

# Washtenaw Community College Comprehensive Report

## ELE 208 Battery Manufacturing Effective Term: Fall 2025

### Course Cover

**College:** Advanced Technologies and Public Service Careers  
**Division:** Advanced Technologies and Public Service Careers  
**Department:** Advanced Manufacturing  
**Discipline:** Electricity/Electronics  
**Course Number:** 208  
**Org Number:** 14430  
**Full Course Title:** Battery Manufacturing  
**Transcript Title:** Battery Manufacturing  
**Is Consultation with other department(s) required:** No  
**Publish in the Following:** College Catalog , Time Schedule , Web Page  
**Reason for Submission:** New Course  
**Change Information:**  
**Rationale:** New course  
**Proposed Start Semester:** Fall 2025

**Course Description:** In this course, students will learn the fundamentals of battery manufacturing by exploring concepts related to raw materials, chemistry, fabrication methods, and quality control. Students will also explore sustainability and other future trends in the battery manufacturing industry. This course is designed for students interested in pursuing careers in energy storage, electric vehicles, or renewable energy technology fields.

### Course Credit Hours

**Variable hours:** No  
**Credits:** 2  
**Lecture Hours: Instructor: 30 Student: 30**  
**Lab: Instructor: 0 Student: 0**  
**Clinical: Instructor: 0 Student: 0**

**Total Contact Hours: Instructor: 30 Student: 30**  
**Repeatable for Credit:** NO  
**Grading Methods:** Letter Grades  
**Are lectures, labs, or clinicals offered as separate sections?:** NO (same sections)

### College-Level Reading and Writing

College-level Reading & Writing

### College-Level Math

### Requisites

**Prerequisite**  
ELE 111 minimum grade "C"

### General Education

### Request Course Transfer

**Proposed For:****Student Learning Outcomes**

1. Explain how batteries function, including electrochemistry, materials, and design considerations.

**Assessment 1**

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2027

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 and rubric

Standard of success to be used for this assessment: 70% of students will score 70% or higher

Who will score and analyze the data: Departmental faculty

2. Describe the battery manufacturing process.

**Assessment 1**

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2027

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 and rubric

Standard of success to be used for this assessment: 70% of students will score 70% or higher

Who will score and analyze the data: Departmental faculty

3. Explain the purpose and testing methods of quality control.

**Assessment 1**

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2027

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 and rubric

Standard of success to be used for this assessment: 70% of students will score 70% or higher

Who will score and analyze the data: Departmental faculty

4. Analyze current innovations and future trends in battery manufacturing.

**Assessment 1**

Assessment Tool: Outcome-related presentation

Assessment Date: Fall 2027

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Rubric

Standard of success to be used for this assessment: 70% of students will score 70% or higher

Who will score and analyze the data: Departmental faculty

**Course Objectives**

1. Explain the fundamentals of electrochemistry.
2. Identify materials used in batteries and explain their advantages, disadvantages, and their different applications.
3. Describe the types of battery chemistries.
4. Describe common battery cell architecture.
5. Explain the considerations in battery pack design.

6. Explain the importance of thermal management in battery design.
7. Describe how materials are prepared for use in manufacturing.
8. Describe the parts of a battery cell assembly.
9. Explain how automation and digitalization is used in modern battery manufacturing.
10. Describe battery performance testing.
11. Describe safety and durability testing.
12. Identify standards and certifications used in the battery industry.
13. Identify next-generation battery technologies.
14. Describe sustainable manufacturing practices.
15. Discuss global trends in the battery industry.

## New Resources for Course

### Course Textbooks/Resources

Textbooks  
Manuals  
Periodicals  
Software

### Equipment/Facilities

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
<b>Faculty Preparer:</b> <i>Zachary Goldenberg</i>	<i>Faculty Preparer</i>	<i>Oct 28, 2024</i>
<b>Department Chair/Area Director:</b> <i>Allan Coleman</i>	<i>Recommend Approval</i>	<i>Oct 29, 2024</i>
<b>Dean:</b> <i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>Oct 30, 2024</i>
<b>Curriculum Committee Chair:</b> <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Feb 11, 2025</i>
<b>Assessment Committee Chair:</b> <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Feb 13, 2025</i>
<b>Vice President for Instruction:</b> <i>Brandon Tucker</i>	<i>Approve</i>	<i>Feb 14, 2025</i>