Raritan Valley Community College
Course Outline

AUTC 213 – Steering & Suspension Systems II

I. Basic Course Information

A. Course Number and Title: AUTC 213 – Steering & Suspension Systems II

B. New or Modified Course: New

C. Date of Proposal: Fall 2017

D. Effective Term: Fall 2018

E. Sponsoring Departments: *Science and Engineering Department*

F. Semester Credit Hours: 3

G. Weekly Contact Hours: 5 Lecture: 2
Laboratory: 3
Out of class student work per week: 5.5

H. Prerequisite: A grade of C or better in AUTC 203 – Steering & Suspension Systems I

I. Laboratory Fees: Yes

J. Name and Telephone Number or Email Address of Department Chair and Divisional Dean at time of approval:
Department Chair: Marianne Baricevic, Marianne.baricevic@raritanval.edu
Divisional Dean: Sarah Imbriglio, sarah.imbriglio@raritanval.edu

II. Catalog Description

Prerequisite: A grade of C or better in AUTC 203 – Steering & Suspension Systems I. This course will cover the theory involved in advanced Steering and Suspension Systems including diagnosing alignment, tire wear, and Stability Control System problems. The alignment angles and procedures will prepare students to diagnose tire wear and road tracking issues to complete necessary alignment adjustments to vehicles. Practice is provided in diagnosing and servicing these systems as well as performing the alignment adjustments to correct the tire wear and pull of an automobile.

In the lab, students will perform diagnostic strategies of steering angles and alignments and learn how to use a variety of diagnostic tools, hand tools, and precision measurement tools. Students will be required to wear clothing appropriate for auto shop safety at all classes. Safety glasses will also be required at all classes.

III. Statement of Course Need

A. Automotive technicians are vital to our mobile and transport-dependent community. This course is intended to enhance the student's knowledge of advanced steering, suspension, and how it works with anti-lock brakes systems, and build critical thinking skills to improve diagnostic skills. Understanding the operation of advanced steering, suspension, and ABS systems in automobiles and their maintenance are integral elements for the education of well-trained technicians in the field.

B. Lab assignments for the course will introduce students to advanced diagnostic strategies, maintenance and repair of steering, suspension systems and alignment components, while maintaining instruction that reinforces the safety practices in a demonstrative environment.

C. Course transferability: This course generally transfers as a free elective, but may transfer as a program elective to Pennsylvania College of Technology for those students graduating with the AAS in Automotive Technology who are interested in pursuing a B.S. degree at that institution.

IV. Place of Course in College Curriculum

A. Free Elective

B. This course meets the program requirement for the Automotive Technology Certificate and the Associate of Applied Science in Automotive Technology.

C. Course transferability; for New Jersey schools go to the NJ Transfer website, www.njtransfer.org. For all other colleges and universities go to their individual sites.

V. Outline of Course Content

1. Steering System Components and Alignment Diagnosis
2. Alignment Diagnosis and Service
3. Advanced Steering and Suspension systems
4. Advanced Alignment angles and strategies

5. Tire wear diagnosis
6. Vehicle Pull Diagnosis
7. Structural Damage Diagnosis

VI. General Educational and Course Learning Outcomes

A. General Educational Learning Outcomes

At the completion of the course, students will be able to:

1. identify techniques to troubleshoot, repair, maintain, and solve problems with varied automotive steering and suspension systems (GE NJ 4)
2. apply quantitative reasoning to solve problems with automotive steering and suspension systems (GE NJ 2)
3. discuss issues involving automotive steering and suspension systems (GE NJ 1)

B. Course Learning Outcomes

At the completion of the course, students will be able to:

1. Analyze the structure and function of components of advanced steering, suspension, and alignments.
2. Compare and contrast advanced steering and suspension systems relating to the alignment angles and type of systems.
3. Inspect, test, and replace advanced steering and suspension components according to manufacturer's specifications.
4. Diagnose steering and suspension alignment angles.
5. Perform lab experiments and tasks to competent skill level as listed on the NATEF curriculum standards.

C. Assessment Instruments

1. lectures
2. demonstrations
3. laboratory work
4. instructional videos/DVDs
5. laboratory performance
6. examinations
7. NATEF task list

VII. Grade Determinants

A. lab performance
B. examinations
C. class participation
D. technical writing
E. interactive simulations

Primary formats, modes, and methods for teaching and learning that may be used in the course:

A. lecture/discussion
B. small-group work
C. group discussion
D. computer-assisted instruction
E. laboratory
F. simulation/role playing
G. demonstration
H. student collaboration

VIII. Text and Materials

A. Suggested Text: Automotive Technology: Principles, Diagnosis, and Service Plus MyAutomotiveLab with Pearson eText -- Access Card Package / Edition 5 by James D. Halderman (Author), Prentice Hall Publishing ISBN-10: 0134009088 / ISBN-13: 9780134009087

B. Students will be required to wear clothing appropriate for auto shop safety at all classes. Student are required to wear a standard industry uniform. Safety glasses will also be required at all classes.

C. The Automotive Program utilizes online curriculum and online industry service and repair information from the following sources:

I. AllData
II. Snap On Industries
III. Shop Key Pro.

D. Various Automotive Magazines

E. Students are provided the use of RVCC technology during the course

Please note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.

IX. Resources

A. Reference books
B. Text Book
C. AllData
D. Shop Key Pro
E. Snap On Industries
F. NAPA Pro-Link
G. Published Automotive Magazines
H. Lab/Shop Tools and Equipment
I. Electude Interactive Courseware
J. Safety equipment
K. Lubricants and various automotive fluids
L. Sample Steering and Suspension system components
M. Instructional videos/DVDs
N. Auto mechanics shop facility at RVCC workforce building