

9/12/2025

DATE



REQUIRED COURSE



ELECTIVE COURSE

TEC DIVISION

 NEW COURSE REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	AUT-052	TITLE: (30 Characters Max)	Engine Computer System/Sensor								
SEM CR HRS:	3.0	Lecture:	2.0	Lab:	2.0	ICCB Lab:	2.0	ECH:	4.0		
Course Level:	<input type="checkbox"/> Gen Ed/IAI <input type="checkbox"/> Baccalaureate/Non-IAI			<input checked="" type="checkbox"/> Career/Technical <input type="checkbox"/> Dev Ed/Not in Degree Audit		Clinical Practicum:	0.0	Work-based Learning:	0.0	WBL ECH:	0.0
Course PCS & CIP:	12 - 47.0604		IAI Code:	N/A			Contact Hours (Minutes/Week)				
Repeatable (Y/N):	N	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:	Max:	16 Wks	200	8 Wks	400
Prerequisites:	AUT-048 and AUT-051										
Corequisites:	None										
Catalog Description: (40 Word Limit)	This course is the study of computerized engine control system operation and diagnosis, focusing on computer networks, sensors and basic engine performance diagnosis.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Computer fundamentals	4	5		
CAN and network communications	4	5		
Temperature sensors	3	2		
Throttle position sensors	3	2		
MAP/BARO sensors	3	2		
Mass air flow sensors	3	2		
Oxygen sensors	3	2		
On-board diagnosis	4	5		
Scan tools and engine performance diagnosis	4	5		
TOTAL	31	30	0	0

EVALUATION

QUIZZES <input checked="" type="checkbox"/>	EXAMS <input checked="" type="checkbox"/>	ORAL PRES <input type="checkbox"/>	PAPERS <input type="checkbox"/>
LAB WORK <input checked="" type="checkbox"/>	PROJECTS <input type="checkbox"/>	COMP FINAL <input checked="" type="checkbox"/>	OTHER <input type="checkbox"/>

COURSE MATERIALS

TITLE:	Automotive Electrical and Engine Performance
AUTHOR:	James D. Halderman
PUBLISHER:	Pearson
VOLUME/EDITION/URL:	8th edition
COPYRIGHT DATE:	2020

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		<i>The student will be able to:</i>
Computer fundamentals	9	1. Identify various parts of onboard computers, inputs and outputs devices that are controlled by computers.
CAN and network communications	9	1. Identify the types of networks and serial communications used on automotive vehicles. 2. Explain the diagnosis of communication faults.
Temperature sensors	5	1. Explain the purpose and function of different types of vehicle temperature sensors. 2. Perform diagnosis on these sensors.

Throttle position sensors	5	1. Explain the purpose and function of the throttle position sensors. 2. Perform diagnosis on the throttle position sensors.
MAP/BARO sensors	5	1. Explain the purpose and function of a MAP and a BARO sensor. 2. Perform diagnosis on the MAP and BARO sensors.
Mass air flow sensors	5	1. Explain the purpose and function of the mass air flow sensors. 2. Perform diagnosis on mass air flow sensors.
Oxygen sensors	5	1. Explain the purpose and function of the oxygen sensors. 2. Perform diagnosis on the oxygen sensors.
On-board diagnosis	9	1. Explain the purpose and functions of the systems that operate monitors, the codes system, freeze frame information, PCM tests and global modes.
Scan tools and engine performance diagnosis	9	1. Explain the diagnosis process steps, the different types of scan tools, code or no code diagnosis and the methods used to reprogram modules.
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Outcomes*	Outcome Title	At the successful completion of this course, students will be able to:
Course Outcome 1	Test Eng Ctrl Sensor	Testing of the various engine control sensors.
Course Outcome 2	Read Trouble Codes	Executing reading different module trouble codes.
Course Outcome 3	DiagStrat RepairDriv	Distinguishing a diagnostic strategy to repair drivability concerns with a vehicle.
Primary Laker Learning Competency	Information & Technology Literacy: Students evaluate information effectively using the appropriate technological tools.	
Secondary Laker Learning Competency	Creative Thinking & Problem Solving: Students think creatively to solve problems.	

*Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.