Faculty members are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

**DEPT. AUTO COURSE NUMBER:** 2121

**NUMBER OF CREDITS:** 5  **Lecture:** 2  **Lab:** 3

<table>
<thead>
<tr>
<th>Course Title:</th>
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<tbody>
<tr>
<td>Engine Performance III</td>
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<tr>
<th>Catalog Description:</th>
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<tr>
<td>This course teaches the theory and repair of automotive engine systems including ignition systems, emission controls, electronic engine controls, and engine performance diagnosis. Students will learn to diagnose and repair all systems related to engine performance.</td>
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**FULFILLS MN TRANSFER CURRICULUM AREA(S)**

Goal 1: Communication: ____ by meeting the following competencies:

Goal 2: Critical Thinking: ____ by meeting the following competencies:

Goal 3: Natural Sciences: ____ by meeting the following competencies:

Goal 4: Mathematics/Logical Reasoning: ____ by meeting the following competencies:

Goal 5: History and the Social and Behavioral Sciences: ____ by meeting the following competencies:

Goal 6: The Humanities and Fine Arts: ____ by meeting the following competencies:

Goal 7: Human Diversity: ____ by meeting the following competencies:

Goal 8: Global Perspective: ____ by meeting the following competencies:

Goal 9: Ethical and Civic Responsibility: ____ by meeting the following competencies:

Goal 10: People and the Environment: ____ by meeting the following competencies:

<table>
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<tr>
<th>Prerequisites or Necessary Entry Skills/Knowledge:</th>
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<td>None</td>
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### Topics to be Covered

- Analysis of can systems
- Analysis of fuel injections, direct injection systems
- Drivability concerns
- Diagnosis of engine mechanical systems

### Student Learning Outcomes

1. Analyze vehicle emission systems
2. Analyze engine vacuum.
4. Perform compression /cylinder leakage test
5. Analyze no-start condition.
6. Analyze engine mechanical problems.
7. Diagnose drivability concerns as it related to repair of drivability problems.
8. Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

*The required outcomes follow the Auto Service Technician (AST) model of the National Automotive Technical Education Foundation (NATEF) certification program.*

### Is this course part of a transfer pathway:

- Yes [ ]
- No [x]

Revised Date: 4/2020