



BRAKES — HCEM 1250

A. Course Description

- **Credits:** 2.00
- **Lecture Hours/Week:** 1.00
- **Lab Hours/Week:** 1.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

Instruction covers hydraulic and pneumatic brake theory and operation, component identification, application, and general repairs on heavy equipment. Safety and troubleshooting are stressed. Prerequisites: HCEM1101 or instructor's approval

B. Course Effective Dates: 3/22/98 – Present

C. Outline of Major Content Areas

As noted on course syllabus

D. Learning Outcomes

1. Adjust air governor
2. Adjust brake chambers
3. Adjust hydraulic brakes
4. Adjust slack adjustors
5. Bleed brake system
6. Diagnose brake problems
7. Display shop safety
8. Exhibit safety procedures
9. Explain air brake operation
10. Explain air brake supply system
11. Explain brake tools and equipment
12. Explain disc type brake operation
13. Explain master cylinder operation
14. Explain parking brake system
15. Explain relay valve

16. Explain safety procedures
17. Explain shoe type brake operation
18. Identify brake fluid
19. Identify brake lining material
20. Identify hydraulic brake components
21. Inspect brake drum
22. Inspect brake linings
23. Replace brake shoes
24. Service air compressor
25. Service air reservoir(s)
26. Service disc brake caliper
27. Service parking brake air
28. Service parking brake mechanical
29. Service threadle valve
30. Use hand tools
31. Use specialized tooling

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

F. Learner Outcomes Assessment

As noted on course syllabus

G. Special Information

None noted