Outcomes Mapping

TECHNOLOGY & HEALTH DIVISION							
Program:	Aircraft Maint. AS Degree & Certificate (Day Program)	# Courses: (if applicable)	11	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
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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: AIRM70B	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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Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
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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Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
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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Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
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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Outcomes Mapping

Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 65A	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 maintenance procedures on internal combustion aircraft engines.	M	M	M	M	M	M					M	M	M	
Students will demonstrate knowledge of maintenance procedures for turbine engines.	M	M		M	M	M					M	M	M	
Students will demonstrate knowledge of the operation and application of reciprocating and gas turbine powerplant appliance systems.	M	M	M	M	M	M					M	M	M	
Students will demonstrate knowledge the responsibilities associated with aircraft powerplant maintenance.	M	M	M	M	M	M					M	M	M	M
Students will demonstrate analytical approaches and propose solutions to problem situations in powerplant maintenance.	M	M	M	M	M	M					M	M	M	

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Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 65B	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 engine system indicators and their proper markings.	M	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 the components of fuel injection systems.	M	M		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	M	
Students will demonstrate knowledge of the differences in reciprocating engine and turbine engine fuels.	M	M			M						M	M	M	
Students will demonstrate knowledge of the components in float carburetors.	M	M			M							M	M	
Students will demonstrate knowledge of the components of turbine engine fuel metering systems.	M	M			M							M	M	
Students will demonstrate knowledge of the operation of float carburetors, fuel injection, and turbine engine fuel systems.	M	M			M						M	M	M	

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Students will perform an installation of turbine engines.	M	M		M	M	M					M	M	M	
Students will perform airworthiness inspections on reciprocating and turbine engines.	M	M	M	M	M	M					M	M	M	M
Students will identify fuels, describe fuel system operation and troubleshoot problems using the FAA written test format	M	M			M							M	M	

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Student Learning Objectives (SLOs), Measureable Objectives (MOs), Administrative Unit Objectives (AUOs)														
Course: AIRM 66A	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 the application of the correct engineering data to effect major repairs to airframe wood, metal, and composite structures.	M	M		M	M	M					M	M	M	
Students will identify and relate the procedures used to correctly rig a complete airframe.	M	M		M	M	M					M	M	M	
Student will demonstrate the procedures to weigh and calculate new weight and balance figures for a specific aircraft.	M	M			M	M					M	M	M	
Students will perform aircraft structural inspection, maintenance, and repair using FAA written standards.	M	M	M	M	M	M					M	M	M	M
Students will demonstrate knowledge the responsibilities associated with aircraft airframe maintenance.	M		M		M								M	M
Students will analyze unsafe flight characteristics and determine the cause.	M	M			M	M						M		M

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Course: AIRM 66B	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 select and identify aircraft hydraulic fluids.		M			M						M	M	M	
Students will demonstrate knowledge of hydraulic systems and their component operations.	M	M	M	M								M	M	
Students will demonstrate knowledge of aircraft pneumatic power systems.	M	M	M	M								M	M	
Students will demonstrate knowledge of the operation of fuel storage, fuel transfer, and fuel quantity indicating systems.	M	M			M						M	M	M	
Students will explain the different types of landing gear construction and application.	M	M			M						M	M	M	
Students will explain the different types of wheel and brake systems.	M	M			M						M	M	M	
Students will calculate force, area, pressure, volume area, and length for aircraft systems.	M	M			M						M	M	M	
Students will demonstrate knowledge of aircraft warning systems.	M				M						M	M	M	
Students will demonstrate knowledge of the instruments required for flight and describe their proper operation.	M	M	M		M	M					M	M	M	M
Students will perform functional checks on flight instruments.	M	M	M	M	M	M					M	M	M	M
Students will identify different aircraft fuels.	M	M			M						M	M	M	

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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

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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

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