

Clackamas Community College

Online Course/Outline Submission System

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Section #1 General Course Information

Department: Automotive Technology: Auto Mechanics

Submitter

First Name: Rick
Last Name: Lockwood
Phone: 3053
Email: rickl

Course Prefix and Number: AM - 245

Credits: 7

Contact hours

Lecture (# of hours):
Lec/lab (# of hours): 154
Lab (# of hours):
Total course hours: 154

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title: Automatic Transmission Systems

Course Description:

This course covers the theory and physical description of the automatic transmission. The student will have the opportunity to acquire practical experience and learn the proper procedures for overhaul and service.

Type of Course: Career Technical Preparatory

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s): Automotive Technology AAS; Under Car Technican - Automatic Transmission CPC

Are there prerequisites to this course?

Yes

Pre-reqs: Pass AM-129 with a C or better

Have you consulted with the appropriate chair if the pre-req is in another program?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

No

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

Yes

Have you talked with a librarian regarding that impact?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit: Yes

When do you plan to offer this course?

✓ **Fall**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. demonstrate how to flush a transmission cooler,
2. demonstrate how to flush a transmission,
3. service an automatic transmission,
4. explain automatic transmission power flow,
5. diagnose internal transmission problems related to power flow,
6. rebuild a front and/or a rear wheel drive automatic transmission,
7. connect, interpret, and diagnose transmission data using a scan tool.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Gears
 - a. Types of gears
 - b. Gear ratios
 - c. Planetary gear sets
2. Torque convertors
 - a. Theory of operation
3. Apply and holding devices
 - a. Band operation
 - b. Band adjustments
 - c. Servo operation
 - d. Hydraulic clutch operation and clearance check, one way mechanical clutch operation

4. Hydraulic fundamentals
 - a. Hydraulic valve operation
 - b. Principles of hydraulics
5. Transmission hydraulic systems
 - a. Gear pumps
 - b. Vane pumps
 - c. Rotor pumps
 - d. Variable displacement pumps
 - e. Shift valves
 - f. Regulating valves
 - g. Governor pressure
 - h. Throttle pressure
6. Transmission power flow
 - a. Turbo hydromatic 350 transmission
 - b. 4L60E transmission
 - c. 4T60E transmission
7. Transmission failure diagnosis procedures
 - a. Systematic diagnosis
 - b. Oil pressure testing
 - c. Throttle linkage adjustments
 - d. Vacuum modulator diagnosis
 - e. Torque converter failure diagnosis
8. Transmission fluids
 - a. Automatic transmission fluid properties
 - b. Proper procedure for checking transmission fluid level
9. Transmission coolers
 - a. Flushing procedures
 - b. Testing for cooler restrictions
10. Systematic diagnosis of transmission failures
 - a. Verifying the customer's complaint
 - b. Perform preliminary checks
 - c. Checking for diagnostic trouble codes
 - d. Separating mechanical, hydraulic and electrical failures
 - e. Use of scan tools and multimeters
11. Transmission electroincs-theory
 - a. ECE/PCM inputs
 - b. ECM/PCM outputs
 - c. Pressure control solenoids
 - d. Pulse width modulated solenoids
 - e. Shift solenoids
 - f. Torque converter clutch solenoids
12. Transmission overhaul
13. Valve body overhaul

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|-----------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | No |
| 4. Clean up natural environment | No |
| 5. Supports green services | No |

Percent of course: 0%

First term to be offered:

Next available term after approval

:
