



Module (Course Syllabus) Catalogue 2022-2023

College	Erbil Technology Engineering	
Department	Automotive Technology Engineering	
Module Name	Auto Transmission	
Module Code	AUT402	
Degree	Technical Diploma	
Semester	4 th	
Qualification	Master	
Scientific Title	Assistant Lecturer	
ECTS (Credits)	4	
Module type	Core	
Weekly hours	3 hrs.	
Weekly hours (Theory)	(1) h Class	(36) h Workload
Weekly hours (Practical)	(2) hrs. Class	(72) h Workload
Number of Weeks	12	
Lecturer (Theory)	Mr. Kareem Ibrahim Kareem	
Lecturers (Practical)	E-Mail	Mobile No.
1. Mr. Kareem Ibrahim Kareem	kareem.kareem@epu.edu.iq	07501114579
2. Nawzad Nazm Abdullrahman	-	07504048894
3. Farshad Rashed	-	07504022722
Websites / Mr. Kareem	https://moodle.epu.edu.iq/my/	

Course Book

Course Description	Human all over the world currently are used automobiles with different types. Automobiles and vehicles have several main components including automatic transmission and transaxle. This course focuses to demonstrate specific information about main components and different types of automatic transmission and transaxle.																				
Course Objectives	<ol style="list-style-type: none"> 1. To identify main components of automatic transmission and transaxle. 2. To have idea about operation of automatic transmission and transaxle including (mechanic and hydraulic). 3. To get information about basic electricity and electronics of automatic transmission and transaxle. 4. To diagnose (identify) mechanical, hydraulic, electricity and electronics troubleshooting. 5. To disassemble and remove automatic transmission and transaxle. 6. To inspect and replace different parts of automatic transmission and transaxle. 7. To reassemble and install automatic transmission and transaxles. 																				
Student's Obligation	<ol style="list-style-type: none"> 1. Students have to attend theoretical and practical lectures to obtain primary information. 2. Students must done quiz weekly in practice lectures. 3. Students must to complete homework, reports and seminars on time. 4. Obtained information of theory and practice lectures is student's duty through several different sources such as (notes during lectures, books, internet and journals). 5. Students should deal with institute and university rules and reminds which are relating to teaching staff, administrative staff, exam, students. And safety procedures. 6. Students have to protect and keep equipment and devices in lab and study halls. 																				
Required Learning Materials	<ol style="list-style-type: none"> 1. Theory lectures will be tough by data show in PPT form. 2. Practice lectures will be tough by data show in PPT form, laboratory works, scientific movies and scientific visiting. 3. Group working during practice lectures, in labs. 4. All safety materials are required including overall, put, glasses, cloves and vest. 																				
Assessment Scheme	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #f4a460;">Homework</td> <td style="text-align: right;">5</td> </tr> <tr> <td style="background-color: #f4a460;">Class Activity</td> <td style="text-align: right;">2</td> </tr> <tr> <td style="background-color: #f4a460;">Report and Seminar</td> <td style="text-align: right;">10</td> </tr> <tr> <td style="background-color: #f4a460;">Lab Report and Activates (Practice)</td> <td style="text-align: right;">10</td> </tr> <tr> <td style="background-color: #f4a460;">Quiz (Theory + Practice)</td> <td style="text-align: right;">8</td> </tr> <tr> <td style="background-color: #f4a460;">Mid Term Exam (Practice)</td> <td style="text-align: right;">15</td> </tr> <tr> <td style="background-color: #f4a460;">Mid Term Exam (Theory)</td> <td style="text-align: right;">10</td> </tr> <tr> <td style="background-color: #f4a460;">Final (Practice)</td> <td style="text-align: right;">20</td> </tr> <tr> <td style="background-color: #f4a460;">Final (Theory)</td> <td style="text-align: right;">20</td> </tr> <tr> <td style="background-color: #f4a460;">Total Grade or Mark</td> <td style="text-align: right;">100</td> </tr> </table>	Homework	5	Class Activity	2	Report and Seminar	10	Lab Report and Activates (Practice)	10	Quiz (Theory + Practice)	8	Mid Term Exam (Practice)	15	Mid Term Exam (Theory)	10	Final (Practice)	20	Final (Theory)	20	Total Grade or Mark	100
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Specific Learning Outcome	<ol style="list-style-type: none"> 1. Student has to obtained property knowledge about main components of automatic transmission and transaxle. 2. Student ought to have idea about operation of automatic transmission and transaxles including (mechanic and hydraulic). 3. Student has to have information about basic electricity and electronics of automatic transmission and transaxle. 4. Student should diagnose (identify) mechanical, hydraulic, electricity and electronics troubleshooting of automatic transmission and transaxle. 5. Student should be able to remove and disassemble automatic transmission and transaxle. 6. Student must know reassemble and install automatic transmission and transaxle. 7. Student should be having knowledge to inspect and replace different parts of automatic transmission and transaxle.
Course References	<ol style="list-style-type: none"> 1. Chris Johanson and James E. Duffy. 2015. Automatic Transmission and Transaxles. Fourth Edition. USA. The Goodheart-Willcox Company, Inc. 2. Chris Johanson. 2015. Shop Manual Automatic Transmission and Transaxles. Third Edition. USA. The Goodheart-Willcox Company, Inc.

