

8531 INTERMEDIATE TO SYSTEMS DIAGNOSTICS, SERVICE, AND REPAIR: UNDERHOOD SERVICE

INDUSTRY SECTOR: Transportation Sector

PATHWAY: Systems Diagnostics, Service and Repair

CALPADS TITLE: Intermediate Systems Diagnostics, Service, and Repair (Concentrator)

CALPADS CODE: 8531

HOURS:

Total	Classroom	Laboratory/CC/CVE
72	45	27

JOB TITLE	O*NET CODE	JOB TITLE	O*NET CODE
Automotive Service Technicians and Mechanics	49-3023.00	Tire Repairers and Changers	49-3093.00
Automotive Master Mechanics	49-3023.01	Automotive Specialty Technicians	49-3023.02

COURSE DESCRIPTION:

This is an introductory course designed to provide the student with the fundamentals of the engine and its subsystems of the modern automobile. Students will learn basic automotive tool and equipment use and how to safely perform basic repair and maintenance operations. Students will have the opportunity to perform minor repair work on their own vehicles to complete required tasks.

A-G APPROVAL: No

ARTICULATION:

College	Course Code
Rio Hondo Community College	Auto 101

DUAL ENROLLMENT:

College	Course Code
Rio Hondo Community College	Auto 101

PREREQUISITES: None

METHODS OF INSTRUCTION

- Direct instruction
- Group and individual applied projects
- Multimedia
- Demonstration
- Field trips
- Guest speakers

STUDENT EVALUATION:

- Student projects
- Written work
- Exams
- Observation record of student performance
- Completion of assignment

INDUSTRY CERTIFICATION:

- General Service Technician Certificate Program

RECOMMENDED TEXTS:

- Duffy, Modern Automotive Technology, Goodheart-Wilcox ISBN: 978-1-59070-956-6, 7th Edition 2009

PROGRAM OF STUDY

Grade	Fall	Spring	Year	Course Type	Course Name
9, 10, 11, 12				Concentrator	8531 Intermediate to Systems Diagnostics, Service, and Repair: Underhood Service
9, 10, 11, 12				Concentrator	Introduction to Automotive Service and Repair; Undercar Service

I.	SAFETY INSTRUCTION	CR	Lab/ CC	Standards
	A. General Shop Safety B. Use of Hoists, Jacks, and Shop Equipment C. Fire Safety Instruction D. Material Safety Data Sheets(MSDS)	5	3	Academic: RLST: 11-12.3 A-SSE: 1 CTE Anchor: Health and Safety: 6.1, 6.3, 6.4, 6.6, 6.7 Technical Knowledge and Skills: 10.1 CTE Pathway: C1.2, C1.4, C1.5
II.	AUTOMOTIVE SERVICE BUSINESS	CR	Lab/ CC	Standards
	A. Introduction to the Automotive Industry B. Automotive Careers and Career Success C. ASE Certification D. Writing Repair Orders E. Using Electronic Service Information Systems	5	3	Academic: RLST: 11-12.3 WS: 11-12.4 CTE Anchor: Communications: 2.4, 2.5 Career Planning and Management: 3.1, 3.4 Technology: 4.3 Problem Solving and Critical Thinking: 5.3 Technical Knowledge and Skills: 10.1 CTE Pathway: C2.2, C2.5, C5.1, C6.1
III.	AUTOMOTIVE TOOLS, EQUIPMENT, AND MATERIALS	CR	Lab/ CC	Standards
	1. Hand Tools 2. Power Tools 3. Automotive Service Equipment 4. Fasteners and Fastener Repairs 5. Sealants, Seals and Gaskets 6. Fluids, Grease, Fuels, and Oils	5	3	Academic: RLST: 11-12.3 CTE Anchor: Health and Safety: 6.3, 6.4 CTE Pathway: C2.2, C2.3, C2.4, C2.5, C6.2
IV.	AUTOMOTIVE MATH AND PRECISION MEASURING TOOLS	CR	Lab/ CC	Standards
	A. Addition, Subtraction, Multiplication and Division B. Standard and Metric Units of Measure C. Fractions and Decimal Fractions D. Percent, Ratios and Graphs E. Perimeter, Area and Volume F. Force, Torque, Pressure, Mass and Weight G. Conversion Factors H. Rulers, Micrometers, Feeler Gauges, Vernier Calipers, and Dial Indicators	5	3	Academic: A-SSE: 1, 2 SEP: 4, 5 CC: 3 CTE Anchor: Problem Solving and Critical Thinking: 5.3, 5.4 CTE Pathway: C8.3, C8.5, C8.6

V. BASIC VEHICLE SERVICE	CR	Lab/ CC	Standards
A. Feder Covers, Floor Mats, and Steering Wheel Covers B. Vehicle Inspection Procedures C. Lube, Oil and Filter Service	5	3	Academic: RLST: 11-12.3 CC: 3 CTE Anchor: Technology: 4.3 Health and Safety: 6.1 CTE Pathway: C6.2, C7.6, C8.6
VI. ENGINE FUNDAMENTALS	CR	Lab/ CC	Standards
A. Design B. Construction C. Performance D. Ratings and Classifications	5	3	Academic: RLST: 11-12.3 G-CO: 12 CTE Anchor: Problem Solving and Critical Thinking: 5.3 Health and Safety: 6.6 CTE Pathway: C2.1, C2.2, C2.3, C6.1, C6.3, C6.4
VII. ENGINE SYSTEMS	CR	Lab/ CC	Standards
A. Fuel Systems B. Intake and Exhaust Systems C. Cooling Systems D. Lubrication Systems	5	3	Academic: SEP: 4, 5 CTE Anchor: Technology: 4.2 Health and Safety: 6.3, 6.4, 6.6 CTE Pathway: C2.6, C2.7, C4.1, C4.3, C4.4, C6.2, C8.6
VIII. ENGINE DISASSEMBLY AND REASSEMBLY PROCEDURES	CR	Lab/ CC	Standards
A. Top End B. Bottom End C. Front End	5	3	Academic: RLST: 11-12.3 CTE Anchor: Health and Safety: 6.2 CTE Pathway: C3.7, C6.1, C8.2
IX. UNDERHOOD PREVENTATIVE MAINTENANCE INSPECTION AND SERVICE PROCEDURES	CR	Lab/ CC	Standards
A. Fuel, Coolant, and Oil Leaks Diagnosis B. General Engine Running Diagnosis C. Engine Systems Service D. Other Systems and Fluids E. On-Vehicle Repair	5	3	Academic: RLST: 11-12.3 CTE Anchor: Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2 Health and Safety: 6.1, 6.3, 6.4, 6.6 CTE Pathway:

			C1.2, C1.3, C2.2, C2.3, C2.4, C4.1, C4.2, C4.3, C4.4, C6.1, C6.2, C6.3, C6.4, C7.1
--	--	--	--

Entered by:

District: El Monte Union High School District
Contact: Kirk McGinnis, Director, Research and Curriculum
Phone: (626) 444 9005 x9925
Email: kirk.mcginis@emuhsd.org
Date Created: 3/27/2018
Date Modified: 5/16/2019
Date Printed: 10/13/2022