

# ELE 208: BATTERY MANUFACTURING

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## Completed Workflow

1. AMTD Chair (acoleman10@wccnet.edu)
2. AT Dean (krue@wccnet.edu,esamulski@wccnet.edu)
3. C&A Assistant (aabooker@wccnet.edu)
4. Curricular Systems Coordinator (cacevans@wccnet.edu)
5. C&A Coordinator (sabird@wccnet.edu)
6. C&A Director (bjlinford@wccnet.edu)
7. Before Comm review (aabooker@wccnet.edu)
8. Comm Review step (sabird@wccnet.edu)
9. After Comm review (sabird@wccnet.edu,bjlinford@wccnet.edu)
10. Curriculum Committee Chair (rvanwagnen@wccnet.edu)
11. Assessment Committee Chair (jhale15@wccnet.edu)
12. Before VPI (sabird@wccnet.edu)
13. Vice President for Instruction (hbhirth@wccnet.edu; brtucker@wccnet.edu)
14. Banner (cacevans@wccnet.edu)

## Approval Path

1. 2026-01-21T22:15:02Z  
Allan Coleman (acoleman10): Approved for AMTD Chair
2. 2026-01-21T22:25:34Z  
Eva Samulski (esamulski): Approved for AT Dean
3. 2026-02-17T18:47:09Z  
Ben Linford (bjlinford): Approved for C&A Assistant
4. 2026-02-23T14:18:01Z  
Carol Evans (cacevans): Approved for Curricular Systems Coordinator
5. 2026-03-04T17:02:18Z  
Ben Linford (bjlinford): Approved for C&A Coordinator
6. 2026-03-04T17:04:02Z  
Ben Linford (bjlinford): Approved for C&A Director
7. 2026-03-06T20:12:00Z  
Ben Linford (bjlinford): Approved for Before Comm review
8. 2026-03-13T20:32:11Z  
Ben Linford (bjlinford): Approved for Comm Review step
9. 2026-03-17T14:20:04Z  
Ben Linford (bjlinford): Approved for After Comm review
10. 2026-03-19T17:25:42Z  
Randy Van Wagnen (rvanwagnen): Approved for Curriculum Committee Chair
11. 2026-03-19T17:36:49Z  
Jessica Hale (jhale15): Approved for Assessment Committee Chair
12. 2026-03-20T15:31:48Z  
Sera Bird (sabird): Approved for Before VPI
13. 2026-03-20T16:21:53Z  
Brandon Tucker (brtucker): Approved for Vice President for Instruction
14. 2026-03-27T07:03:32Z  
Approved for Banner

## History

1. Mar 27, 2026 by Allan Coleman (acoleman10)

### Viewing: ELE 208 : Battery Manufacturing

Changes proposed by: Allan Coleman (acoleman10)

#### Effective Term

Fall 2026

#### Rationale and proposal summary

More time needed to cover content - was intended to be 45 hours - we are not sure when it bumped down to 30 along the way. (Outcomes, objectives, math levels are not loaded but there are no changes.)

## Course Cover

### Full Course Title

Battery Manufacturing

### Transcript Title

Battery Manufacturing

### Subject Code

ELE - Electricity/Electronics

### Course Number

208

### Department

Advanced Manufacturing (AMTD)

### Banner Division

ATP

### Division/College

Adv Tech/Public Serv Careers (AT)

### Org Code

14430

### 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.

### Planned Delivery Format

Face to Face

### Has this course been approved for virtual or blended virtual?

No

### Has this course been approved for online or online blended?

No

### Grading method

Standard Letter, Audit, Academic Forgiveness

### CIP Code

159999 - Engineering/Engineering-Related Technologies/Technicians, Other.

### Occupational Indicator

Yes

### ACS Code

130

## Credit hours, contact hours, repeatability

### Repeatable for additional credit

No

### Course credits

2

### Lecture contact hours

15

**Lab contact hours**

30

**Total Contact Hours**

45

**Expected Total Contact Hours**

45

**Prerequisites and prerequisite skill levels****College-Level Math**

No Level Required

**College-Level Reading and Writing**

College-level Reading and Writing

**Approved Level I Prerequisite:**

Academic Reading and Writing Levels of 6; ELE 111 minimum grade "C"

**Is concurrent enrollment an option for this prerequisite?**

No

**Course Assessment Plan****Learning Outcome****Outcome**

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

**Assessment #1****Assessment Tool**

Outcome-related exam questions

**Anticipated Next Assessment Year**

2027

**Anticipated Next Assessment Term**

Fall

**Assessment Cycle**

Every Three Years

**Anticipated assessment population**

All students from all sections

**How the assessment will be scored**

Answer key and rubric

**Who does the scoring?**

Departmental faculty

**Standard of success**

70% of students will score 70% or higher.

**Assessment #2****Learning Outcome****Outcome**

Describe the battery manufacturing process.

## **Assessment #1**

### **Assessment Tool**

Outcome-related exam questions

### **Anticipated Next Assessment Year**

2027

### **Anticipated Next Assessment Term**

Fall

### **Assessment Cycle**

Every Three Years

### **Anticipated assessment population**

All students from all sections

### **How the assessment will be scored**

Answer key and rubric

### **Who does the scoring?**

Departmental faculty

### **Standard of success**

70% of students will score 70% or higher.

## **Assessment #2**

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## **Learning Outcome**

### **Outcome**

Explain the purpose and testing methods of quality control.

## **Assessment #1**

### **Assessment Tool**

Outcome-related exam questions

### **Anticipated Next Assessment Year**

2027

### **Anticipated Next Assessment Term**

Fall

### **Assessment Cycle**

Every Three Years

### **Anticipated assessment population**

All students from all sections

### **How the assessment will be scored**

Answer key and rubric

### **Who does the scoring?**

Departmental faculty

### **Standard of success**

70% of students will score 70% or higher.

## Assessment #2

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### Learning Outcome

#### Outcome

Analyze current innovations and future trends in battery manufacturing.

### Assessment #1

#### Assessment Tool

Outcome-related exam questions

#### Anticipated Next Assessment Year

2027

#### Anticipated Next Assessment Term

Fall

#### Assessment Cycle

Every Three Years

#### Anticipated assessment population

All students from all sections

#### How the assessment will be scored

Rubric

#### Who does the scoring?

Departmental faculty

#### Standard of success

70% of students will score 70% or higher.

## Assessment #2

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### Course Objectives

	Objective(s)
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.

## **General Education Area(s)**

### **Area 1: Writing**

No

### **Area 2: 2nd Writing or Communication/Speech**

No

### **Area 3: Mathematics**

No

### **Area 4: Natural Science**

No

### **Area 5: Social and Behavioral Science**

No

### **Area 6: Arts and Humanities**

No

### **MTA General Education**

No

## **Review**

### **Is conditional approval requested?**

No

### **Is this course currently conditionally approved, and you are now submitting it for full approval?**

No

### **Reviewer Comments**

**Ben Linford (bjlinford) (2026-02-17T18:47:04Z):** Pulling forward for expedited review -BL

**Ben Linford (bjlinford) (2026-03-04T17:02:14Z):** Pulling forward to get on next C&A Committee agenda -BL 3/4/26

Key: 4840

# 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>