

Outcomes Mapping

TECHNOLOGY & HEALTH DIVISION							
Program:	Aircraft Maint. AS Degree & Certificate (Evening Program)	# Courses: (if applicable)	23	Updated:	6/9/2015	Submitted by:	David Yost

Institutional Level Outcomes (ILOs): As a result of an educational experience with any aspect of the college, students will develop the following knowledge, skills, abilities, and attitudes:									
1. Communication		2. Critical Thinking		3. Information and Technology Literacy		4: Personal, Social, Civic, & Environmental Responsibility			
Connect PLOs with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated following the completion of the program or educational experience.						PLO to ILO Alignment			
PLO Name	PLO Defined: Upon successful completion of this program, students will be able to:					1	2	3	4
1. High-level thought	Connect learned theory with real-world problems and develop a logical solution to the problem.						M	M	
2. Use of industry technical data	Locate, interpret and apply technical data from industry manuals and apply that technical data to a maintenance situation					M	M	M	
3. Ethical decision making	Determine several possible solutions for dealing with a given situation and then decide which solution(s) are ethical and which are not						M		M
4. Use of repair equipment	Demonstrate proper use of aircraft repair equipment							P	
5. Breadth of study of aviation maintenance	Apply knowledge of aeronautics, aircraft maintenance, and aviation regulations					M	M	M	
6. Identify airworthy standard	Inspect an aircraft/aircraft component and determine if the unit conforms to industry established standards					M	M	M	P
7.									

See the Outcomes Assessment website for definitions and examples of Mt. SAC's ILOs: <http://www.mtsac.edu/instruction/outcomes/ilos.html>

Key for Level of Learning

(Use for Mapping SLOs/MOs to PLOs to ILOs)

I = Knowledge/Skill Introduced

P = Knowledge/Skill Practiced/Applied

M = Knowledge/Skill Mastered

Outcomes Mapping

Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 70A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will accurately construct a basic DC circuit (magneto timing box or equivalent.		P		M		P					P		P	
Students will select proper wire size for a given circuit.		M			M						M		M	
Students will demonstrate use of a VOM/DVM for measuring circuit voltage, current, and resistance.		P		P	M								M	
Students will calculate voltage drop, resistance, current, and power for simple DC circuits.	M	M										M	M	
Students will identify components on an aircraft wiring diagram.		M									M		M	
Students will determine the function and operation of a DC system based in the wiring diagram.	M	M			M						M	M	M	

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Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 70B	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will understand current flow in an alternating current circuit	M	M										M	M	
Students will calculate voltage drop, resistance, current, and power for AC circuits.	M	M										M	M	
Students will demonstrate use of a VOM/DVM for measuring circuit voltage, current, and resistance.	M	M											M	

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Course: AIRM 71	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will interpret federal aviation regulations that apply to aircraft maintenance.	M	M	P		M						P			P
Students will demonstrate understanding of the technical mathematics required of aircraft maintenance technicians.	M	M			M						M	M	P	
Students will demonstrate understanding of the information contained in aircraft blue prints and drawings.	M	M			M	P					P	P	P	
Students will accurately perform aircraft weight and balance computations and prepare necessary reports.	M	M			M						P	P		
Students will demonstrate the use of simple lab machinery.		M		M	M						P			
Students will demonstrate understanding of the aviation physics required of aircraft maintenance technicians.	M	M			M						P	P	P	

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Course: AIRM 72	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will safely and properly use aircraft maintenance tools and precision measuring instruments.		P		P		P						P	P	
Students will identify and describe properties of aircraft metal structures.	P				P							P	P	
Students will properly select and apply structural materials for repairs.	M				P							P	P	
Students will identify corrosion and apply treatment procedures.	P	P			P	P						P	P	
Students will manipulate metal strength properties and apply heat-treating measures to obtain selected strength characteristics.		P		P	P								P	
Students will identify military specifications and civilian standards for fasteners used in the construction, manufacture, and repair of aircraft.		M			M	M							P	
Students will demonstrate non-destructive testing and inspection techniques.	P	P		P	P	P						P	P	

