

## Washtenaw Community College Comprehensive Report

### CMG 180 Application of Construction Materials Effective Term: Fall 2025

#### Course Cover

**College:** Advanced Technologies and Public Service Careers

**Division:** Advanced Technologies and Public Service Careers

**Department:** Heating, Ventilation and A/C

**Discipline:** Construction Management

**Course Number:** 180

**Org Number:** 14750

**Full Course Title:** Application of Construction Materials

**Transcript Title:** Application of Construct Mater

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Three Year Review / Assessment Report

**Change Information:**

**Consultation with all departments affected by this course is required.**

**Course description**

**Pre-requisite, co-requisite, or enrollment restrictions**

**Outcomes/Assessment**

**Objectives/Evaluation**

**Rationale:** Update for three year

**Proposed Start Semester:** Fall 2024

**Course Description:** In this course, students will gain an overview of the basic properties and uses of construction materials. Students will learn to analyze basic materials through lecture and lab components, as well as spend hands-on time with the materials covered. Students will explore how materials work with one another, and how to test and inspect materials according to industry guidelines. Materials to be studied include: soils, concrete, masonry, steel, wood, and plastic.

#### Course Credit Hours

**Variable hours:** No

**Credits:** 3

**Lecture Hours: Instructor: 30 Student: 30**

**Lab: Instructor: 15 Student: 15**

**Clinical: Instructor: 0 Student: 0**

**Total Contact Hours: Instructor: 45 Student: 45**

**Repeatable for Credit:** NO

**Grading Methods:** Letter Grades

Audit

**Are lectures, labs, or clinicals offered as separate sections?:** NO (same sections)

#### College-Level Reading and Writing

College-level Reading & Writing

#### College-Level Math

No Level Required

## **Requisites**

### **Prerequisite**

CMG 150 minimum grade "C"

or

### **Prerequisite**

CON 108 minimum grade "C"

## **General Education**

## **Request Course Transfer**

### **Proposed For:**

Eastern Michigan University

Ferris State University

Lawrence Tech

Michigan State University

Oakland University

University of Michigan

Wayne State University

Central Michigan University

## **Student Learning Outcomes**

1. Identify different material types using industry-standard techniques.

### **Assessment 1**

Assessment Tool: Outcome-related demonstration

Assessment Date: Fall 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will score 75% or higher.

Who will score and analyze the data: Departmental faculty

2. Demonstrate proper mixing of various construction-related materials.

### **Assessment 1**

Assessment Tool: Outcome-related demonstration

Assessment Date: Fall 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will score 75% or higher.

Who will score and analyze the data: Departmental faculty

3. Explain and demonstrate best practices for materials testing and inspection.

### **Assessment 1**

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 75% of students will score 75% or higher.

Who will score and analyze the data: Departmental faculty

**Assessment 2**

Assessment Tool: Outcome-related lab exercise

Assessment Date: Fall 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will score 75% or higher.

Who will score and analyze the data: Departmental faculty

**Course Objectives**

1. Discuss the pros and cons of building in each soil type.
2. Differentiate between when and how to apply masonry and when and how to pour concrete.
3. Explain how steel is made and why it is used as support and framing.
4. Discuss the differences between the types of wood used for support and framing.
5. Differentiate between materials used for building and materials used for finishing.
6. Discuss why each type of material is used and in what sector of construction.
7. Explain how mortar is processed and used.
8. Calculate material thermal expansion
9. Identify the typical "troubleshooting" phases of structural materials, including manufacturing, installations, and life cycle.

**New Resources for Course****Course Textbooks/Resources**

Textbooks

Theodore W Marotta. *Basic Construction Materials*, 8 ed. Pearson, 2011, ISBN: 10:0-13-51296.

