# 7/23/2020

# brcc keystone logo

Baton Rouge Community College

*Academic Affairs Master Syllabus*

Date Approved: 3 September 2020

Term and Year of Implementation: Spring 2021

**Course Title:** Automatic Transmission Systems

**BRCC Course Rubric:** AUTO 1204

**Previous Course Rubric**:

**Lecture Hours per week-lab hours per week-credit hours**: 1-6-4

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 15-90-105

**Louisiana Common Course Number:**

**CIP Code:** 47.0604

**Course Description:** Introduces the theory, operation, servicing, and overhauling of automatic transmissions and transaxles. Includes diagnostics and testing of mechanical, hydraulic, and electronic systems. This course aligns with Automotive Service Excellence (ASE) certification criteria A2.

**Prerequisites:**  AUTO 1404 and AUTO 1504

**Co-requisites:** AUTO 1304

**Suggested Enrollment Cap:** 20

**Learning Outcomes.** *Upon successful completion of this course, the students will be able to:*

1. Demonstrate the writing, math, science, and interpersonal skills needed to become a successful Automotive Technician.

2. Demonstrate knowledge of the theory, operation and diagnosis of automatic transmissions and transaxles.

3. Perform routine operations related to in-vehicle transmission and transaxle maintenance and repair.

4. Perform routine operations related to off-vehicle transmission and transaxle repair.

5. Demonstrate safe work practices.

**Assessment Measures.** Assessment of all learning outcomes will be measured using the following methods:

1. Assessment measures may include, but are not limited to essays, presentations, speeches, portfolios, collaborative projects, in-class activities, observations, skill performances, class participation, lab reports, lab activities, homework, assignments, quizzes, written exams, and industry-standard proficiency exams.

**Information to be included on the Instructor’s Course Syllabi:**

* ***Disability Statement*:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.
* ***Grading:*** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class”.
* ***Attendance Policy*:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
* ***General Policies*:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.
* ***Cheating and Plagiarism*:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.
* ***Safety Concerns:*** In some courses, this may be a major issue. For example, “No student will be allowed in the lab without safety glasses”. General statements such as, “Items that may be harmful to one’s self or others should not be brought to class”.
* ***Library/ Learning Resources:*** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

1. Career Professionalism

A. Writing Skills Needed by Automotive Technicians

B. Applied Math and Science for Automotive Technicians

C. Interpersonal Skills Needed by Automotive Technician

2. Transmission Fundamentals

3. Transaxle Fundamentals

4. General Transmission and Transaxle Diagnosis

A. Work orders: customer information, vehicle identifying information, customer concern, related service history, cause, and correction

B. Transmission/transaxle concerns:

i. Engine performance vs. transmission/transaxle concerns

ii. Determining necessary action

C. Researching vehicle and service information: transmission/transaxle system operation, fluid type, vehicle service history, service precautions, and technical service bulletins

D. Diagnosing fluid loss and condition concerns: checking fluid levels in transmissions with and without a dip-stick and determining the necessary action

E. Diagnosing pressure concerns in a transmission using hydraulic principles (Pascal’s Law)

F. Diagnosing electronic transmission/transaxle control systems using appropriate test equipment and service information

5. In-Vehicle Transmission/Transaxle Maintenance and Repair

A. Manual valve shift linkage, transmission range sensor/switch, and park/neutral position switch

B. Powertrain mounts

C. Servicing a transmission, performing a visual inspection; replacing fluid and filters

6. Off-Vehicle Transmission and Transaxle Repair

A. Disassembly, cleaning, and inspecting

B. Assembly

C. Inspections: converter flex (drive) plate, converter attaching bolts, converter pilot, converter pump drive surfaces, converter end play, and crankshaft pilot bore

D. Transmission/transaxle end-play or preload

E. Oil delivery circuits: seal rings, ring grooves, and sealing surface areas, feed pipes, orifices, and check valves/balls

F. Bushings

G. Clutch pack clearance

H. Air testing the operation of clutch and servo assemblies

I. Roller and sprag clutch, races, rollers, sprags, springs, cages, and retainers

J. Operational characteristics of a continuously variable transmission (CVT)

K. Operational characteristics of a hybrid vehicle drive train