



# REQUEST TO ADD/REVISE A COURSE

## Forest Lake Area Schools

Primary Contact: Mike Miron	Department: CTE	
Career Pathway: Transportation Careers/Heavy Equipment	Subject: Trades & Industry	
Grade Level(s)/Building(s): 11-12/FLAHS	Proposed Course Start Date: Fall 2026	
Department Members involved in the development of the course proposal: Industrial Technology, Molly Bonnett, Trade & Industry Advisory Board		
Is your department currently in Instructional Review?		Requesting FastTrack due to an urgent department need or concern?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Yes  <i>* For all departments in the instructional review process, new courses will be developed as part of that work.</i>	<input checked="" type="checkbox"/> No  What approximate year is your department scheduled to begin?	

## PART I (complete with department colleagues)

### COURSE PROPOSAL NARRATIVE

#### A. Course Information

Proposed Course Title: Basic Maintenance of Mobile Equipment	Length of Course: Semester
Course Description as it will appear in the registration guide:  This course focuses directly on the maintenance of mobile equipment through a series of engaging tutorials. A major focus of the course is on maintenance safety, including such topics as Lockout/Tagout (LOTO). Other topics include tools and fasteners, preventative maintenance principles, engines, intake and exhaust, fuel systems, coolant systems, filters and filtration, lubrication systems, hydraulics, electrical systems, tires, and tracks and undercarriages.	

#### B. Background: Describe the process that led to this request.

<b>Gaps/Needs</b>   State the current issues and gaps for why this course is needed. <i>Key considerations: What standards are currently not being met? What skills are not currently being taught? What data support these conclusions? What other relevant needs would this course address? Can an existing course be modified to address the same concerns? Why or why not?</i>  No courses such as this are currently offered in our system. FLAS was presented with this partnership opportunity by the Local 49 because of our robust CTE programming. They believe that we have the infrastructure in place to provide
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this learning opportunity to students. Students have the opportunity to earn college credit and time toward the union apprenticeship program.

**Standards** | Indicate the state, national, or professional standards to which this course could be aligned.

*Courses align with Local 49 Union Standards for apprenticeship.*

**MN CTE Frameworks:**

DMO.02.04 Perform lubrication systems service and repair  
DMO.02.05 Perform cooling systems service and repair  
DMO.02.07 Perform fuel supply systems service  
DMO.03.13 Examine air brakes for service  
DMO.03.14 Investigate hydraulic brakes for service  
DMO.03.15 Analyze drive train for service  
DMO.04.03 Perform filtration/reservoirs (tanks) service  
DMO.05.07 Diagnose air and hydraulic anti-lock braking systems (ABS) and automatic traction control (ATC) systems  
DMO.05.08 Perform wheel bearing service and repair  
DMO.06.01 Assess steering systems - column  
DMO.06.05 Perform wheel alignment diagnosis, adjustment, and repair  
DMO.07.01 Perform general electrical systems service  
DMO.07.02 Perform battery service  
DMO.07.03 Perform starting systems service  
DMO.07.04 Perform charging system service diagnosis and repair  
DMO.07.05 Perform lighting system service diagnosis and repair

**Rationale** | How does this course support the needs outlined above?

*Key Considerations: Describe how this course supports the district strategic plan and/or the Middle School Course of Study redesign and learning statements. Describe the Pathways/Design opportunities this new course would create for your students & department. Include any relevant advances in your content area that support the need for this new course.*

- The International Union of Operating Engineers Local 49 has partnered with Minnesota Virtual Academy and Stride Career Prep to offer the Operating Engineers Pathway.
- Students can take four, one-semester classes to explore careers in equipment operation.
- Each year there are multiple opportunities for students to participate in hands-on training opportunities, including visits to contractors.
- Students will receive credit toward Local 49's Apprenticeship Program based on the number of courses completed and events attended.
- Participants have access to career counseling and guidance into the operating engineer field for apprenticeships.
- Students may enroll in one or more courses. They don't need to commit to all courses and can be enrolled based on skill and educational level. These courses have flexible schedules to allow students to remain enrolled at their brick-and-mortar schools.
- Classes are eligible for high school credit, college credit with North Hennepin Community College and apprenticeship credit with the International Union of Operating Engineers' apprenticeship program.

## ADDITIONAL FACTORS TO CONSIDER

	Consider & Describe Impact
Similar programs in other departments/grade levels	Automotive

Credit and prerequisite considerations	
Anticipated major expenditures (specialized equipment, software, textbooks)	Sponsored
Space Considerations (classroom/lab needs, storage, furniture, etc.)	Potential off-site venue
Schedule Considerations (time of year, block vs. skinny, etc.)	Potentially paired with another course to create a “block” at the end of the day.
Technology Considerations (access to current software & equipment, etc.)	TBD
Other	

## **PART II** (Complete with T&L following building administrative approval)

### **C. Goals and Learning Outcomes**

**Long Term Goals for the Course** | Identify desired results - what will students be able to do independently?

Students will be able to make progress toward becoming a heavy equipment operator.

**Standards** | Indicate the state,national or professional standards to which this course is aligned.

*(Copy and Paste standard and benchmarks)*

*Courses align with Local 49 Union Standards for apprenticeship.*

**MN CTE Frameworks:**

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DMO.03.15 Analyze drive train for service

DMO.04.03 Perform filtration/reservoirs (tanks) service

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DMO.05.08 Perform wheel bearing service and repair

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DMO.06.05 Perform wheel alignment diagnosis, adjustment, and repair

DMO.07.01 Perform general electrical systems service

DMO.07.02 Perform battery service

DMO.07.03 Perform starting systems service

DMO.07.04 Perform charging system service diagnosis and repair

DMO.07.05 Perform lighting system service diagnosis and repair

**Essential Learning & Skills** | Describe the essential learning and skills addressed in this course. Students will know and be skilled at:

Attached.

### **D. Course Content**

**Course Outline** | Add units and any key experiences or projects that students will engage in.

Attached.

## E. Budget Considerations

**Materials, Equipment, Supplies** | List any new resources not already available necessary for this course. This might include subscriptions, technology, or other various resources needed for the course.

\_\_\_\_ *Textbooks*

Title(s):

Approximate total cost:

\_\_\_\_ *Digital Curriculum Resources*

Title(s):

Approximate total cost:

One-time cost or annual renewal?

\_\_\_\_ *Other Curriculum Materials (consumables, supplies, ancillaries, etc.)*

Materials:

Consumable/non-consumable?

Approximate total cost:

\_\_\_\_ *Technology Devices/Equipment/Hardware*

Devices/equipment needed:

Approximate cost:

\_\_\_\_ *Staff Development*

Staff Development description:

Approximate cost:

Frequency (one time? yearly?):

\_\_\_\_\_ Follow Up Plan

Additional Staff Development

Check in Meetings

## FINAL APPROVAL PRIOR TO SCHOOL BOARD MEETING

John-Paul Jacobson

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Director of Teaching and Learning Signature

November 6, 2025

Proposed School Board Meeting Date:

