

# AUTO 020A: AUTOMOTIVE QUICK SERVICE

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**Originator**

jmagbuhat

**Justification / Rationale**

Remove material (uniform) fees.

**Effective Term**

Fall 2019

**Credit Status**

Credit - Degree Applicable

**Subject**

AUTO - Automotive Technology

**Course Number**

020A

**Full Course Title**

Automotive Quick Service

**Short Title**

AUTO QUICK SERVICE

**Discipline****Disciplines List**

Automotive Technology

**Modality**

Face-to-Face

**Catalog Description**

This course provides theory and hands-on experience in performing key automotive services required by entry-level technicians in an automotive repair facility atmosphere. It is geared for those students entering the workforce as an automotive technician. A uniform is required for this course.

**Schedule Description**

This class provides lecture/discussion and hands-on experience performing common services on today's automobile including: oil change, tire balance, brake job, cooling system service, tune-up and timing belt replacement. A uniform is required for this course.

Prerequisite: AUTO 011B & AUTO 013A

Advisory: RDG 061, ENG 061

**Lecture Units**

1

**Lecture Semester Hours**

18

**Lab Units**

2

**Lab Semester Hours**

108

**In-class Hours**

126

**Out-of-class Hours**

36

**Total Course Units**

3

**Total Semester Hours**

162

**Prerequisite Course(s)**AUTO 011B & AUTO 013A  
Advisory: RDG 061, ENG 061**Required Text and Other Instructional Materials****Resource Type**

Book

**Author**

Hadfield, Chris

**Title**

Today's Technician: Basic Automotive Service and Systems (Classroom Manual Only)

**Edition**

5th/e

**Publisher**

Cengage Learning

**Year**

2015

**College Level**

Yes

**Flesch-Kincaid Level**

13

**ISBN #**

9781285442303

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**Resource Type**

Web/Other

**Description**

Safety glasses.

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**Class Size Maximum**

21

**Entrance Skills**

Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.

**Prerequisite Course Objectives**

AUTO 011B-Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.

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**Entrance Skills**

Identify, interpret and repair electrical/electronic system concern; determine necessary action

**Prerequisite Course Objectives**

AUTO 011B-Identify and interpret electrical/electronic system concern; determine necessary action.

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**Entrance Skills**

Research applicable vehicle and service information, such as electrical/electronic system operation, vehicle service history, service precautions, and technical service bulletins

**Prerequisite Course Objectives**

AUTO 011B-Research applicable vehicle and service information, such as electrical/electronic system operation, vehicle service history, service precautions, and technical service bulletins.

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**Entrance Skills**

Use wiring diagrams during diagnosis of electrical circuit problems

**Prerequisite Course Objectives**

AUTO 011B-Use wiring diagrams during diagnosis of electrical circuit problems.

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**Entrance Skills**

Inspect, test and repair switches, connectors, and wires of starter control circuits; perform necessary action

**Prerequisite Course Objectives**

AUTO 011B-Inspect and test switches, connectors, relays, solenoid solid state devices, and wires of electrical/electronic circuits; perform necessary action.

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**Entrance Skills**

Diagnose and repair poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine necessary action

**Prerequisite Course Objectives**

AUTO 013A-Diagnose poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; determine necessary action.

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**Entrance Skills**

Diagnose and repair antilock brake system (ABS) braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.).

**Prerequisite Course Objectives**

AUTO 013A-Diagnose antilock brake system (ABS) electronic control(s) and components using self-diagnosis and/or recommended test equipment; determine necessary action.

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**Entrance Skills**

ADVISORY SKILLS:  
Understand multiple word meanings, uses synonyms

**Prerequisite 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

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**Entrance Skills**

Write organized summaries reactions that capture main idea and supporting details

**Prerequisite 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.

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**Entrance Skills**

Read a variety of texts fluently.

**Prerequisite Course Objectives**

RDG 061-Read a variety of texts fluently.

**Entrance Skills**

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

**Prerequisite Course Objectives**

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

**Course Content**

1. Review of AUTO-010 materials
2. Review of AUTO-011B materials
3. Review of AUTO-013A materials
4. Shop administrative procedures
5. Basic vehicle services
6. Electrical system inspection and service
7. 30\60\90K mile services
8. Suspension and brake system inspection and service
9. Transaxle and driveline inspection and service
10. Tune-ups and retrieval of engine malfunction codes
11. Chrysler web-based training modules

**Lab Content**

1. Adhere to shop safety practices
2. Adhere to shop administrative procedures
3. Perform basic vehicle services
4. Perform electrical system inspection and service
5. Perform 30\60\90K mile services
6. Perform suspension and brake system inspection and service
7. Perform and retrieval of engine malfunction codes

**Course Objectives**

	<b>Objectives</b>
Objective 1	Comply with all shop safety requirements.
Objective 2	Complete work order to include customer information, vehicle identifying. information, customer concern, related service history, cause, and correction.
Objective 3	Demonstrate knowledge of safety aspects of supplemental restraint systems (SRS) and antilock brake systems (ABS).
Objective 4	Locate and use paper and electronic information.
Objective 5	Locate and use Technical Service Bulletins (TSBs).
Objective 6	Define the purpose and use of the VIN, engine numbers, and date code.
Objective 7	Demonstrate use of the three C's (concern, cause, and correction).
Objective 8	Review vehicle service history.
Objective 9	Check and adjust all vehicle fluids using manufacturer recommended fluids.
Objective 10	Perform a detailed vehicle condition inspection.
Objective 11	Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment.
Objective 12	Inspect and replace air filter.
Objective 13	Inspect the vehicle for fuel, oil, coolant, and other leaks; determine necessary action.

Objective 14	Test coolant; drain and recover coolant; flush and refill cooling system with recommended coolant; bleed air as required.
Objective 15	Perform oil and filter change.
Objective 16	Remove and replace radiator.
Objective 17	Service transmission; perform visual inspection of transmission; replace fluids and filters.
Objective 18	Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushings, pivots, and springs; determine necessary action.
Objective 19	Inspect constant-velocity (CV) joint boots.
Objective 20	Remove and replace rear wheel drive drive shaft.
Objective 21	Lubricate suspension and steering systems.
Objective 22	Inspect, remove, and replace shock absorbers.
Objective 23	Remove, inspect, and install strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount.
Objective 24	Diagnose tire wear patterns; determine necessary action.
Objective 25	Inspect tires; check and adjust air pressure.
Objective 26	Rotate tires according to manufacturer's recommendations.
Objective 27	Dismount, inspect, remount and balance tire on wheel.
Objective 28	Repair tire using internal patch.
Objective 29	Reinstall wheel; torque lug nuts.
Objective 30	Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging or wear; tighten loose fittings and supports; determine necessary action.
Objective 31	Bleed (manual, pressure, vacuum, or surge) brake system.
Objective 32	Refinish brake drum.
Objective 33	Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble.
Objective 34	Remove, inspect, and install wheel cylinders.
Objective 35	Install wheel, torque lug nuts, and make final checks and adjustments.
Objective 36	Remove caliper assembly from mountings; clean and inspect for leaks and damage to caliper housing; determine necessary action.
Objective 37	Clean and inspect caliper mounting and slides for wear and damage; determine necessary action.
Objective 38	Remove, clean, and inspect pads and retaining hardware; determine necessary action.
Objective 39	Reassemble, lubricate, and reinstall caliper, pads, and related hardware; seat pads, and inspect for leaks.
Objective 40	Clean, inspect, and measure rotor with a dial indicator and a micrometer; follow manufacturer's recommendations in determining need to machine or replace.
Objective 41	Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.
Objective 42	Inspect the vacuum-type power booster unit for vacuum leaks; inspect the check valve for proper operation; determine necessary action.
Objective 43	Check parking brake cables and components for wear, rusting, binding, and corrosion; clean, lubricate, or replace as needed.
Objective 44	Check parking brake operation; determine necessary action.
Objective 45	Check operation of parking brake indicator light system.
Objective 46	Check operation of brake stop light system; determine necessary action.
Objective 47	Replace wheel bearing and race.
Objective 48	Use wiring diagrams during diagnosis of electrical circuit problems.
Objective 49	Demonstrate the proper use of a digital multimeter (DMM) during diagnosis of electrical circuit problems.
Objective 50	Check electrical circuits using fused jumper wires; determine necessary action.
Objective 51	Locate shorts, grounds, opens, and resistance problems in electrical/electronic circuits; determine necessary action.
Objective 52	Measure and diagnose the cause(s) of excessive key-off battery drain (parasitic draw); determine necessary action.
Objective 53	Perform battery state-of-charge test; determine necessary action.
Objective 54	Maintain or restore electronic memory functions.

