

# AUTO 017: AUTOMATIC TRANSMISSIONS & TRANSAXLES

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**Originator**

doanderson

**Justification / Rationale**

Addition to text book

**Effective Term**

Fall 2020

**Credit Status**

Credit - Degree Applicable

**Subject**

AUTO - Automotive Technology

**Course Number**

017

**Full Course Title**

Automatic Transmissions & Transaxles

**Short Title**

AUTOMATIC TRANS

**Discipline****Disciplines List**

Automotive Technology

**Modality**

Face-to-Face

**Catalog Description**

This course provides theory and hands-on experience in automatic transmissions/transaxles including: theory of operation, service, diagnosis and repair. The course includes the following topics: torque converters, gear sets, hydraulic controls, electrical controls, diagnosis and troubleshooting and partial disassembly and reassembly. A \$20.00 test fee for the appropriate Automotive Service Excellent (ASE) Student Exam is required. A uniform is required for this course.

**Schedule Description**

This class provides lecture/discussion and hands-on experience understanding, servicing, troubleshooting, diagnosing and repairing transmissions/transaxles. A \$20.00 test fee for the appropriate Automotive Service Excellent (ASE) Student Exam is required. A uniform is required for this course.

Prerequisite: AUTO 010 or concurrent enrollment

Advisory: RDG 061, ENG 061

**Lecture Units**

2.5

**Lecture Semester Hours**

45

**Lab Units**

1.5

**Lab Semester Hours**

81

**In-class Hours**

126

**Out-of-class Hours**

90

**Total Course Units**

4

**Total Semester Hours**

216

**Prerequisite Course(s)**AUTO 010 or concurrent enrollment  
Advisory: RDG 061, ENG 061**Required Text and Other Instructional Materials****Resource Type**

Book

**Author**

Chris Johanson

**Title**

Automatic Transmissions and Transaxles

**Edition**

4th

**Publisher**

Goodheart-Willcox

**Year**

2015

**College Level**

Yes

**Flesch-Kincaid Level**

13

**ISBN #**

978-1-61960-6

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**Resource Type**

Book

**Author**

Chris Johanson

**Title**

Modern Automotive Technology NATEF Standards Job Sheets for Performance-Based Learning

**Edition**

9th

**Publisher**

G-w

**Year**

2017

**College Level**

Yes

**Flesch-Kincaid Level**

13

**ISBN #**

9781631263781

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**Resource Type**

Book

**Author**

Chris Johanson

**Title**

Automatic Transmissions and Transaxles Workbook

**Edition**

4th

**Publisher**

Goodheart-Willcox

**Year**

2015

**College Level**

Yes

**Flesch-Kincaid Level**

13

**ISBN #**

978-1-61960-6

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**Resource Type**

Web/Other

**Description**

1. Safety glasses meeting ANSI Z87.1
2. Three ring binder

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**Resource Type**

Web/Other

**Year**

2021

**Description**

The current book is available in digital format and this is going to be offered to the students  
2 Year Individual Access Key Code – 978-1-64564-558-0

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**Class Size Maximum**

21

**Entrance Skills**

Describe shop safety practices.

**Requisite Course Objectives**

AUTO 010-Describe shop safety practices and proper procedures regarding handling hazardous material.

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**Entrance Skills**

Identify basic automotive tools and equipment

**Requisite Course Objectives**

AUTO 010-Identify basic automotive tools and equipment.

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**Entrance Skills**

Service automatic transmission/transaxle.

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**Entrance Skills**

Locate applicable vehicle service specifications and procedures using the latest online service information.

**Requisite Course Objectives**

AUTO 010-Locate applicable vehicle service specifications and procedures using the latest online service information.

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**Entrance Skills**

Properly complete a repair order including all pertinent information and compliant, cause and correction

**Requisite Course Objectives**

AUTO 010-Properly complete a repair order including all pertinent information and compliant, cause and correction.

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**Entrance Skills**

Properly position and lift a vehicle using a floor jack and jack stands and a vehicle hoist.