## MFG202E2 Mobile Equipment Maintenance INTL

Day	Lesson Name	Assignment Given (if applicable)	Assignment Due (if applicable)
1	DCA Introduction Unit 1: Maintenance Safety 1.01 Maintenance Safety 1.02 Video: Shake Hands with Danger - Caterpillar Safety 1.03 Video: The Roll of Drums - Caterpillar Safety		
2	Unit 1: Maintenance Safety 1.04 Video: Safety Basics - Slips and Falls 1.05 Video: Safety Basics - Blocking and Cribbing 1.06 Video: Hydraulic Safety - A Lethal Strike		
3	Unit 1: Maintenance Safety 1.07 Lockout/Tagout (LOTO) 1.08 Control of Hazardous Energy 1.09 Workplace Solutions		
4	Unit 1: Maintenance Safety 1.10 OSHA Fact Sheet 1.11 Video: Safety Program Preview - Lockout/Tagout		
5	Unit 1: Maintenance Safety 1.12 Video: Lockout/Tagout	1.13 Quiz: Lockout/Tagout	1.13 Quiz: Lockout/Tagout
6	Unit 1: Maintenance Safety	1.14 Discussion: Video Reflection	1.14 Discussion: Video Reflection
7	Unit 1: Maintenance Safety 1.15 Pre-Operative Inspection Safety Considerations		
8	Unit 2: Tools and Fasteners 2.01 Video: Hand and Power Tool Safety 2.02 Screwdrivers 2.03 Hammers		
9	Unit 2: Tools and Fasteners 2.04 Pliers 2.05 Wrenches		
10	Unit 2: Tools and Fasteners 2.06 Miscellaneous Hand Tools		
11	Unit 2: Tools and Fasteners	2.07 Quiz: Tools	2.07 Quiz: Tools
12	Unit 2: Tools and Fasteners 2.08 Fasteners		

13	Unit 2: Tools and Fasteners	2.09 Quiz: Fasteners	2.09 Quiz: Fasteners
14	Unit 3: Preventative Maintenance Principles 3.01 Pre-Operative Equipment Inspection		
15	Unit 3: Preventative Maintenance Principles 3.02 Operator's Manual		
16	Unit 3: Preventative Maintenance Principles	3.03 Quiz: Operator's Manual	3.03 Quiz: Operator's Manual
17	Unit 3: Preventative Maintenance Principles 3.04 Video: Track-Type Tractor: Daily Work Around Inspection 3.05 Video: Hydraulic Excavator: Daily Walk Around Inspection		
18	Unit 3: Preventative Maintenance Principles 3.06 Video: Excavator Pre-Start Walk Around		
19	Unit 3: Preventative Maintenance Principles 3.07 Video: Skid Steer and Compact Track Loader Pre-Start Inspection		
20	Unit 3: Preventative Maintenance Principles 3.08 When and Where Specific Machine Preventative Maintenance is Performed		
21	Unit 4: Engines 4.01 Engine Nomenclature		
22	Unit 4: Engines	4.02 Graded Assignment: Engine Components	4.02 Graded Assignment: Engine Components
23	Unit 4: Engines 4.03 Engines		
24	Unit 4: Engines 4.04 Engine Lubrication System		
25	Unit 4: Engines 4.04 Engine Lubrication System		
26	Unit 4: Engines	4.05 Quiz: Engines	4.05 Quiz: Engines

27	Unit 5: Intake and Exhaust 5.01 Engine Intake and Exhaust System		
28	Unit 5: Intake and Exhaust 5.01 Engine Intake and Exhaust System		
29	Unit 5: Intake and Exhaust 5.01 Engine Intake and Exhaust System		
30	Unit 5: Intake and Exhaust 5.02 Engines - The Air Intake and Exhaust System		
31	Unit 5: Intake and Exhaust 5.02 Engines - The Air Intake and Exhaust System		
32	Unit 5: Intake and Exhaust 5.02 Engines - The Air Intake and Exhaust System		
33	Unit 6: Fuel Systems 6.01 Engine Fuel System		
34	Unit 6: Fuel Systems 6.01 Engine Fuel System		
35	Unit 6: Fuel Systems 6.01 Engine Fuel System		
36	Unit 6: Fuel Systems 6.02 Fuel Systems		
37	Unit 6: Fuel Systems 6.02 Fuel Systems		
38	Unit 6: Fuel Systems	6.03 Quiz: Fuel Systems	6.03 Quiz: Fuel Systems
39	Unit 7: Coolant Systems 7.01 Engine Coolant System		
40	Unit 7: Coolant Systems 7.01 Engine Coolant System		



