COURSE OUTLINE

Course Number	Course Title	Credits
AUT 213	Engine Service	4

Hours: lecture/Lab/Other	Co- or Pre-requisite	Implementation sem/year
2 4	AUT 111	Spring 2010

Catalog description (2006-2009 Catalog): Diagnosis, failure analysis, and rebuilding procedures for automobile engines. Topics include engine operating principles, component measurement techniques, engine removal and reinstallation, and service manual usage for diagnosis. Each student will be required to totally disassemble, diagnose, and reassemble a four-cycle engine.

Is course New, Revised, or Modified? Revised

Required texts/other materials: Gilles, Tim. Automotive Engines, 5th Edition, Thomson Delmar Learning, 2007

Revision date: August 2009

Course coordinator: Fred Bassini, Ext. 3776, bassinif@mccc.edu

Information resources: Chrysler DealerConnect web-site, Chrysler Academy Training Reference Books, Service Manuals, On-line and CD Disc Self-study Courses and the AllData Online Service Information Database.

Other learning resources: ASE Study Guides, Automotive Related Articles Obtained From Magazines and Journals

Course Competencies/Goals:

The student will be able to:

- •demonstrate industry accepted diagnostic techniques to pinpoint engine noise concerns
- •explain the function and operation of a four-cycle, gasoline engine
- •analyze engine component wear patterns to identify abnormalities in fit and assembly
- •demonstrate his/her ability to properly disassemble and assemble a complete engine assembly
- •utilize printed and electronic service information when needed or required

Course-specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goals

Goal 1. Communication. Students will communicate effectively in both speech and writing.
Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
Goal 3. Science. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.
Goal 5. History. Students will understand historical events and movements in World, Western, non-Western or American societies and assess their subsequent significance.
Goal 6. Diversity. Students will understand the importance of a global perspective and culturally diverse peoples.
Goal 7. Ethical Reasoning and Action. Students will understand ethical issues and situations.

MCCC Core Skills

Goal A. Written and Oral Communication in English. Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.
Goal C. Ethical Decision-Making. Students will recognize, analyze and assess ethical issues and situations.
Goal D. Information Literacy. Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
Goal E. Computer Literacy. Students will use computers to access, analyze or present information, solve problems, and communicate with others.
Goal F. Collaboration and Cooperation. Students will develop the interpersonal skills required for effective performance in group situations.
Goal G. Intra-Cultural and Inter-Cultural Responsibility. Students will demonstrate an awareness of the responsibilities of intelligent citizenship in a diverse and pluralistic society, and will demonstrate cultural, global, and environmental awareness.

Units of study in detail.

Unit I REVIEW OF ENGINE THEORY OF OPERATION / BASIC ENGINE CONSTRUCTION

Learning Objectives

The student will be able to…

- •explain the basic operation of all four-stroke gasoline engines
- •identify possible causes for a poorly operating four-stroke, gasoline engine
- •describe the function of basic parts used in engine construction
- •demonstrate safety procedures while working on or near a running four-stroke, gasoline engine

A. THE FOUR-STROKE THEORY
   a. Intake
   b. Compression
   c. Power
   d. Exhaust
B. PHYSICAL PRINCIPLES OF POWER
   a. Compression
   b. Thermodynamics
   c. Engine Power Flow

C. TYPES OF AUTOMOTIVE ENGINE
    a. Engine Classification
        i. Cylinder Arrangement
        ii. Valve Arrangement
        iii. Camshaft Arrangement
        iv. Combustion Chamber Shape
    b. Displacement
D. COMPONENTS: BASIC FUNCTION AND OPERATION
    a. Crankshaft
        i. Purpose
        ii. Parts
    b. Connecting Rods and Bearings
        i. Types and Styles
        ii. Parts
    c. Valve Train
        i. Components
    d. Camshaft
    e. Cylinder Bock
    f. Cylinder Head

Unit II ENGINE PRE-TEARDOWN DIAGNOSIS

Learning Objectives

The student will be able to…

•perform a comprehensive engine condition analysis using electrical and mechanical instruments
•evaluate test engine test data to determine possible causes for a performance concern
•demonstrate how to effectively pinpoint the cause(s) of abnormal engine noise(s)

