

AUTO 013A: AUTOMOTIVE BRAKING SYSTEMS

Originator

doanderson

Justification / Rationale

Addition to text book

Effective Term

Fall 2020

Credit Status

Credit - Degree Applicable

Subject

AUTO - Automotive Technology

Course Number

013A

Full Course Title

Automotive Braking Systems

Short Title

AUTO BRAKE SYS

Discipline**Disciplines List**

Automotive Technology

Modality

Face-to-Face

Catalog Description

This course provides theory and hands-on experience in automotive braking systems including: theory of operation, service, diagnosis and repair including both base braking and anti-lock braking systems and components. 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 automotive braking. A \$20.00 test fee for the appropriate Automotive Service Excellent (ASE) Student Exam is required. A uniform is required for this course.

Advisory: RDG 061, ENG 061

Lecture Units

3

Lecture Semester Hours

54

Lab Units

1

Lab Semester Hours

54

In-class Hours

108

Out-of-class Hours

108

Total Course Units

4

Total Semester Hours

216

Prerequisite Course(s)

Advisory: RDG 061, ENG 061

Required Text and Other Instructional Materials**Resource Type**

Book

Author

Johanson

Title

Auto Brakes

Edition

4th

Publisher

Goodheart-Willcox

Year

2015

College Level

Yes

Flesch-Kincaid Level

13

ISBN #

9781619607316

Resource Type

Book

Author

Johanson

Title

Auto Brakes Workbook

Edition

4th

Publisher

Goodheart-Willcox

Year

2015

College Level

Yes

Flesch-Kincaid Level

13

ISBN #

9781619607354

Resource Type

Book

Author

Chris Johanson

Title

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

Edition

9th

Publisher

G-W

Year

2015

College Level

Yes

Flesch-Kincaid Level

13

ISBN #

9781631263781

Resource Type

Web/Other

Description

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

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

Class Size Maximum

24

Entrance 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.

Entrance Skills

Read a variety of texts fluently

Requisite Course Objectives

RDG 061-Read a variety of texts fluently.

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.

ENG 061-Demonstrate the ability to think critically and express ideas using various patterns of development.

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. Auto repair industry terms and conventions
3. Hand tools, special service tools and shop equipment
4. Hydraulic theory and systems
5. Braking system overview
6. Principles of braking
7. Disc and drum brake theory, including power assist: diagnosis, service and repair
8. Antilock brake system theory
9. Brake system service
10. Brake system diagnosis, troubleshooting and repair
11. Antilock brake system diagnosis, troubleshooting and repair
12. Electrical/electronic brake systems
13. Chrysler web-based training modules

Lab Content

1. Demonstrate proper shop safety and environmental practices
2. Use of tool and equipment
3. Preventative maintenance
4. Proper procedures related to electrical/electronic brake systems
5. Diagnose and repair disc and drum brake system concerns
6. Diagnose and repair antilock brake system concerns
7. Diagnosis and repair of power assist systems
8. Perform brake system service
9. Properly document repair orders
10. Proficiency at researching service information
11. Required tasks to meet National Automotive Technicians Education Foundation (NATEF) 2017 MASTER standards

Course Objectives

	Objectives
Objective 1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
Objective 2	General: Brake System Diagnosis

Objective 3	Hydraulic System Diagnosis and Repair
Objective 4	Drum Brake Diagnosis and Repair
Objective 5	Disc Brake Diagnosis and Repair
Objective 6	Power-Assist Units Diagnosis and Repair
Objective 7	Related Systems (i.e., Wheel Bearings, Parking Brakes, Electrical) Diagnosis and Repair
Objective 8	Electronic Brake Control Systems: Anti-lock Brake (ABS), Traction Control (TCS), and Electronic Stability Control (ESC) Systems Diagnosis and Repair
Objective 9	Tools and Equipment, shop and Personal Safety
Objective 10	Preparing Vehicle for Customer

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Demonstrate shop safety practices while working in a team setting
Outcome 2	Diagnose and repair intermediate to advanced level base brake and ABS system malfunctions.
Outcome 3	Demonstrate proficiency in referencing service information and documenting repairs while exhibiting the ability to inspect and perform maintenance on base brake systems.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Demonstration, Repetition/Practice	Students will perform assigned lab activities
Technology-based instruction	Diagnostic equipment based 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	Classroom and lab activities require critical thinking and diagnosis
Observation	Student will work in a team setting while performing lab activities
Participation	Students may be required to complete a research assignment

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	Students may be required to complete a research paper.	Out of Class Only
Student participation/contribution	Student may performing role-play activities simulating customer/technician iterations.	Out of Class Only
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 work in a team setting while performing lab activities. Student may participate in role play activities	In Class Only
Presentations/student demonstration observations	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.	In Class Only
Laboratory projects	Student will participate in lab based activities to complete their NATEF standards job sheets.	In Class Only
Written homework	Review of homework. Lab activity evaluations. Written and hands-on exams.	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
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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 3 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.
2. Homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
3. Completion of 3 SP2 safety tests.
4. Assigned readings and written summaries from selected instructor handouts.
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.
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. 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.

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

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

CCC000455020

Programs referencing this courseAutomotive Air Conditioning Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=104/>)Automotive Braking Systems Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=109/>)Automotive General Service Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=110/>)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/>)Automotive Technology AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=57/>)