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Course: AIRM 73	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate proper oxygen-acetylene gas and inert gas welding techniques.		P		P	P								P	
Students will differentiate, by the use of appropriate inspection procedures, sound welds from inferior welds.	P	P	P	P	P	P					P	P	P	P
Students will determine the proper materials and techniques to be used when making weld repairs.		P			P							P	P	
Students will describe the procedures and considerations to making weld repairs to an aircraft using applicable FAA guidelines from A.C. 43.13-1B.	P	P		P	P	P					P	P	P	
Students will identify the theoretical and practical aspects of aircraft welding using applicable FAA guidelines.	P	P			P						P	P		

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Course: AIRM 90A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate understanding of Bernoulli's principle.	M				M								M	
Students will demonstrate understanding of flight theory principles and the three axes of aircraft movement.	P	P			P							P	P	
Students will inspect a small aircraft flight control system and determine airworthiness.	P	P	P	P	P	P					P	P	P	P
Students will repair an aircraft structure using appropriate rivets and fasteners.		P		P	P	P					P	P	P	

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Course: AIRM 90B	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will identify aircraft structural locations using zones and station numbers.		M		M	M						M	M	M	
Students will determine understanding of the difference between basic aircraft type designs.	M	M			M						M	M	M	
Students will describe by definition the major components that make up fixed wing and rotorcraft aircraft.	M	M			M						M	M	M	
Students will rig and adjust aircraft flight controls per industry standards.	M	M			M	M	M				M	M	M	
Students will inspect aircraft and rotorcraft structural assembly and check for symmetry.	M	M		M	M	M					M	M	M	

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Course: AIRM 91A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will describe the different woods that can be used in aircraft construction.		M			M	M					M	M		
Students will describe the proper techniques to be used when applying covering materials and perform patch repairs to wooden structures.	M	M		M	M	M						M	M	
Students will demonstrate proper techniques for application of aircraft finishes.	M	M		M	M	M						M	M	
Students will differentiate between acceptable and unacceptable wooden structures.	M	M	M	M	M	M					M	M	M	M
Students will describe and identify unacceptable characteristics of the woods used in aircraft construction.	M	M			M	M					M	M	M	
Students will inspect aircraft wooden structures, construction techniques in accordance with the AC43.13-1B.	M	M			M	M					M	M	M	

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Course: AIRM 91B	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will describe the different metals used in aircraft construction and maintenance.	P	M			M						M	M		
Students will form metal structures and will perform repairs to aircraft metal structures.	M	M		M	M	M					M	M	M	
Students will describe the different materials and adhesives used in composite aircraft construction.	P	M			M						M	M		
Students will form metal structures and will perform repairs to aircraft composite structures.	M	M		M	M	M					M	M	M	

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Course: AIRM 92A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students wills select and identify aircraft hydraulic fluids.		M			M						M	M	M	
Students will explain hydraulic systems and their component operations.	M	M	M	M								M	M	
Students will explain aircraft pneumatic power systems and their component operations.	M	M	M	M								M	M	
Students will explain the different types of landing gear construction and application.	M	M			M							M	M	
Students will explain the different types of wheel and brake systems.	M	M			M							M	M	
Students will calculate force, area, pressure, volume area, and length for aircraft systems.	M	M		M	M							M	M	

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SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will describe the instruments required for flight and describe their proper operation.	M				M							M	M	
Students will identify different aircraft fuels.		M			M							M	M	
Students will describe the operation of fuel storage, fuel transfer, and fuel quantity indicating systems.	M	M		M	M							M	M	
Student will perform functional checks on flight instruments.	M	M	M	M	M	M					M	M	M	