A. REASONS FOR OVERHAUL
    a. Compression Problems
    b. Oil Consumption
    c. Abnormal Engine Noises
    d. Poor Engine Performance
B. CYLINDER CONTRIBUTION CONCERNS
    a. Compression Test/Volumetric Efficiency
        i. Mechanical Gauge
        ii. Scan Tool
    b. Cylinder Leakage
    c. Power Balance Test
        i. Manual
        ii. Scan Tool
    d. Vacuum Testing
        i. Idle
        ii. Cruise
        iii. Acceleration
        iv. Wide Open Throttle
        v. Deceleration
C. OIL CONSUMPTION
    a. Engine Oil Leakage
        i. Oil Leak Diagnosis
    b. Internal Oil Consumption
        i. Places Where Can Enter The Cylinder
        ii. Methods of Diagnosis
D. DIAGNOSING ABNORMAL ENGINE NOISES
    a. Pinpointing The Source of Engine Noise
        i. Canceling Cylinders

ii. Listening Devices
    1. Upper-End Noise
    2. Lower-End Noise
iii. Crankshaft End-Play
iv. Accessory Drive Noises (assumed to be engine noises)
v. Transmission Noises (assumed to be engine noises)

Unit III MEASUREMENT TECHNIQUES AND EQUIPMENT / COMPONENT INSPECTION

Learning Objectives

The student will be able to…

•perform measurement checks on new and warn engine components to evaluate fit and condition
•determine necessary steps needed to correct problems detected during measurement phases
•identify possible causes for abnormally sized components and recommend corrective actions
•use industry acceptable techniques and equipment while completing all engine measurements

A. UNITS OF MEASUREMENT
    a. English System Units
        i. Fractional Inches
        ii. Decimal System
    b. Metric System
        i. Millimeters
B. CONVERTING BETWEEN ENGLISH AND METRIC SYSTEM UNITS
    a. Conversion Factor
    b. Charts/Tables
    c. Computer Generated Conversions
C. MEASURING TOOLS
    a. Outside Micrometer
        i. Components of the Tool
        ii. Measuring and Reading
            1. Metric
            2. Standard
        iii. Applications and Care
    b. Inside Micrometer
        i. Comparison With Outside Micrometer
        ii. Measuring and Reading
        iii. Applications and Care
    c. Small Hole Gauges
        i. Telescoping Gauge
            1. Applications/Operation
        ii. Split-Ball Gauge
            1. Applications/Operation
    d. Feeler Gauge
        i. Applications
        ii. Proper Use and Handling
            1. Magnetic
            2. Non-Magnetic
        iii. Dial Indicator
            1. Proper Mounting of Dial Indicator
                a. Tool Holding Fixtures
                b. Applications
                c. Keeping Tool In Calibration/Damage Prevention
    e. Straight Edge
        i. Applications/Operation/Care
        ii. Use With Feeler Gauge
D. CRACK DETECTION AND LOCATING CASTING FAILURES
    a. Pre-Cleaning for Crack Detection
        i. Types of Solid Contaminants

1. Water Soluble
2. Organic
    a. By-Product of Petroleum
    b. By-Product of Combustion
    c. Protective Coatings
3. Rust
4. Scale

b. Chemicals Used for Cleaning
    i. Alkaline-Base
    ii. Emulsifiable Solvent
    iii. Acid-Base
    iv. Cleaning soft Metals
    v. Safety Precautions
c. Machines and Equipment Used For Cleaning
    i. Steam Cleaners
        1. Theory of Operation
    ii. High-Pressure Washer
    iii. Emulsion Cleaning
    iv. Chemical Parts Washer
    v. Cold-Soak Tanks
    vi. Hot-Soak Tanks
    vii. Hot-Spray Tanks
    viii. Safety Precautions
d. Other Cleaning Methods
    i. Glass Beading
    ii. Sandblasting
    iii. Micropening
    iv. Safety Precautions
e. Inspection Procedures
    i. Visual Cracks and Breaks
    ii. Severe Wear Patterns
        1. Scuffing and Scoring
        2. Scratches and Grooves
        3. Component Glazing
    iii. Other Methods of Crack Detection
        1. Magneflux (magnetism)
        2. Dye Penetrant
        3. Pressure Testing
        4. Diesel Fuel Crack Testing
        5. Portable Black Light Testing (Zyclo)

