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:** 1131

**NUMBER OF CREDITS:** 3  **Lecture:** 1  **Lab:** 2

<table>
<thead>
<tr>
<th>Course Title:</th>
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<tbody>
<tr>
<td>Brakes</td>
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<tr>
<th>Catalog Description:</th>
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<tr>
<td>This course enables the student to properly service automotive brake systems. Included will be diagnosis of problems, system theory and repair, machine procedures, customer satisfaction and safety.</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:

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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**

- Brake system operation
- Hydraulic brakes
- Drum brakes
- Disc brakes
- Power boosters
- Parking brake systems
- Antilock brake systems

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**Student Learning Outcomes**

1. Identify brake system components and configuration
2. Describe, inspect, diagnose, and repair hydraulic brake systems.
3. Describe, inspect, diagnose, and repair drum brake systems.
4. Describe, inspect, diagnose, and repair disc brake systems.
5. Identify components of the brake power assist; and check pedal travel to verify proper power booster operation.
6. Check parking brake system components for wear, binding, and corrosion; clean, lubricate, adjust and/or replace as needed.
7. Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings.
8. Identify traction control/vehicle stability control system components and describe operation.
9. 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.*

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**Is this course part of a transfer pathway:**  Yes  ☐  No  ✗