

Capstone - ETMA

Level: 4

Career Cluster: Advanced Manufacturing, Digital Technology, Media Arts

Program: ALL

Pathway(s): ALL

This capstone project must be correlated to the CTE program area. See [Colorado Department of Education Capstone Guidelines](#) for more details.

Course Catalog Description

This capstone course gives students the opportunity to apply the technical, academic, and employability skills developed in their CTE pathway through a culminating project connected to their program area. Students research, plan, create, and present a pathway-aligned product, service, or solution that demonstrates career readiness, problem-solving, and professional communication.

Summary

This capstone course provides students with the opportunity to synthesize and apply the technical, academic, and employability skills developed throughout their Career and Technical Education pathway in a culminating, student-driven project. Students identify a meaningful problem, challenge, question, or opportunity connected to their program area and develop a project that demonstrates advanced knowledge, technical proficiency, creativity, critical thinking, and professional communication. Throughout the course, students engage in structured project planning, research and investigation, design or development, revision, reflection, and public presentation. Emphasis is placed on authentic learning experiences that connect classroom instruction to career interests, industry expectations, and postsecondary readiness. Students are expected to manage timelines, gather and evaluate evidence, apply pathway-specific skills, document their process, and produce a final artifact or outcome that reflects both depth of learning and real-world relevance. The course concludes with a professional presentation and defense in which students communicate their work, justify decisions, and reflect on their growth, demonstrating readiness for continued education, training, or entry into the workforce.

Notes

Compared with the previous capstone course document, this revised version provides a more comprehensive and clearly structured framework for student learning, project development, and assessment. The updated course description and summary better articulate the purpose of the capstone as a culminating, pathway-aligned experience that integrates technical, academic, and employability skills. The Student Learning Outcomes have been expanded into a more intentional sequence that moves from topic selection and proposal development through research, product creation, reflection, and final presentation, with stronger Bloom's Taxonomy verbs to clarify the level of rigor expected at each stage. In addition, the deliverables have been revised to explain more specifically what students should produce and how each artifact demonstrates progress toward the capstone goals.

Student Learning Outcomes

1. Capstone Foundations & Topic Selection

Objective: *Students will analyze capstone options and select a focused project topic.*

- Define the purpose, components, and expectations of a capstone project.
- Analyze career pathway interests and identify relevant real-world problems or opportunities.
- Generate and compare multiple project ideas using pathway relevance, feasibility, and impact.
- Select and justify a focused capstone topic for approval.

Deliverable

Project Idea Proposal that identifies the chosen topic, explains pathway alignment, describes the problem or opportunity being addressed, and provides a rationale for why the project is meaningful and feasible.

2. Project Proposal & Planning

Objective: *Students will develop a project proposal and create a realistic plan for completion.*

- Develop a formal project proposal with a clear purpose, goals, and scope.
- Construct research questions or guiding questions that focus the capstone work.
- Create a project timeline with milestones, checkpoints, and deadlines.
- Identify resources, mentors, and ethical considerations needed to complete the project successfully.
- Monitor progress and revise plans based on feedback, obstacles, and new information.

Deliverable

Formal Project Proposal and Project Plan that outline the project purpose, goals, timeline, research questions, required resources, success criteria, and steps for managing the project from start to completion.

3. Research & Investigation

Objective: *Students will evaluate research and use evidence to guide project decisions.*

- Develop a focused research question or problem statement to guide investigation.
- Gather information from credible academic, technical, or field-based sources.
- Evaluate sources and evidence for accuracy, relevance, and reliability.
- Analyze and synthesize findings to support informed project decisions.
- Document research using appropriate citations, notes, and evidence tracking.

Deliverable

Research Paper, Literature Review, or documented research summary that presents the guiding question, summarizes relevant findings, evaluates source credibility, and explains how the evidence informs the capstone project.

4. Product Development / Implementation

Objective: *Students will create and refine a pathway-aligned product, service, or solution.*

- Create a pathway-aligned product, service, or solution that addresses the approved project goal.
- Apply technical skills, industry practices, and course knowledge during implementation.
- Test, evaluate, and refine the product or process based on evidence and feedback.
- Document progress, design choices, revisions, and problem-solving strategies throughout the process.

Deliverable

Tangible Product or Project Artifact that demonstrates applied technical skills and completion of the capstone goal. This may include a prototype, portfolio, event, media project, performance, campaign, design solution, or business plan, supported by process documentation and evidence of revision.

5. Reflection & Portfolio Development

Objective: *Students will evaluate their growth and curate a professional portfolio.*

- Reflect on personal growth, learning, challenges, and accomplishments throughout the capstone experience.
- Evaluate how the project connects to career interests, pathway skills, and future goals.
- Select and organize artifacts that demonstrate technical skills, research, process, and final outcomes.
- Curate a professional portfolio that communicates readiness for postsecondary education, training, or employment.

Deliverable

Reflection Paper and Professional Portfolio that analyze student growth, connect the project to career and pathway goals, and showcase key artifacts such as research, plans, drafts, revisions, and final products.

6. Presentation & Defense

Objective: *Students will deliver and defend a professional capstone presentation.*

- Design a clear and professional presentation using visuals, media, demonstrations, or supporting evidence.
- Communicate the project purpose, process, findings, product, and impact to an authentic audience.
- Defend project decisions, methods, and outcomes using evidence and reflection.
- Respond to questions and feedback with professionalism, clarity, and confidence.

Deliverable

Final Presentation and Panel Defense or Exhibition that clearly communicate the capstone process and outcomes, demonstrate professionalism, and provide evidence that the student can explain, justify, and reflect on the completed work before an authentic audience.

Major Assessments

- **Project Proposal** 15% - Problem statement, goals, timeline, and plan
- **Research Component** 20% - Written paper or documented research process
- **Product / Artifact** 30% - Tangible, measurable output demonstrating applied learning (Required in most capstone models)
- **Presentation** 20% - Formal presentation to peers, educators, and/or community
- **Reflection** 15% - Personal and academic reflection on learning and growth