41	Unit 7: Coolant Systems 7.01 Engine Coolant System		
42	Unit 7: Coolant Systems 7.02 Introduction to Cooling Systems		
43	Unit 7: Coolant Systems 7.02 Introduction to Cooling Systems		
44	Unit 7: Coolant Systems 7.02 Introduction to Cooling Systems		
45	Unit 8: Filters and Filtration 8.01 Filters and Filtration		
46	Unit 8: Filters and Filtration 8.01 Filters and Filtration		
47	Unit 8: Filters and Filtration 8.01 Filters and Filtration		
48	Unit 8: Filters and Filtration 8.01 Filters and Filtration		
49	Unit 8: Filters and Filtration 8.01 Filters and Filtration		
50	Unit 8: Filters and Filtration 8.02 Video: Filter Simulation		
51	Unit 9: Lubrication Systems 9.01 Grease Points		
52	Unit 9: Lubrication Systems 9.01 Grease Points		
53	Unit 9: Lubrication Systems 9.01 Grease Points		
54	Unit 9: Lubrication Systems 9.02 Lubrication Systems		

55	Unit 9: Lubrication Systems 9.02 Lubrication Systems		
56	Unit 9: Lubrication Systems 9.02 Lubrication Systems		
57	Unit 9: Lubrication Systems	9.03 Quiz: Lubrication Systems	9.03 Quiz: Lubrication Systems
58	Unit 10: Hydraulics 10.01 Hydraulic Systems		
59	Unit 10: Hydraulics 10.01 Hydraulic Systems		
60	Unit 10: Hydraulics 10.01 Hydraulic Systems		
61	Unit 10: Hydraulics 10.01 Hydraulic Systems		
62	Unit 10: Hydraulics 10.01 Hydraulic Systems		
63	Unit 10: Hydraulics	10.02 Quiz: Hydraulics	10.02 Quiz: Hydraulics
64	Unit 11: Electrical Systems 11.01 Engine Electrical System		
65	Unit 11: Electrical Systems 11.02 Video: Electrical		
66	Unit 11: Electrical Systems 11.03 Electrical Systems		
67	Unit 11: Electrical Systems	11.04 Quiz: Electricity	11.04 Quiz Electricity
68	Unit 11: Electrical Systems 11.05 Video: Battery		

69	Unit 11: Electrical Systems	11.06 Graded Assignment: Battery	11.06 Graded Assignment: Battery
70	Unit 11: Electrical Systems	11.07 Quiz: Battery	11.07 Quiz: Battery
71	Unit 12: Tires 12.01 Video: Tires and Rims		
72	Unit 12: Tires 12.01 Video: Tires and Rims		
73	Unit 12: Tires 12.02 Tires		
74	Unit 12: Tires 12.02 Tires		
75	Unit 12: Tires 12.02 Tires		
76	Unit 12: Tires	12.03 Quiz: Tires	12.03 Quiz: Tires
77	Unit 13: Tracks and Undercarriages 13.01 Video: Tracks and Undercarriages		
78	Unit 13: Tracks and Undercarriages 13.01 Video: Tracks and Undercarriages		
79	Unit 13: Tracks and Undercarriages 13.02 Tracks and Undercarriages		
80	Unit 13: Tracks and Undercarriages 13.02 Tracks and Undercarriages		
81	Unit 13: Tracks and Undercarriages 13.02 Tracks and Undercarriages		
82	Unit 13: Tracks and Undercarriages 13.02 Tracks and Undercarriages		

83	Unit 13: Tracks and Undercarriages	13.03 Quiz: Tracks and Undercarriages	13.03 Quiz: Tracks and Undercarriages
84	Unit 14: Miscellaneous and Ground Engaging 14.01 Other Components		
85	Unit 14: Miscellaneous and Ground Engaging 14.01 Other Components		
86	Unit 14: Miscellaneous and Ground Engaging 14.01 Other Components		
87	Unit 14: Miscellaneous and Ground Engaging 14.02 Miscellaneous and Ground Engaging		
88	Unit 14: Miscellaneous and Ground Engaging 14.02 Miscellaneous and Ground Engaging		
89	Unit 14: Miscellaneous and Ground Engaging 14.02 Miscellaneous and Ground Engaging		
90	Final Exam	Final Exam	Final Exam