Manuals

Periodicals

Software

**Equipment/Facilities**

Level III classroom

Other: Lab setting for construction materials

<b><u>Reviewer</u></b>	<b><u>Action</u></b>	<b><u>Date</u></b>
<b>Faculty Preparer:</b> <i>Cristy Lindemann</i>	<i>Faculty Preparer</i>	<i>Jun 29, 2024</i>
<b>Department Chair/Area Director:</b> <i>Brian Martindale</i>	<i>Recommend Approval</i>	<i>Jul 02, 2024</i>
<b>Dean:</b> <i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>Jul 12, 2024</i>
<b>Curriculum Committee Chair:</b> <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Mar 05, 2025</i>
<b>Assessment Committee Chair:</b> <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Mar 11, 2025</i>
<b>Vice President for Instruction:</b> <i>Brandon Tucker</i>	<i>Approve</i>	<i>Mar 13, 2025</i>

MASTER SYLLABUS

Course Discipline Code & No: CMG 180 Title: Application of Construction Materials Effective Term F 08  
 Division Code: VCT Department Code: CIND Org #: 14725  
 Don't publish:  College Catalog  Time Schedule  Web Page

Reason for Submission. Check all that apply.  
 New course approval  Reactivation of inactive course  
 Three-year syllabus review/Assessment report  Inactivation (Submit this page only.)  
 Course change

Change information: Note all changes that are being made. Form applies only to changes noted.  
 Consultation with all departments affected by this course is required.  Total Contact Hours (total contact hours were: \_\_\_\_\_)  
 Course discipline code & number (was \_\_\_\_\_)\*  Distribution of contact hours (contact hours were: \_\_\_\_\_)  
 \*Must submit inactivation form for previous course.  lecture: \_\_\_\_\_ lab \_\_\_\_\_ clinical \_\_\_\_\_ other \_\_\_\_\_  
 Course title (was \_\_\_\_\_)  Pre-requisite, co-requisite, or enrollment restrictions  
 Course description  Change in Grading Method  
 Course objectives (minor changes)  Outcomes/Assessment  
 Credit hours (credits were: \_\_\_\_\_)  Objectives/Evaluation  
 Other \_\_\_\_\_

Rationale for course or course change. Attach course assessment report for existing courses that are being changed.  
 This course would replace ARC 117 in the Construction Management (CMG) curriculum. The CMG program is currently applying for accreditation and in order to ensure that any and all changes meet the accreditation team's standards, the CMG department must be able to adapt. Additionally, unlike ARC 117, CMG 180 will have a lab component that will give the CMG students a greater understanding of what to expect when he or she enters the work force.

Approvals Department and divisional signatures indicate that all departments affected by the course have been consulted.

Department Review by Chairperson  New resources needed  All relevant departments consulted  
 Print: Cristy Lindemann Faculty/Preparer Signature [Signature] Date: 09/12/07  
 Print: Cristy Lindemann Department Chair Signature [Signature] Date: 09/12/07

Division Review by Dean  
 Request for conditional approval  
 Recommendation  Yes  No [Signature] Date: 9/12/07  
 Dean's Administrator's Signature

Curriculum Committee Review  
 Recommendation \_\_\_\_\_  
 Tabled  Yes  No \_\_\_\_\_ Date \_\_\_\_\_  
 Curriculum Committee Chair's Signature

Vice President for Instruction Approval  
[Signature] Date: 10/2/07  
 Vice President's Signature

Approval  Yes  No  Conditional

Do not write in shaded area.  
 Entered in: Banner 10/4 C&A Database 10/4 Log File 9/12/07 Basic skills spreadsheet updated  Contact fee   
 Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

MASTER SYLLABUS

Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to [sjohn@wccnet.edu](mailto:sjohn@wccnet.edu) for posting on the website