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Course: AIRM 93A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate understanding of the operation of cabin heating, cooling, and pressurizing systems.	M	M		M	M						M	M	M	
Students will demonstrate understanding of heating, cooling, communication, navigation, ice, and rain control systems in both small and large aircraft.	M	M		M	M						M	M	M	
Students will operate and test communication and navigation systems.	M	M		M	M							M	M	
Students will operate, troubleshoot, and repair ice and rain control systems.	M	M		M	M	M					M	M	M	
Students will operate, troubleshoot, and repair cabin heating and cooling systems.	M	M		M	M	M					M	M	M	

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SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate understanding of the operation of aircraft fire detection systems.	M	M			M							M	M	
Students will inspect and operate fire detection systems.	M	M		M	M	M					M	M	M	
Students will demonstrate understanding of the different fire suppression chemicals and their proper use.		M			M							M	M	
Students will perform an aircraft inspection, including a jacking and landing gear functional check.	M	M	M	M	M	M					M	M	M	M
Students will demonstrate understanding of the proper techniques for taxi of aircraft and communication with the ground controller.		M		M	M						M			
Students will properly record aircraft inspections.	M	M	M		M	M					M	M	M	

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Course: AIRM 95A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Student will identify piston engine components and describe their operation.	P	P			P						P	P	P	
Student will solve problems using displacement and engine power formulas.	M	M			M						P	P	P	
Student will demonstrate knowledge of engine efficiency criteria and their importance.	M	M			M						P	P	P	
Student will demonstrate knowledge of the various metal strengthening procedures used in engine construction.	M				M								M	
Student will demonstrate the theoretical and practical aspects of piston engine operation and construction.	M	M		M	M	M					M	M	M	

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SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate knowledge of the piston engine overhaul process.		P		P	P	P					P	P	P	
Students will demonstrate knowledge of the different types of engine overhaul procedures.	P	M			M						P		P	
Students will demonstrate engine problem-solving techniques to a variety of situations.	M	M		M	M	M					M	M	M	
Students will perform a piston engine airworthiness inspection.	M	M	M	M	M	M					M	M	M	M

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Course: AIRM 96A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will perform engine thrust calculations.		M			M						M	M	M	
Students will demonstrate knowledge of Newton's Laws of Motion as they apply to turbine engines.	M	M			M						M	M		
Students will identify the various sections that make up a turbine engine and describe their function.	M	M			M						M	M	M	
Students will perform a turbine engine airworthiness inspection.	M	M	M	M	M	M					M	M	M	M
Students will perform disassembly and reassembly of turbine engine components.	M	M		M	M						M	M	M	
Students will identify theoretical and practical applications of turbine engines.	M				M						M	M		

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Students will describe fixed pitch, ground adjustable, two position, and constant speed propeller theories of operation and nomenclature.	M				M							M		
Students will demonstrate propeller balancing techniques.	M	M	M	M	M	M					M	M	M	
Students will perform propeller installation and removal procedures.	M	M		M	M	M					M	M	M	
Students will inspect a propeller for airworthiness.	M	M	M	M	M	M					M	M	M	
Students will identify proper propeller lubricants.		M		M	M							M	M	
Students will demonstrate knowledge of propeller maintenance procedures.	M	M			M						M	M	M	

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Students will identify engine system indicators and their proper markings.	M	M			M							M		
Students will demonstrate knowledge of the significance of engine system indicators in reciprocating and turbine engine operation.	M	M			M							M	M	
Students will demonstrate knowledge of various smoke and fire detection systems.	M	M			M							M	M	
Students will demonstrate knowledge of various engine fire suppression chemicals.	M	M			M							M	M	
Student will identify the appropriate suppression chemical to be used in the event of an engine fire.	M	M			M							M	M	
Students will describe the operation and use of engine starters and electrical generating devices.	M	M			M							M	M	

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Students will demonstrate knowledge of the differences in reciprocating engine and turbine engine fuels.	M	M			M							M	M	
Students will demonstrate knowledge of the components in float carburetors.	M	M		M	M						M	M	M	
Students will demonstrate knowledge of the components of fuel injection systems.	M	M		M	M						M	M	M	
Students will demonstrate knowledge of the components of turbine engine fuel metering systems.	M	M		M	M						M	M	M	
Students will demonstrate knowledge the operation of float carburetors, fuel injection, and turbine engine fuel systems.	M	M		M	M						M	M	M	

