. ...create notes, callouts, and references on drawings.
 - 9.5. ...create drawings using CAD software applications.
10. The student will have basic surveying skills.
 - 10.1. ...demonstrate layout and alignment control using surveying equipment.
 - 10.2. ...use surveying skills to organize and develop a site.
11. The student will be familiar with estimating procedures.
 - 11.1. ...define different types of estimates and how they are used.
 - 11.2. ...create quantity takeoffs for residential and commercial projects.
 - 11.3. ...identify and apply labor and equipment productivity factors.
 - 11.4. ...create pricing databases.
 - 11.5. ...identify and estimate direct and indirect job costs.
 - 11.6. ...prepare and submit construction bids.
 - 11.7. ...use estimating software applications.
12. The student will be familiar with planning and scheduling.
 - 12.1. ...identify the parameters affecting project planning.
 - 12.2. ...create a bar chart schedule.
 - 12.3. ...create a CPM schedule.
 - 12.4. ...identify strategies for allocating and managing resources.
 - 12.5. ...describe how changes affect cost and schedule.
 - 12.6. ...use scheduling software applications.

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13. The student will be familiar with construction accounting and finance.
 - 13.1. ...define cost accounting and identify industry formats.
 - 13.2. ...distinguish between fixed and variable costs.
 - 13.3. ...identify bidding and procurement practices.
 - 13.4. ...identify record and report practices.
 - 13.5. ...explain capital equipment depreciation and how this is used by construction companies.
 - 13.6. ...estimate project cash flow.
 - 13.7. ...identify payment processes and how they affect the time value of money.
14. The student will know some of the basics of construction law.
 - 14.1. ...explain various project delivery systems and explain how they affect the roles and responsibilities of parties.
 - 14.2. ...identify the basic types of rules that apply to construction and how they are used.
 - 14.3. ...explain professional licensure and identify who must be licensed.
 - 14.4. ...explain how lien laws may be used to protect contractor's rights.
 - 14.5. ...identify important labor laws and their implications for construction.
 - 14.6. ...identify various administrative procedures that may be used to avoid disputes.
15. The student will be familiar with basic safety requirements.
 - 15.1. ...identify unsafe practices and recommend safe practices.
 - 15.2. ...identify mandatory safety procedures, training, and record maintenance.
 - 15.3. ...identify safety compliance, inspection procedures, and possible penalties.
16. The student will be familiar with the basic procedures of project management.
 - 16.1. ...describe the roles and responsibilities of construction management personnel.
 - 16.2. ...describe procedures for maintaining good labor relations.
 - 16.3. ...identify and describe administrative systems and procedures.
 - 16.4. ...identify and interpret documentation at job site and office.
 - 16.5. ...summarize quality control philosophies and identify common practices.
 - 16.6. ...use project management software applications.