Objective 55	Inspect, clean, fill, and replace battery.
Objective 56	Perform slow/fast battery charge.
Objective 57	Start a vehicle using jumper cables and a battery or auxiliary power supply.
Objective 58	Perform starter current draw tests; determine necessary action.
Objective 59	Perform starter circuit voltage drop tests; determine necessary action.
Objective 60	Perform charging system output test; determine necessary action.
Objective 61	Diagnose the cause of brighter than normal, intermittent, dim, or no light operation; determine necessary action.
Objective 62	Inspect, replace, and aim headlights and bulbs.
Objective 63	Identify and visually inspect A/C system components.
Objective 64	Locate refrigerant label and identify specified refrigerant type (e.g., R-12, R-134a).
Objective 65	Conduct preliminary performance test of A/C system (i.e., verify compressor engagement, measure outlet duct temperature, sense temperature change across A/C components); determine necessary action.
Objective 66	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals).
Objective 67	Perform cylinder power balance test; determine necessary action.
Objective 68	Perform cylinder cranking compression test; determine necessary action.
Objective 69	Perform cylinder leakage test; determine necessary action.
Objective 70	Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses; perform necessary action.
Objective 71	Retrieve and record stored OBD II diagnostic trouble codes; clear codes when applicable.
Objective 72	Obtain and interpret scan tool data.
Objective 73	Remove, inspect and replace spark plugs.
Objective 74	Replace fuel filters.
Objective 75	Remove and replace thermostat and gasket.
Objective 76	Perform typical 30\60\90K mile services.

### Student Learning Outcomes

**Upon satisfactory completion of this course, students will be able to:**

Outcome 1	Perform repair and diagnosis of common vehicle service items in a shop-type environment (simulated experience of actual repair facility operation).
Outcome 2	Demonstrate ability to work with a team in a simulated shop environment while maintaining shop safety and professionalism.
Outcome 3	Demonstrate problem solving on live vehicles in a shop-type environment.

### Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Laboratory	Student will participate in lab based activities to complete their NATEF standards job sheets
Discussion	Student will participate in classroom discussions
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	Diagnostic equipment based activities
Lecture	Each class is half lecture covering multiple aspects of course content
Collaborative/Team	Student will work in a team setting while performing NATEF tasks, researching information and group based activities

**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	Student will work in a team setting while performing lab activities	In and Out of Class
Tests/Quizzes/Examinations	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	Student will be observed activities in lab, group activities, information research, collaborative assignments, and other activities assigned.	In and Out of Class
Presentations/student demonstration observations	Student may participate in role play activities, reports, and possibly be required to do a visual presentation.	Out of Class Only
Laboratory projects	Student will participate in lab based activities to complete their 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. Review homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
2. Begin SP2 safety tests.
3. Notes on lecture.
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 note book 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 note book will be evaluated after the half-way point and graded at the end of the course.

8. Chrysler web-based training modules, each taking roughly 3 hours
9. 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**

Not transferable

**Allow Audit**

No

**Repeatability**

No

**Materials Fee**

No

**Additional Fees?**

No

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

02/21/2019



**Academic Senate Approval Date**

02/28/2019

**Board of Trustees Approval Date**

03/15/2019

**Course Control Number**

CCC000455027

**Programs referencing this course**Light and Medium Duty Diesel Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=111/>)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/>)