**King Fahd University of Petroleum & Minerals** Deanship of Academic Development Academic Assessment Centre



COURSE TITLE:	Automotive Car Systems		
<b>COURSE CODE:</b>	PYP012	<b>DURATION:</b>	08 (eight) weeks
<b>CREDIT HOURS:</b>	1	HOURS/WEEK:	01 (one)
<b>PRE-REQUISITES:</b>	none		
COURSE	Dr. Muhammad Nadeem		
<b>INSTRUCTOR:</b>	Sharif		
COURSE	Dr. Tayseer		
DIRECTOR			

### 1. INTRODUCTION:

The primary goal of this course is to educate students on the fundamental working principle of automotive systems and their troubleshooting management.

## 2. COURSE DESCRIPTION, OBJECTIVES & CONTENTS:

### 2.1 Course Description:

Through this course, students will learn and understand the followings:

- Demonstrate an understanding of the working principle of petrol and electric vehicle
- Demonstrate an ability to diagnose and troubleshoot the basic car ignition system
- Examine the basics of car safety management and learn the wheel balancing
- Identify various car electrical components malfunction and learn their troubleshoot
- Understand the law of energy conservation

### 2.2 Course Main Objectives:

- To educate the students on the fundamental working principle of automotive systems and their troubleshooting management
- To equip the students with the skills to diagnose the car's basic electrical and mechanical issues by using analytical approaches
- To help the students to develop an understanding of safety protocols in the automotive industry through the medium of technical studies

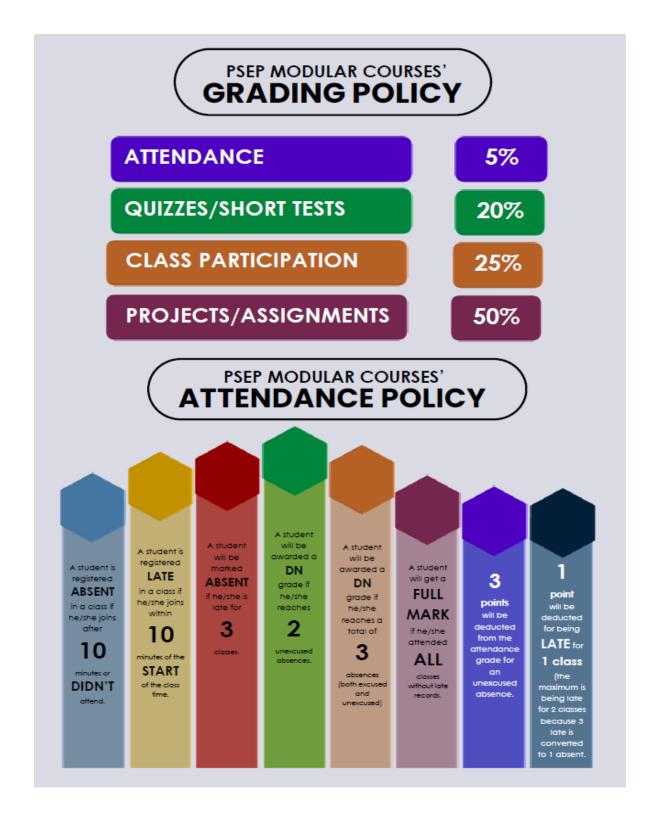
# 2.3 Course Contents:

#### **Topics to be Covered**

No	Topics	List of Topics	Contact hours
1	Introduction to Automotive	1.1 Components of Engine	1
	Systems and Mechanical	1.2 Engine Capacity	
	and Electrical components 1.3 Types of the engine		
		1.4 Types of the battery	
2	Introduction of Electric 2.1 Working principle of electric vehicle		<mark>1</mark>
	Vehicle	2.2 Environmental and future impact of EV	
3	Working Principle of Petrol car engine	3.1 Four-stroke cycles	<mark>1</mark>
		3.2 Fuel System	
		Quizzes, Assessment Test	
4	Introduction to car's	4.1 How the radiator works	<mark>1</mark>
	cooling, exhaust, and lubrication system	4.2 Component of the exhaust system	
		4.3 The use of lubricant in the engine	
5	Introduction to the car's 5.1 The function of the clutch		1
	transmission system	5.2 Manual and automatics gears	
6	Introduction to car's suspension and braking system	6.1 Working principle of Propeller shaft and differential	1
		6.2 Disk and Drum Braking System	
		Quizzes, Assessment Test	
7	Introduction to the cars	7.1 The function of the battery, alternator, and ignition coil	<mark>1</mark>
	ignition system	7.2 Basic electrical circuits	
		7.2 Assemble, diagnose, and troubleshoot the cars ignition	
		system	
8	Project	8.1 Practical Activity, Project Work Presentation	1
Total			<mark>8</mark>

# 3. Schedule of Assessment Tasks for Students

#	Assessment method*	Week Due	The proportion of the Total Assessment Score
1	Attendance	Weekly	5%
2	Quizzes, short Test	Week 3-6	20%
3	Class participation	Every class	25%
4	Project Work, Group Presentation	Week 8	50%



## 4. Reference textbooks and other teaching aids:

Required Material: Lab Manual PYP012, Audio Video Lectures Prepared by Faculty