

COURSE MEC2060: IGNITION SYSTEMS**Level:** Intermediate**Theme:** Propulsion Systems**Prerequisite:** None**Description:** Students identify the basic components and parts of ignition systems used on internal combustion engines, and service and repair an ignition system.**Parameters:** Access to multimeter, timing light, hand tools and related resources.**Supporting Courses:** MEC1090 Electrical Fundamentals
MEC1040 Engine Fundamentals**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> follow electrical safety guidelines by accurately interpreting and using instruction manuals 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance related to: <ul style="list-style-type: none"> selection and use of resources and materials recognition of dangers of high voltages and currents. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Ignition Systems, Part 1, MEC2060–1</i></p> <p><i>Standard</i> <i>Performance rating of at least 2 on each criteria</i></p>	10
<ul style="list-style-type: none"> explain how a timed high voltage spark is achieved in magneto, point and electronic ignition systems 	<ul style="list-style-type: none"> ability to explain how the parts of magneto, point and electronic ignition systems function to produce timed ignition spark. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Ignition Systems, Part 2, MEC2060–1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	20
<ul style="list-style-type: none"> recognize the drivability symptoms, and use visual and instrument checks to diagnose ignition system faults 	<ul style="list-style-type: none"> observed performance related to the ability to: <ul style="list-style-type: none"> visually diagnose ignition faults use instruments to diagnose faults analyze drivability symptoms. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Ignition Systems, Part 3, MEC2060–1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	30

COURSE MEC2060: IGNITION SYSTEMS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • service and repair an ignition system 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • observed performance in: <ul style="list-style-type: none"> – servicing point ignition system – servicing electronic ignition system – correcting a defective system. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Ignition Systems, Part 3, MEC2060–1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p>	40
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal exploration during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Outcomes	Notes
Health/Safety Hazards	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate knowledge of and follow lab safety procedures • describe hazards involved when working with high voltages and currents. 	Be aware of the potential for shocks and burns.
Identification/Function	<ul style="list-style-type: none"> • list and describe the three common types of ignition systems • name the parts of a: <ul style="list-style-type: none"> – magneto – point type – electronic ignition system – computer-coil (distributorless ignition) 	Describe a distributorless ignition system.

MODULE MEC2060: IGNITION SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Identification/ Function (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and describe symptoms produced by a typical ignition failure; e.g.: <ul style="list-style-type: none"> – loose connection(s) – faulty spark plug(s) – faulty coil or wire – bad distributor cap or rotor – faulty points – faulty pick-up coil. 	
Inspect/Service	<ul style="list-style-type: none"> • test the following: <ul style="list-style-type: none"> – primary circuit voltage drop – high tension lead resistance – ignition coil – ignition cap – pick-up coil – distributor points and condensor – advance mechanisms • show how to remove and analyze a spark plug to determine how well the engine is operating; e.g., oil consumption, fuel/air ratio and determine service/ repair required • lubricate distributor • clean and tighten electrical leads and connections • complete the following according to the manufacturer's specifications: <ul style="list-style-type: none"> – clean gap and/or replace with new spark plugs – clean and/or replace with new contact points – adjust contact points and pick up coil gap – adjust/repair advance mechanisms – set ignition timing statically and check with a timing light. 	Use and electronic ignition tester for electronic systems.
Careers	<ul style="list-style-type: none"> • identify further education, working conditions and career opportunities. 	