**Requisite Course Objectives**

AUTO 010-Properly position and lift a vehicle using a floor jack and jack stands and a vehicle hoist.

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**Entrance Skills**

Work together in a team setting

**Requisite Course Objectives**

AUTO 010-Display team work.

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**Entrance Skills**

ADVISORY SKILLS:

Use various reading strategies to prepare, read and comprehend expository text

**Requisite Course Objectives**

RDG 061-Use SQ3R /or SOAR along with outlining, note-taking, mapping summarizing and other strategies to prepare, read, comprehend expository text.

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**Entrance Skills**

Read a variety of texts fluently

**Requisite Course Objectives**

RDG 061-Read a variety of texts fluently.

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**Entrance Skills**

Write organized summaries reactions that capture main idea and supporting details

**Requisite Course Objectives**

ENG 061-Use theses to organize paragraphs into coherent analyses.

RDG 061-Write organized summaries reactions that capture main idea and supporting details.

**Entrance Skills**

Understand multiple word meanings, uses synonyms

**Requisite Course Objectives**

ENG 061-Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.

RDG 061-Understand multiple word meanings, uses synonyms

**Course Content**

1. Orientation, safety & environmental concerns
2. Automotive repair industry terms and conventions
3. Hand tools, special service tools and shop equipment
4. Drive train theory and operation
5. Transmission theory and operation
6. Torque converters and pumps
7. Hydraulic circuits and controls
8. Reaction and friction units
9. Gear trains and shafts
10. Electronic controls
11. Diagnosis, service and repair of automatic transmissions/transaxles, differentials and drive train components
12. Chrysler web-based training modules

**Lab Content**

1. Safety & environmental protection
2. Diagnose, service and repair torque converters and pump concerns
3. Diagnose, service and repair hydraulic circuits concerns
4. Diagnose, service and repair reaction and friction units
5. Diagnose, service and repair gear trains and shafts concerns
6. Diagnose, service and repair electronic controls system concerns
7. Perform regular maintenance
8. Required tasks to meet National Automotive Technicians Education Foundation (NATEF) 2017 MASTER standards

**Course Objectives**

	<b>Objectives</b>
Objective 1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
Objective 2	General: Transmission and Transaxle Diagnosis
Objective 3	In-Vehicle Transmission/Transaxle Maintenance and Repair
Objective 4	Off-Vehicle Transmission and Transaxle Repair
Objective 5	Shop and Personal Safety
Objective 6	Tools and Equipment
Objective 7	Preparing Vehicle for Service
Objective 8	Preparing Vehicle for Customer

**Student Learning Outcomes**

	<b>Upon satisfactory completion of this course, students will be able to:</b>
Outcome 1	Demonstrate shop safety practices while working in a team setting.
Outcome 2	Diagnose and repair intermediate to advanced level automatic transmission/transaxle system malfunctions and control system concerns.

Outcome 3 Demonstrate proficiency in referencing service information while exhibiting the ability to inspect and perform maintenance on automatic transmissions/transaxles and documenting repairs.

### Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Demonstration, Repetition/Practice	Each student will demonstrate their ability to correctly perform a given task not limited to laboratory assignments, research projects, interactive role-play and group activities.
Technology-based instruction	Classroom and lab activities require critical thinking and diagnosis.
Collaborative/Team	Student will work in a team setting while performing lab activities.
Lecture	Each class is half lecture covering multiple aspects of course content.
Laboratory	Student will participate in lab based activities to complete their National Automotive Technicians Education Foundation (NATEF) standards job sheets.
Discussion	Student will participate in classroom discussions.

### Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
College level or pre-collegiate essays	A research report submitted or completed, not limited to a, written, presentation, however, the student is required to research information pertaining to the assignment.	Out of Class Only
Reading reports	Turned in by report, written, presentation, however the student is required to research information pertaining to the assignment.	Out of Class Only
Student participation/contribution	Lab activities and student may participate in role play activities.	In and Out of Class
Mid-term and final evaluations	Used to evaluate students' knowledge and understanding of the information presented. Examples of these are not limited to quizzes, exams, presentations, research, or projects.	In and Out of Class
Group activity participation/observation	Lab activities and student may participate in role play activities.	In and Out of Class
Presentations/student demonstration observations	Student may participate in role play activities, presentation or other research assignments.	In Class Only
Laboratory projects	Student will participate in lab based activities to complete their National Automotive Technicians Education Foundation (NATEF) standards job sheets.	In Class Only
Written homework	Readings from required text: 1-3 chapters per week from both classroom and shop manuals. Homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.	Out of Class Only

### Assignments

#### Other In-class Assignments

1. Readings from required text:.
2. Homework from required text:
3. Start of 2 SP2 safety
  - a. Mechanical Safety
  - b. Pollution prevention
4. Participation in discussion related to topic of lecture.

5. Students must keep a notebook of all course materials including homework, class notes, handouts, class project and team activities. The notebook must be organized by chapter, in-class notes, handouts and extra-credit assignments. The notebook will be evaluated after the half-way point and graded at the end of the course.
6. Review and discuss vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
7. Must develop teamwork skills through classroom interaction and discussion.

**Other Out-of-class Assignments**

1. Readings from required text: 1-3 chapters per week from both classroom and shop manuals. Each chapter 2 hours per week.
2. Homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week. Each chapter 2 hours per week.
3. Completion of 2 SP2 safety tests, each subject including an average of 4 hours
  - a. Mechanical Safety
  - b. Pollution prevention
4. Assigned readings and written summaries from selected instructor handouts. 1 hour
5. Written summaries and analysis of assigned websites.
6. Must complete a course project consisting an essay describing, analyzing and summarizing a selected topic, including out of class research and fieldwork. 8 hours
7. Students must keep a notebook of all course materials including homework, class notes, handouts, class project and team activities. The notebook must be organized by chapter, in-class notes, handouts and extra-credit assignments. The notebook will be evaluated after the half-way point and graded at the end of the course.
8. Vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
9. Hands-on lab worksheets matching each course objective. These will be graded by the instructor throughout the semester during lab time.
10. Must develop teamwork skills through lab activities and assigned special projects.
11. Chrysler web-based training modules, each taking roughly 3 hours
12. Exam prep 12 hours

**Grade Methods**

Letter Grade Only

**MIS Course Data****CIP Code**

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

**TOP Code**

094800 - Automotive Technology

**SAM Code**

C - Clearly Occupational

**Basic Skills Status**

Not Basic Skills

**Prior College Level**

Not applicable

**Cooperative Work Experience**

Not a Coop Course

**Course Classification Status**

Credit Course

**Approved Special Class**

Not special class

**Noncredit Category**

Not Applicable, Credit Course

**Funding Agency Category**

Not Applicable

**Program Status**

Program Applicable

**Transfer Status**

Transferable to CSU only

**General Education Status**

Not applicable

**Support Course Status**

Course is not a support course

**Allow Audit**

No

**Repeatability**

No

**Materials Fee**

No

**Additional Fees?**

Yes

**Additional Fee Amount**

\$20.00

**Additional Fees Description**

Automotive Service Excellent (ASE) Student Exam

**Approvals****Curriculum Committee Approval Date**

3/03/2020

**Academic Senate Approval Date**

3/12/2020

**Board of Trustees Approval Date**

5/15/2020

**Course Control Number**

CCC000455025

**Programs referencing this course**Automotive Air Conditioning Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=104/>)Automotive Transmission Axle Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=108/>)Automotive Braking Systems Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=109/>)Automotive Light and Medium Duty Diesel Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=111/>)Automotive Steering, Suspension, Alignment Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=112/>)Automotive Introductions Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=201/>)Advanced Transportation Technologies AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=44/>)Advanced Transportation Technologies AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=45/>)Automotive Technology AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=57/>)