**\*Complete ALL sections which apply to the course, even if changes are not being made.**

Course: <b>CMG 180</b>	Course title: <u>Application of Construction Materials</u>
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<b>Credit hours:</b> <u>3</u> If variable credit, give range: _____ to _____ credits	<b>Contact hours per semester:</b> <table style="width:100%"> <tr> <td></td> <td style="text-align:center"><u>Student</u></td> <td style="text-align:center"><u>Instructor</u></td> </tr> <tr> <td>Lecture:</td> <td style="text-align:center"><u>30</u></td> <td style="text-align:center"><u>30</u></td> </tr> <tr> <td>Lab:</td> <td style="text-align:center"><u>15</u></td> <td style="text-align:center"><u>15</u></td> </tr> <tr> <td>Clinical:</td> <td style="text-align:center">_____</td> <td style="text-align:center">_____</td> </tr> <tr> <td>Practicum:</td> <td style="text-align:center">_____</td> <td style="text-align:center">_____</td> </tr> <tr> <td>Other:</td> <td style="text-align:center">_____</td> <td style="text-align:center">_____</td> </tr> <tr> <td><b>Totals:</b></td> <td style="text-align:center"><u>45</u></td> <td style="text-align:center"><u>45</u></td> </tr> </table>		<u>Student</u>	<u>Instructor</u>	Lecture:	<u>30</u>	<u>30</u>	Lab:	<u>15</u>	<u>15</u>	Clinical:	_____	_____	Practicum:	_____	_____	Other:	_____	_____	<b>Totals:</b>	<u>45</u>	<u>45</u>	<b>Are lectures, labs, or clinicals offered as separate sections?</b> <input type="checkbox"/> Yes - lectures, labs, or clinicals are offered in separate sections <input checked="" type="checkbox"/> No - lectures, labs, or clinicals are offered in the same section	<b>Grading options:</b> <input type="checkbox"/> P/NP (limited to clinical & practica) <input type="checkbox"/> S/U (for courses numbered below 100) <input checked="" type="checkbox"/> Letter grades
	<u>Student</u>	<u>Instructor</u>																						
Lecture:	<u>30</u>	<u>30</u>																						
Lab:	<u>15</u>	<u>15</u>																						
Clinical:	_____	_____																						
Practicum:	_____	_____																						
Other:	_____	_____																						
<b>Totals:</b>	<u>45</u>	<u>45</u>																						

**Prerequisites.** Select one:

College-level Reading & Writing

Reduced Reading/Writing Scores

No Basic Skills Prerequisite

(Add information at Level I prerequisite)

(College-level Reading and Writing is not required.)

**In addition to Basic Skills in Reading/Writing:**

Level I (enforced in Banner)

Course	Grade	Test	Min. Score	Concurrent Enrollment <small>(Can be taken together)</small>	Corequisites <small>(Must be enrolled in this class also during the same semester)</small>
<input type="checkbox"/> and <input type="checkbox"/> or <u>CMG 150</u>	<u>C</u>	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____	<input type="checkbox"/>	_____

Level II (enforced by instructor on first day of class)

Course	Grade	Test	Min. Score
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____

**Enrollment restrictions** (In addition to prerequisites, if applicable.)

and  or Consent required

and  or Admission to program required

and  or Other (please specify):

Program: \_\_\_\_\_

**Please send syllabus for transfer evaluation to:**

Conditionally approved courses are not sent for evaluation.  
 Insert course number and title you wish the course to transfer as.