Weeks	Course Topics/ Theory	Learning Outcome
1.	Introduction to automatic transmissions and transaxles	1, 2, 3 and 4
2.	Basic electricity and electronics	1, 2, 3 and 4
3.	Automatic transmission mechanical components	1, 2, 3 and 4
4.	Automatic transmission control components	1, 2, 3 and 4
5.	Automatic transaxle construction and operation	1, 2, 3 and 4
6.	Transmission and transaxle circuits	1, 2, 3 and 4
7.	Electronic control systems	1, 2, 3 and 4
8.	Troubleshooting mechanical, hydraulic and electrical problems	3 and 4
9.	Troubleshooting electronic control system problems	3 and 4
10.	Transmission and transaxle in-vehicle service	3, 4, 5, and 6
11.	Disassemble and reassemble automatic transmissions and transaxles	5, and 6
12.	Electronic control system service	3 and 4

Weeks	Practical Topics	Learning Outcome
1.	<ul style="list-style-type: none"> • Job 01 Perform Safety and Environmental Inspections. • Job 02 Identify and Interpret Vehicle Numbers. 	5, 6 and 7
2.	<ul style="list-style-type: none"> • Job 06 Replace and Align Power Train Mounts. • Job 07 Use the Seven-Step Diagnostic Process to Identify Transmission and Transaxle Problems. 	5, 6 and 7
3.	<ul style="list-style-type: none"> • Job 04 Use a Scan Tool to Retrieve Diagnostic Trouble Codes. 	5, 6 and 7
4.	<ul style="list-style-type: none"> • Job 08 Perform Transmission Transaxle Pressure Tests. • Job 09 Service a Planetary-Type Final Drive. 	5, 6 and 7
5.	<ul style="list-style-type: none"> • Job 10 Service a Helical Gear Final Drive. • Job 11 Service a Hypoid Gear Final Drive. 	5, 6 and 7
6.	<ul style="list-style-type: none"> • Job 12 Change Transmission and Transaxle Oil and Filter. 	5, 6 and 7
7.	<ul style="list-style-type: none"> • Job 13 Adjust Transmission Linkage and Bands. • Job 15 Service Speedometer Drive and Driven Gears. 	5, 6 and 7
8.	<ul style="list-style-type: none"> • Job 14 Service an Oil Cooler and Lines. 	5, 6 and 7
9.	<ul style="list-style-type: none"> • Job 16 Service Electrical and Electronic Components. • Job 17 Service Vacuum Modulators and Governors. 	5, 6 and 7
10.	<ul style="list-style-type: none"> • Job 20 Disassemble and Inspect an Automatic Transmission. • Job 21 Service Automatic Transmission Components and Rebuild Subassemblies. • Job 22 Reassemble an Automatic Transmission. 	5, 6 and 7
11.	<ul style="list-style-type: none"> • Job 23 Disassemble and Inspect an Automatic Transaxle. • Job 24 Service Automatic Transaxle Components and Rebuild Subassemblies. • Job 25 Reassemble an Automatic Transaxle. 	5, 6 and 7
12.	<ul style="list-style-type: none"> • Job 28 Describe the Operation of Continuously Variable Transmissions and Hybrid Drive Trains. 	5, 6 and 7

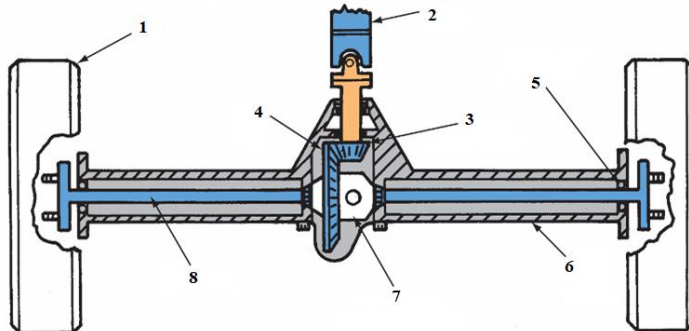
Questions Example Design

A. Questions

1. Define following Phrases?
Transaxle
2. Choose true or false and correct false if appear?
A. A transaxle is used in a drive train system where the engine is placed directly over the drive axles.
B. To operate, every vehicle must have a ring and pinion.
3. List main parts of automatic transmission?
4. Match keywords in column A to answers in column B.

A	B
1. Torque converter	D. Change power direction 90 degrees
2. Ring and pinion	E. To force hydraulic to upper parts
3. Hydraulic pump	F. Engages and disengages power to the transmission

5. The differential gears allow the vehicle to do which of the following?
A. Accelerate faster
B. Use the engine for braking
C. Turn corners
D. Back up
6. The path for engine power to the rear wheels is sometimes called the power ____.
7. Write name and highlighted parts of equipment which is given in figure format.



B. Answers

1. It can be described as a combination of transmission and transaxles which have one input and two output power.
2. A. True.
B. False. Some front-wheel drive vehicles do not have a ring and pinion.
3.
 1. Fluid coupling/torque converter.
 2. Input and output shafts.
 3. Planetary gears.
 4. Holding members.
 5. Case and housings.
 6. Oil pans.
 7. Bushings and bearings.
 8. Hydraulic pump and pressure regulator.
 9. Hydraulic control system.
 10. Gaskets and seals.
 11. Manual linkage and throttle linkage.
 12. Transmission fluid.
 13. Transmission fluid cooler.
 14. Transmission fluid filter.

4.

	A	B
1.		F
2.		D
3.		E

5. C. Turn corners

6. Flow.

7. Tire, Drive Shaft, Drive Pinion Gear, Ring Gear, Rear axle bearing, Rear axle Housing, Differential case Assembly and Drive axle

Extra notes:

External Evaluator: