SYLLABUS

Division: Business & Engineering Technologies **REVISED: Fall 2012**
Curricula in Which Course is Taught: **Automotive Analysis & Repair**
Course Number and Title: **AUT 113 Cylinder Block Service**
Course Credits 3 **Lecture 2 Hours/Week** **Laboratory 3 Hours/Week**

I. Course Description:

Studies basic cylinder block reconditioning, including boring, line-boring, re-sleeving and deck resurfacing. Includes repair techniques for damaged block and cylinder head castings to include cold welding, brazing and epoxy.

II. Relationship of the Course to Curriculum Objectives:

Students will:

I. demonstrate technical competencies & skills in automotive engine block repair
II. demonstrate punctuality & reliability acceptable to the auto repair industry
III. use safety equipment & procedures required for the tasks being performed
IV. read & interpret technical information required for projects & assignments
V. demonstrate and maintain a clean, orderly, safe & attractive work place & maintain a personal appearance that will enhance that work place

III. Requirements:

Textbook: Automotive Technology by Halderman/Mitchell, latest addition, Prentice Hall Publisher. Have work clothes and tool set available each day.

IV. Course Objectives-ASE task list:

Disassemble engine block; clean and prepare for inspection
Inspect engine block for cracks, passage condition, core and gallery plug condition and surface warpage
Inspect threads; restore as needed
Inspect & measure cylinder walls for damage, wear and ridges; repair as needed
De-glaze and clean cylinder walls
Inspect and measure cam bearings for wear, damage, out-of-round or misalignment
Inspect crankshaft for end play, straightness, journal damage, keyway damage, thrust flange condition, cracks, oil passage condition, wear, etc.
Inspect and measure main and rod bearings or wear or damage
Identify piston and bearing wear patterns that indicate connecting rod misalignment or bearing bore problems
Inspect and measure pistons; determine action
Remove and replace piston pin
Inspect, measure and install piston rings
Inspect auxiliary shafts and support bearings for wear
Inspect or replace crankshaft vibration dampener
Assemble the engine using gasket, seals and sealants according to specifications

V. Learner Outcomes:

evaluated by multiple choice, fill in the blank or true/false tests:

1. diagnose piston ring failure
2. diagnose cylinder bore wear
3. diagnose crankshaft wear
4. diagnose connecting rod problems
5. diagnose engine bearing failure

VI. Evaluation: by active participation in team projects:

6. participate in the dismantling and cleaning of an engine
7. participate in the precision measurements necessary for engine repair
8. participate in checking rod and main bearing clearances
9. participate in the machine work necessary to complete shop projects to industry standards
10. participate in the assembly of an engine rebuild project
11. 75% of the students will be able to complete these assignments

VI. The following General Education Objectives will be addressed in this course:

X Communications

X Learning Skills

X Critical Thinking

_____ Interpersonal Skills and Human Relations

X Computational and Computer Skills

_____ Understanding Culture and Society

X Understanding Science and Technology

_____ Wellness