E.M.U. as CNST 202 Construction Materials

\_\_\_\_\_ as \_\_\_\_\_

U of M as \_\_\_\_\_

\_\_\_\_\_ as \_\_\_\_\_

Ferris as \_\_\_\_\_

\_\_\_\_\_ as \_\_\_\_\_

MASTER SYLLABUS

<p><b>Course</b> CMG 1 80</p>	<p><b>Course title</b> <u>Application of Construction Materials</u></p>	
<p><b>Course description</b> State the purpose and content of the course. Please limit to <u>500</u> characters.</p>	<p>The purpose of this course is to give the students an overview of the basic properties and use of construction materials. Students will be required to attend lecture and lab to analyze basic materials that include: soils, concrete, masonry, steel, wood, plastic, finishes and thermal.</p>	
<p><b>Course outcomes</b> List skills and knowledge students will have after taking the course.</p> <p><b>Assessment method</b> Indicate how student achievement in each outcome will be assessed to determine student achievement for purposes of course improvement.</p>	<p><b>Outcomes</b> (applicable in all sections)</p> <ol style="list-style-type: none"> <li>1) Students must analyze and differentiate the properties of construction materials.</li> <li>2) Explain how each material works in conjunction with the other construction materials</li> </ol>	<p><b>Assessment</b> Methods for determining course effectiveness</p> <hr/> <p>Comprehensive written and lab departmental exam.</p> <hr/> <p>Comprehensive written and lab departmental exam.</p>
<p><b>Course Objectives</b> Indicate the objectives that support the course outcomes given above.</p> <p><b>Course Evaluations</b> Indicate how instructors will determine the degree to which each objective is met for each student.</p>	<p><b>Objectives</b> (applicable in all sections)</p> <ol style="list-style-type: none"> <li>1) Differentiate between soil type. Comprehend pros and cons of building in each soil type.</li> <li>2) Differentiate characteristics of Masonry and concrete. Comprehend when and how to apply masonry and when and how to pour concrete.</li> <li>3) Comprehend how steel is made and why it is used as support and framing.</li> <li>4) Recognize different woods used for building. Elaborate how each wood is used for support and framing.</li> <li>5) Subdivide materials into construction and finish material. Explain how some materials are used for both building and finishing and why some are used for only one aspect of construction.</li> <li>6) Categorize different thermal insulations used in construction. Examine why each type is used and in what sector of construction.</li> </ol>	<p><b>Evaluation</b> Methods for determining level of student performance of objectives</p> <hr/> <p>Testing- fill in the blank, short answer, Lab tests.</p> <hr/> <p>Testing- fill in the blank, short answer, Lab tests</p> <hr/> <p>Testing- fill in the blank, short answer, Lab tests</p> <hr/> <p>Testing- fill in the blank, short answer, Lab tests</p> <hr/> <p>Testing- fill in the blank, short answer, Lab tests</p> <hr/> <p>Testing- fill in the blank, short answer, Lab tests</p>

MASTER SYLLABUS

**Student Materials:**

<b>List examples of types</b> Texts Supplemental reading Supplies Uniforms Equipment Tools Software	Text : Basic Construction Materials 7 <sup>th</sup> edition by Theodore W. Marotta Tools TBD	<b>Estimated costs</b> \$ 150
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**Equipment/Facilities:** Check all that apply. (All classrooms have overhead projectors and permanent screens.)

Check level only if the specified equipment is needed for all sections of a course.

<input type="checkbox"/> Level I classroom Permanent screen & overhead projector	<input checked="" type="checkbox"/> Off-Campus Sites
<input type="checkbox"/> Level II classroom Level I equipment plus TV/VCR	<input type="checkbox"/> Testing Center
<input checked="" type="checkbox"/> Level III classroom Level II equipment plus data projector, computer, faculty workstation	<input type="checkbox"/> Computer workstations/lab
	<input type="checkbox"/> ITV
	<input type="checkbox"/> TV/VCR
	<input type="checkbox"/> Data projector/computer
	<input type="checkbox"/> Other _____

**Assessment plan:**

Learning outcomes to be assessed (list from Page 3)	Assessment tool	When assessment will take place	Course section(s)/other population	Number students to be assessed
1) 1) Students must analyze and differentiate the properties of construction materials.	Comprehensive written and lab departmental exam.	Fall 2010 and every three years thereafter.	All	All
2) Explain how each material works in conjunction with the other construction materials	Comprehensive written and lab departmental exam.	Fall 2010 and every three years thereafter.	All	All

**Scoring and analysis of assessment:**

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric.  
Departmentally developed rubric and written exam answer sheet.
2. Indicate the standard of success to be used for this assessment.  
80% of the students will earn an average of 80% or higher on the departmental and lab exam.
3. Indicate who will score and analyze the data.  
Department chair and instructors will blind-score the data.
4. Explain the process for using assessment data to improve the course.

**MASTER SYLLABUS**

Based upon the assessment scoring results, information will be used to determine if students are able to complete the outlined tasks with a score of 80% or higher on departmental exam. If more than 20% of the students fall under this score, faculty will make adjustments to the learning and application components to necessitate improvement.