

# Northwest Technical College

## AMST 1330: HP Fuel/Electronics/Ignitions

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 1

Lab Hours/Week: 3

OJT Hours/Week: 0

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers the principles of different performance enhancements systems/devices for race and street applications. Students will install and test performance devices on our Mustang chassis dynamometer and Land & Sea engine dynamometer. Systems tested will include fuel systems, exhaust systems, air induction systems, ignitions systems and engine management systems.

Prerequisite(s): None

Co-requisite(s): None

### B. COURSE EFFECTIVE DATES: 08/27/2018 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. High Performance carburation.  
High Performance nitrous oxide systems.  
High Performance fuel systems.  
High Performance intake and exhaust systems.  
Electronic stand-alone fuel management systems.  
Race Fuels

#### **D. LEARNING OUTCOMES (General)**

1. Describe and evaluate the operation of dry and wet nitrous oxide enrichment systems.
2. Describe the advantages and disadvantages of performance exhaust systems.
3. Utilize different performance exhaust systems.
4. Design and construct high performance fuel systems.
5. Identify powertrain control input and output devices.
6. Compare analog and digital sensors.
7. Compare conventional and high performance ignition systems.
8. Describe carburation.
9. Perform carburetor adjustments.
10. Experiment with ignition and cam timing.
11. Formulate intake and exhaust system applications.
12. Utilize different performance intake and exhaust systems.
13. Describe the benefits of race application fuels.
14. Compare different race fuels.
15. Compare different stand-alone engine & fuel management systems.
16. Develop fuel management strategies.
17. Tune stand-alone engine & fuel management systems on a dynamometer.

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted