Module (Course Syllabus) Catalogue

2022-2023

College/ Institute	**Erbil Technology College**	
Department	**Automotive Technology Engineering**	
Module Name	**Suspension and Steering**	
Module Code	**SSS401**	
Degree	**Technical Diploma** [1] **Bachelor** [ ] **High Diploma** [ ] **Master** [ ] **PhD** [ ]	
Semester	**4**	
Qualification	**Master**	
Scientific Title	**Assistant Lecturer**	
ECTS (Credits)	**6**	
Module type	**Prerequisite** [ ] **Core** [1] **Assist.** [ ]	
Weekly hours		
Weekly hours (Theory)	**(2)hr Class**	**(79)Total hrs Workload**
Weekly hours (Practical)	**(4)hr Class**	**(121)Total hrs Workload**
Number of Weeks	**14**	
Lecturer (Theory)	**Yaseen Hameed Rashid**	
E-Mail & Mobile NO.	**yaseen.rashid@epu.edu.iq 07501120497**	
Lecturer (Practical)	**Bare Khald Marof, Ibrahim Mustafa Hamad**	
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: Wheels and tires, front suspension and construction/service, rear suspension and alignment angle and factors
Course objectives	Upon completion of this course the student will be able to: 1. Identify vehicle information and observe steering safety procedures. 2. Inspect, diagnose, and repair tire problems and perform tire maintenance. 3. Inspect, diagnose and replace front suspension components. 4. Diagnose suspension noise, vibration and harshness. 5. Inspect, diagnose and replace rear suspension components. 6. Diagnose and inspect steering wheel and steering shaft problems and replace components when necessary. 7. Inspect, replace and adjust steering linkage components 8. Service, inspect, and diagnose power and manual steering concerns. Diagnose and adjust vehicle alignment concerns and perform a four-wheel alignment.
Student's obligation	The student must attendance the hall 1 hour and 2 hour in shop abidance the lecturer instruction wherein early attendance and bringing requisite tools and keep the hall clean and protect furniture.
Required Learning Materials	To avoid student bared in the hall lecturer uses several tools, whiteboard, data show and other demonstrate tools to interest student.

Evaluation

Task		Weight (Marks)	Due Week	Relevant Learning Outcome
Paper Review				
Assignments	Homework	5%	4	
	Class Activity	2%		
	Report	10%	1	
	Seminar	10%	1	
	Essay			
	Project			
Quiz		8%	4	
Lab.		10%		
Midterm Exam		25%		
Final Exam		40%		
Total		60%		

Specific learning outcome:	Upon the completion of this course students will be able to complete the following: 1. Identify steering and suspension concerns upon evaluation of the components. 2. Diagnosis and repair steering and suspension concerns related to tire wear and customer complaints. 3. Analyse data collected from alignment equipment and make appropriate corrective actions. 4. Will demonstrate an understanding of manual and power steering systems and standard and electronic suspension systems. 5. Research and validate appropriate service information pertaining to vehicles steering and suspension systems. 6. Compute steering geometry angles for alignment and adjust them within specs.
Course References:	1. Auto Suspension and steering **2.** Internet

Course topics (Theory)	**Week**	**Learning Outcome**
Basic Suspension and Steering Systems Operation	1	1
Shop Safety and Environmental Protection, Special Service Tools and Equipment	2	1
Common Suspension and Steering Technology	3	2
Front Suspension Systems, Front Suspension System Service	4	2,3
Rear Suspension Systems, Rear Suspension System Service	5	2,3
Steering Systems	6	1
Midterm Examination	7	
Midterm Examination	8	
Steering Linkage and Manual Steering Gear Service	9	5
Power Steering and Four-Wheel Steering Service	10	4
Driveline and Wheel Components, Driveline and Wheel Service	11	6

Electronic Suspension and Steering Systems, Electronic Suspension and Steering Service	12	1
Wheel Alignment Principles, Wheel Alignment Procedures	13	3
Suspension and Steering Troubleshooting	14	4
Practical Topics	**Week**	**Learning Outcome**
Perform Safety and Environmental Inspections, Identify and Interpret Vehicle Numbers, Find and Use Service Information	1	1
Use a Scan Tool to Retrieve Diagnostic Trouble Codes, Disable and Enable an Air Bag system	2	1
Remove, Inspect, and Reinstall a CV Axle, Diagnose and Service CV Axle Shaft Bearings and Seals	3	2
Diagnose Steering and Suspension Problems, Lubricate Steering and Suspension	4	2
Service Wheel Bearings, Inspect a Steering Column, Service Steering Column	5	2
Inspect and Service Knuckle, Remove and Replace a Rack-and-Pinion	6	2
Adjust Worm Gear Bearing Preload and Sector Backlash, Remove and Replace Steering Linkage Components	7	4
Test a Power Steering System, Service Power Steering Components	8	3
Replace Strut Rods, Stabilizer Bars, and Bushings	9	2
Replace Ball Joints, Control Arms, and Bushings	10	3
Replace Coil Spring	11	1
Adjust and Replace Torsion Bars, Inspect and Replace Leaf Springs	12	4

Questions Example Design

Compositional:

1. List type of springs used in suspension system.

2. Talk about **MacPherson Strut Parts,** and why it used in suspension system?

2. True or false type of exams:

1. Pickup truck has leaf spring on the rear suspension. (T)
2. A height-sensitive electronic suspension control system responds to changes in vehicle speed. (F)

3. Multiple choices:

1. All of the following were used as friction material in early brake systems, EXCEPT:

A. brass. B. leather.
C. camel hair D. kevlar.

2. Technician A says that gases cannot be compressed. Technician B says that liquids cannot be compressed. Who is right?

A. A only. B. B only.
C. Both A & B. D. Neither A nor B.

Extra notes:

Student must be any time ready for quizzes.

External Evaluator

I have read the terms of this article and acknowledge that it meets the required purpose.

Ronak Ahmad Saeed

Assistant Lecturer

07507457633