See the Outcomes Assessment website for definitions and examples of Mt. SAC's ILOs: <http://www.mtsac.edu/instruction/outcomes/ilos.html>

Key for Level of Learning

(Use for Mapping SLOs/MOs to PLOs to ILOs)

I = Knowledge/Skill Introduced

P = Knowledge/Skill Practiced/Applied

M = Knowledge/Skill Mastered

Outcomes Mapping

Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 98A	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate knowledge the theory of electromagnetic force and electron flow.	M				M						M	M	M	
Students will demonstrate knowledge of electromagnetic force and electron flow theory to engine ignition systems.	M				M						M	M	M	
Students will identify components used in reciprocating and turbine engine ignition systems.	M				M						M	M	M	
Students will perform ignition system adjustment, troubleshooting, and repair procedures.	M	M		M	M	M					M	M	M	
Students will demonstrate knowledge Identify ignition system components and their operation.	M				M						M	M	M	

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Key for Level of Learning

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Outcomes Mapping

Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 98B	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will demonstrate knowledge the proper lubricants to be used in aircraft powerplants.		M			M						M		M	
Students will demonstrate knowledge the components of a lubrication system, the reasons they are needed, and their proper operation.	M				M						M	M		
Students will inspect and service an engine lubrication system.	M	M	M	M	M	M					M	M	M	
Students will demonstrate knowledge of the testing methods used on oils to determine engine wear.	M	M			M								M	
Students will demonstrate knowledge lubrication system operations, adjustments, and trouble-shooting.	M	M	M	M	M	M					M	M	M	

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Key for Level of Learning

(Use for Mapping SLOs/MOs to PLOs to ILOs)

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Outcomes Mapping

Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 74	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will apply classroom theory and practical lab lessons to actual on-the-job experience.	M	M	M	M	M	M					M	M	M	M
Students will demonstrate progress in the use of practical application of classroom theories.	M	M	M	M	M	M					M	M	M	M
Students will demonstrate learned skills such as piston engine differential compression test, propeller minor repair processes, and aircraft flight control inspection.	M	M	M	M	M	M					M	M	M	M
Students will analyze problems and correct them using acceptable industry standards and practices.	M	M	M	M	M	M					M	M	M	M
Students will research mandatory forms and paperwork such as aircraft log books, airworthiness directives, and manufacturer issued service bulletins.	M	M	M	M	M	M					M	M	M	M

See the Outcomes Assessment website for definitions and examples of Mt. SAC's ILOs: <http://www.mtsac.edu/instruction/outcomes/ilos.html>

Key for Level of Learning

(Use for Mapping SLOs/MOs to PLOs to ILOs)

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Outcomes Mapping

Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 80	Connect Outcomes with an I, P, or M (see Key in Footer) identifying the level to which knowledge or a skill can be demonstrated in that portion of the course or service.													
SLOs, MOs, AUOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	ILO 1	ILO 2	ILO 3	ILO 4
Students will identify and use the proper procedures in making repairs to aircraft and engines.	M	M	M	M	M	M					M	M	M	M
Students will explain the operating principles of aircraft and engines and their systems.	M	M	M	M	M	M					M	M	M	M
Students will use proper terminology for a return to service statement.	M	M	M	M	M	M					M	M	M	M
Students will troubleshoot and repair problems to aircraft and engine systems and components.	M	M	M	M	M	M					M	M	M	M
Students will use manufacturer maintenance manuals to make repairs.	M	M	M	M	M	M					M	M	M	M

See the Outcomes Assessment website for definitions and examples of Mt. SAC's ILOs: <http://www.mtsac.edu/instruction/outcomes/ilos.html>

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 (Use for Mapping SLOs/MOs to PLOs to ILOs)
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