Module (Course Syllabus) Catalogue

2022-2023

College/ Institute	Erbil Technology College	
Department	Automotive Technology	
Module Name	Transportation Electricity	
Module Code	TRE404	
Degree	Technical Diploma ☑ Bachelor ☐ High Diploma ☐ Master ☐ PhD ☐	
Semester	4	
Qualification		
Scientific Title		
ECTS (Credits)	5	
Module type	Prerequisite ☐ Core ☑ Assist. ☐	
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(67)Total hrs Workload
Weekly hours (Practical)	(2)hr Class	(113)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Sazan Ali Kamal Mohammed	
E-Mail & Mobile NO.	sazan.mohammed@epu.edu.iq	
Lecturer (Practical)	sazan,Payman ,Dlshad	
E-Mail & Mobile NO.		
Websites		

Course Book

Course Description	The purpose of this course is to promote learning by examining underlying assumptions, seeking relevant information, and reaching final conclusions, thus understanding the implications of the diagnostic procedures in the following course concept areas: Automotive microelectronics and fundamentals, multiplex wiring systems, body control systems, and electric, hybrid, and fuel cell vehicles.
Course objectives	Upon completion of this course the student will be able to: 1. Discuss the theory of operation of automotive electronic controls used to monitor, adjust, and control various vehicle functions. 2. Select appropriate service information to identify the electronic control system and the location of system components. 3. Use appropriate test equipment to diagnose electronic malfunctions with sensors, controllers, and circuits. 4. Diagnose and service electronic components and circuits using established and recommended test procedures. 5. Recalibrate or reprogram components when necessary
Student's obligation	The student submits a weekly report about what have done in the Lab section. For examination, there are one semester exam and final exam for the practical and the theory parts. During the class hours there will be some quizzes.
Required Learning Materials	Basics of electricity safety, Tools, Instrumentation and Applications

Evaluation

Task		Weight (Marks)	Due Week	Relevant Learning Outcome
Paper Review				
Assignments	Homework	5%		
	Class Activity			
	Report	10%		
	Seminar	10%		
	Essay			
	Project	10%		
Quiz		8%		
Lab.		10%		
Midterm Exam		25%		

	Final Exam			
	Total			
Specific learning outcome:	Student learning outcome: Upon the completion of this course students will be able to complete the following: 1. Given a transportation vehicle or related equipment, diagnose and repair a failure in the lighting, gauges, and accessory circuits by using the recommended lab or test equipment as outlined by the related service information. 2. Correctly describe the processes involved in electrical system diagnosis on modern transportation vehicles or equipment. 3. Given a transportation vehicle or equipment, diagnose and repair a fault in the controller area network (CAN) system by using the recommended lab or test equipment as outlined by the related service information. 4. In a lab setting, demonstrate the proper use of electrical diagnostic equipment that apply to transportation vehicles and equipment. 5. Given a transportation vehicle or equipment, diagnose and repair a fault in the electronic control system by using the recommended lab or test equipment as outlined by the related service information. 6. Demonstrate appropriate diagnostic procedures for sensors, controllers, and circuits by using the recommended test equipment as outlined by service information. 7. Correctly identify or describe complex transportation vehicle systems such as, collision avoidance, high intensity headlamps, navigation, and communication systems. 8. Given a transportation vehicle or equipment, replace or reprogram an electronic system controller as outlined by the related service information			
Course References:	**6. Hollembeak, B., 2011. Automotive Electricity and Electronics, NY, USA.** **7. Martin, T., 2015. Automotive diagnostic Scanners, Quarto Publishing Group, USA.** **8. Al Santini, 2013. Automotive Electricity and Electronics, NY, USA**			

Course topics (Theory)	**Week**	**Learning Outcome**
Restraint System Electronics	1	
Chassis System Electronics	2	
On-Board Diagnostics and Scan Tools	3	

On-Board Diagnostics and Scan Tools	4	
Sensor, Actuator, Computer Service	5	
Sensor, Actuator, Computer Service	6	
Restraint System Service	7	
Restraint System Service	8	
Chassis Systems Diagnosis and Repair	9	
Chassis Systems Diagnosis and Repair	10	
Advanced Diagnostics	11	
Advanced Diagnostics	12	
Practical Topics	**Week**	**Learning Outcome**
Manifold Absolute pressure sensor	1	
Oxygen sensor1	2	
Oxygen sensor 2	3	
Throttle position sensor electronic	4	
Mechanical throttle position sensor	5	
Paddle sensor	6	
Mass air flow sensor	7	
Knock sensor	8	
Pressure sensor for ford	9	
Fuel pressure sensor	10	
Idle air control	11	
555 timer injector driver	12	

Questions Example Design

1. Compositional: Why Oxygen sensor is a type of active sensors?
   Answer: Oxygen sensor is a galvanic cell produce which is produce its own voltage
2. True or false type of exams: The primary Oxygen sensor found after the catalytic convertor.
   Answer: False. The primary Oxygen sensor found on the exhaust part.
3. Multiple choices: How many wires did a hall effect sensor have? A) Two wires B) Three wires Answer (B)

Extra notes:

External Evaluator

I conform this course book, its cover the subject and satisfied its principles. .
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