

COURSE PLAN

FIRST: AUTOMOTIVE ENGINEERING

College

College : Faculty of Engineering Technology

Department : Mechanical Engineering

Course

Course Title : Automobile Diagnosis, Maintenance and Repair Workshops 2

Course Code : 020201252

Credit Hours : 2 (0 Theoretical, 2 Practical)

Prerequisite : **020201253**

Instructor

Name : Dr. Suleiman Qasim Abu-Ein

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Office Hours :

Class Times

Building	Day	Start Time	End Time	Room No.
00	00	00	00	00

Text Book

Title : • Advanced Automotive Fault Diagnosis, Advanced Automotive Fault Diagnosis, Tom Denton.
• Auto Diagnosis Service Repair Hard Cover Textbook Automotive ASE Training NEW

References

1. Auto Repair and Maintenance (Easy Lessons for Maintaining Your Car So It Lasts Longer) by Dave Stribling.
2. Bosch Automotive Handbook, 10th Edition BOSCH10.

SECOND: PROFESSIONAL INFORMATION

COURSE DESCRIPTION

This course specifies a practical knowledge of principles of workshop safety and instructions, troubleshooting and analyzing vehicle malfunctions, diagnostic tools, service and calibration steps, diagnosing malfunctions of mechanical and electrical and electronic systems using special testing devices.

And it covers the practical body painting (painting plan, damaged film removal, primer, putty, surface, masking and blend paint etc.).

COURSE OBJECTIVES

The objective of this course is to enable the student to do the following:

- Explain a personal safety in workshop.
- Develop working competence of automobile troubleshooting and troubleshooting equipment, maintenance and repair types.
- Develop working competence of diagnosing malfunctions of mechanical systems.

- Develop working competence of diagnosing malfunctions of electrical and electronic systems
- Develop working competence of emission testing.
- Develop working competence of body repair and painting.

COURSE LEARNING OUTCOMES

By the end of the course, the students will be able to:

- CLO1 Apply the basic safety requirements at workshops
 CLO2. Use the right tools and equipment
 CLO3. Apply the basics of diagnostic techniques
 CLO4. Perform the basics of on-board diagnostics-II
 CLO5. Perform the basics of mechanical diagnostic techniques
 CLO6. Perform the basics of electrical diagnostic techniques
 CLO7. Perform the basics of emission testing
 CLO8. Diagnose and adjust the basics of transmissions and transaxles systems
 CLO9. Perform the body repair

COURSE SYLLABUS

Week	Unit	Content	Related LO and Reference (Chapter)	Proposed assignments
1	Training Safety	<ul style="list-style-type: none"> • Personal safety. • Tools safety. • Universal hand tools. • Special tools. 	CLO1	
2	Tools and Equipment	<ul style="list-style-type: none"> • Basic Hand Tools. • Accuracy of Test Equipment. • Multimeters. 	CLO2	
3	Diagnostic Techniques	<ul style="list-style-type: none"> • Six-Stage Process. • The art of Diagnostics. • Concern, Causes, Correction. • Root cause analysis. 	CLO3	
4	On-Board Diagnostics -II (OBD-II)	<ul style="list-style-type: none"> • P-Code composition. • Gasoline On-Board diagnostic monitors. • Scan Tools. 	CLO4	
5	Mechanical Diagnostic Techniques	<ul style="list-style-type: none"> • Check the obvious. • Noise, Vibration and Harshness test. • Noise Conditions. • Road Test. • Engine Noises. • Recognize Sources of Engine noises. 	CLO5	
6	Electrical Diagnostic Techniques	<ul style="list-style-type: none"> • Check the obvious first. • Test Lights and analogue meters warning. • Voltage drop testing. • Test for short circuits to earth. • On and OFF load test. • Colour codes and terminal 	CLO6	

Week	Unit	Content	Related LO and Reference (Chapter)	Proposed assignments
		numbers.		
7	Emission Testing	<ul style="list-style-type: none"> Exhaust analyzer. Emission Limits. Exhaust Gas measurement. 	CLO7	
8	Mid Exam			
9	Transmissions and Transaxles Systems -1	<ul style="list-style-type: none"> Inspection of Transmission and Transaxles Fluid Level and Leakage. Replacing Automatic Transmission Fluid and Filters. Diagnosing Noise and Vibration Problems. 	CLO8	
10	Transmissions and Transaxles Systems -2	<ul style="list-style-type: none"> Inspection of Electrical Connections. Inspection of Gear Selector Linkage. Inspecting the Torque Converter. Inspection of the Transaxle. 	CLO8	
11	Body Repair -1	<ul style="list-style-type: none"> Damaged film removal. 	CLO9	
12	Body Repair -2	<ul style="list-style-type: none"> Primer, Putty. 	CLO9	
13	Body Repair -3	<ul style="list-style-type: none"> Surface, masking. 	CLO9	
14	Body Repair -4	<ul style="list-style-type: none"> Blend Paint. 	CLO9	
15	Body Repair -5	<ul style="list-style-type: none"> Painting Plan. 	CLO9	
16	Final Exam			

COURSE LEARNING RESOURCES

The effectiveness of teaching in this course depends on making students familiar with the basic practical skills of diagnosis, inspection, removing and installing of different systems such as: mechanical parts, electrical and electronics system, emission testing, transmission systems, and body repair and painting.

Teaching methods:

- Exercising and practicing: by training students to do all the practical works using the right instrument and to identify the type of exercise.
- Online research skills, watching related videos such as you tube, on topics related to course objectives and recent developments in the field of specific work.

- Learning skills and adaptability: Developed by transferring students and reconfiguring work teams to enable them to adapt to other individuals from time to time.

ONLINE RESOURCES

www.youtube.com

ASSESSMENT TOOLS

(Write assessment tools that will be used to test students ability to understand the course material and gain the skills and competencies stated in learning outcomes)

ASSESSMENT TOOLS	%
Quizzes	
Researches and Reports	20
Participation	
Oral Exams	
Activities/attendance	
Presentation	
Mid Exam	30
Final Exam	50
TOTAL MARKS	100

THIRD: COURSE RULES

ATTENDANCE RULES

Attendance and participation are extremely important, and the usual University rules will apply. Attendance will be recorded for each class. Absence of 10% will result in a first written warning. Absence of 15% of the course will result in a second warning. Absence of 20% or more will result in forfeiting the course and the student will not be permitted to attend the final examination. Should a student encounter any special circumstances (i.e. medical or personal), he/she is encouraged to discuss this with the instructor and written proof will be required to delete any absences from his/her attendance records.

GRADING SYSTEM

Example:

0 – 49 Fail
50 – 100 Pass

REMARKS

- Some selective topics related to modern hydride and EV vehicles will be discussed and presented during the course
- Share practical experiences that could be faced in the future work environment

COURSE COORDINATOR



Course Coordinator: Dr. Suleiman Qasim Abu-Ein
Signature:
Date:

Department Head:
Signature:
Date: