



University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Mechanical Engineering

Form no. (12): Course Specification

1- Course Data

Course Code: ME 481	Course Title: Automotive Technology	Academic Year/Level: 4th year / 8th semester	
Specialization: Mechanical	No. of Instructional Units 3 credits	Lecture 2 hrs.	Practical 2 hrs.

2- Course Aim

- Identify the different systems of the motor car.
- Understand the theory and operation of each system

3- Intended Learning Outcomes

a- Knowledge and Understanding	Through knowledge and understanding, students will be able to: a.6) Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues. a.7) Business and management principles relevant to engineering. a.p.4) The constraints which mechanical power and energy engineers have to judge to reach at an optimum solution. a.a.1) Detailed knowledge and understanding of the themes and specialist subjects of the automotive
b- Intellectual Skills	Through intellectual skills, students will be able to: b.12) Create systematic and methodic approaches when dealing with new and advancing technology. b.a.2) The ability to assess and analyze information in support of problem solving, design and development,
c- Professional Skills	Through professional and practical skills, students will be able to: c.p.5) Design, operate, repair and maintain fluid hydraulic power systems for diverse applications c.p.7) Work in mechanical power and energy operations, maintenance and overhaul
d- General Skills	Through general and transferable skills, students will be able to:

4- Course Content

Week No.1	Introduction, history of automotive industry, automotive tools & measuring instruments
Week No.2	Motronic System
Week No.3	engine sensors and actuators
Week No.4	automotive clutch

Week No.5	manual transmissions
Week No.6	automatic transmission
Week No.7	Steering system / 7th week evaluation
Week No.8	Wheel angles
Week No.9	suspension system
Week No.10	Brake system (disc brake)
Week No.11	Brake system (drum brake)
Week No.12	Tires / 12th week evaluation
Week No.13	vehicle heating and air conditioning systems.
Week No.14	electrical vehicles
Week No.15	Rivision
Week No.16	Final Examination

5- Teaching and Learning Methods

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

6-Teaching and Learning Methods for Students with Special Needs

- Lectures
 - Tutorials
 - Reports & sheets
 - Laboratories
 - Seminars
- Engineering Requirements and Design Considerations in college Buildings and its Leading Passages**
- The design of college buildings and pedestrian passages leading to it are sloppy to allow the transportation of the handicapped;
 - Doors are wide enough to let wheel chairs pass through easily and conveniently.
 - Lifts are provided for movement between floors.
 - Doors are made from light weight materials to make it easy for the handicapped suffering from weakness in limb muscles or those handicapped using prosthetic limbs to deal with them with the least muscular effort.
 - Class floors are made from non-slippery materials to prevent falls on the part of the handicapped.
 - Sudden changes in the floor level are prevented.
- Design Considerations of the Classes**
- Class boards are placed at 60 cm high to allow wheeled chair users or those suffering from limited arm mobility use them.
 - Enough spaces are left between seats and benches to prevent hindering the movement of wheeled chairs between them.
 - Handicapped students sit among normal people in class to be able to interact with them. Nevertheless, in urgent cases according to the nature of the disability, the handicapped students sit in fixed suitable places whether at the front or the back of the class.
 - Handicapped students sit close to the main exits of the class to be able to evacuate in case of emergencies.
- Academic Support:**
- The general academic advisor appoints an academic supervisor for handicapped students.
 - Continuous follow ups are made for handicapped students after each assessment to evaluate their

academic level of achievement

7- Student Assessment

a-Procedures used	1-Written Examinations to assess The Intended Learning Outcomes. 2-Class Activities (Reports, Discussions, -----) to assess The Intellectual and general Skills.	
b- Schedule:	Assessment 1 Assessment 2 Assessment 3 Assessment 4	7 th Week Assessment 12 th Week Assessment Continuous Assessments 16 th Week Final Written Exam
c- Weighing of Assessment	7 th Week Evaluation 12 th Week Evaluation Final-term Examination Oral Examination Practical Examination Semester Work Total	30 % 20 % 40 % 00 % 00 % 10 % 100%

8- List of References:

a- Course Notes	N/A
b- Required Books (Textbooks)	• Heisler, Heinz. "Vehicle And Engine Technology", Butterworth-Heini. – Latest Edition.
c- Recommended Books	• Martin W. Stockel, "Auto Mechanics Fundamentals" • Julian Happian Smith, "An Introduction to Modern Vehicle Design". • William k. Toboldt & Larry Johnson "Automotive Encyclopedia"
d- Periodicals, Web Sites, etc.	N/A

Course Instructor: Dr. Walid Abdel Ghaffar

Head of Department: Prof. El-Sayed Saber

Program Manager: Prof. El-Sayed Saber

Dean of College of Engineering and Technology of AASTMT

Name: Prof. Moustafa Hussein Aly

Signature:

Executive Manager of Quality Assurance Center of AASTMT

Name: Prof. Aziz Ezzat

Signature:

