

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY  
AUT 141 - AUTO POWER TRAINS I (4 CR.)**

**Course Description**

Presents operation, design, construction and repair of power train components, standard and automatic transmission. Includes clutches, propeller shaft, universal joints, rear axle assemblies, fluid couplings, torque converters as well as 2, 3, and 4 speed standard, overdrive and automatic transmissions. Part I of II. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**General Course Purpose**

This is the first course in a two-course study of automotive power trains. AUT 141 is a detailed study of manual transmissions, differentials, and manual transaxles, clutch systems, drive axle, CV joints, driveline and 4 wheel drive systems manual and automatic.

**Course Prerequisites/Corequisites**

The ability to read, write, and speak the English language.

**Course Objectives**

Upon completion of this course the student should be able to:

- Explain the operation of, and perform service on, both standard and limited slip differentials
- Identify and perform service on both Cardin and constant velocity universal joints
- Explain both the operation and service of clutch systems used with manual transmissions and transaxles
- Explain the operation of manual transmissions and transaxles
- Disassemble, inspect, repair, and reassemble manual transmissions and transaxles
- Use available service information to locate specifications related to the inspection, repair and adjustments of automotive engines
- Demonstrate skills using inspection procedures, troubleshooting and making corrective repairs

**Major Topics to be Included**

- Differentials
- Drive line service
- Clutch systems
- Manual transmissions - principles of operation, diagnosis and service
- Manual transaxles - principles of operation, diagnosis and service
- Manual transmission and manual transaxles operation, diagnosis and service
- Drive axle and cv joints
- 4 wheel drive systems operation, diagnosis and service