Unit IV ENGINE REMOVAL FROM VEHICLE – GENERAL PROCEDURE

Learning Objectives

The student will be able to…

•locate the proper engine removal procedure in electronic and printed service manuals
•identify potential hazards associate with engine removal in various vehicle makes and models
•indentify proper engine lifting points and point in need of support during the removal procedure
•exercise safety while performing an engine removal procedure to minimize personal injury and component damage
•successfully remove and install an engine in a passenger or light truck vehicle

A. PREPARATION FOR ENGINE REMOVAL
    a. Under the Hood
        i. Component Removal
        ii. Component Identification Procedures

iii. Component and Fastener Organization Techniques
iv. Fluid Removal

b. Underneath the Vehicle
i. Component Removal
ii. Component Identification Procedure
iii. Component and Fastener Organization Techniques
iv. Fluid Removal
v. Disassembly From Engine/Transmission Mounts

c. Engine Removal Procedures
i. Lifting Techniques
ii. Engine Removal
1. Removal Through the Hood Opening
2. Removal From the Bottom/Lowering Front Chassis/Subframe

Unit V LOWER ENGINE (SHORT-BLOCK) CONSTRUCTION / DESIGN / SERVICE

Learning Objectives

The student will be able to…

•demonstrate industry acceptable methods for piston removal and installation
•explain advantages and disadvantage of different metals used to construct components found in the lower portion of an engine
•explain how lateral movement of pistons is used to propel a vehicle
•analyze lower engine components and identify the need for service or replacement
•successfully disassemble and reassemble the lower-end components of a four-stroke engine

A. COMPONENTS
a. Cylinder Block / Cylinder
i. Type of Material
ii. Cylinder Sleeve
iii. Internal Parts
iv. Function

b. Crankshaft
i. Offsets / Throws
ii. Journal Surfaces
iii. Counter Weights

c. Connecting Rod
i. Parts
ii. Piston Pin Types

d. Piston
i. Parts
ii. Shape and Design
iii. Piston Expansion Control
iv. Thrust Force / Piston Pin Offset

e. Piston Rings
i. Types of Materials / Coatings
ii. Types of Rings – Designs
1. Compression
2. Oil Control
iii. Ring End-Gap
1. Types

f. Bearings
i. Types
1. Main and Connecting Rod Insert-Type

2. Camshaft Bushing – Type
ii. Oil Clearance
1. Purpose
2. Oil Grooves
3. Cooling
4. Oil Pressure
iii. Construction
1. Alloys
2. Tri-Metal
3. Alloy Requirements

g. Engine Oil Seals
i. Lip Seal
ii. “O” Ring Seal
iii. Rope Seal
iv. Paper / Rubber / Cork / Composite / Liquid Sealer

h. Engine Coolant Seals
i. Core Plugs
1. Name Variations
2. Purpose
3. Necessity
4. Material Types
ii. “O” Ring Seal
iii. Paper / Rubber / Cork / Composite / Liquid Sealer

B. SHORT-BLOCK DISASSEMBLY PROCEDURES
a. Cylinder Ridge Removal
i. Using a Ridge Reamer

b. Piston / Connecting Rod Removal
i. Removal From Crankshaft
ii. Cylinder Identification
iii. Crankshaft Protection

c. Crankshaft Removal
i. Main Bearing Cap Identification
ii. Crankshaft Bearing Removal

d. Camshaft removal (Cam-In-Block / Over-Head-Valve / Push Rod Engine)
i. Supporting Crankshaft
1. Removal From Engine Front
2. Removal From Engine Rear
ii. Camshaft Bearing Removal

e. Component Storage Methods
f. Component Cleaning

C. COMPONENT INSPECTION
a. Cylinder Block / Cylinders
i. Scratches or Grooves
ii. Cylinder Out-Of-Round
iii. Cylinder Taper
iv. Main Bearing Surface Out-Of-Round
v. Crack Detection

b. Crankshaft
i. Scoring or Ridges
ii. Journal Out-Of-Round or Taper
iii. Checking Run-Out
iv. Checking End-Play

c. Connecting Rod

i. Checking Journal Out-Of-Round
ii. Alignment

d. Piston
    i. Visual Inspection
        1. Burns / Scoring / Scuffing / Breakage
    ii. Checking Wear
        1. Out-Of-Round
        2. Taper
    iii. Checking Ring Groove Clearance
    iv. Fitting The Piston
        1. Skirt to Cylinder Wall Clearance
    v. Cleaning Piston Ring Grooves

e. Piston Rings
    i. Ring End-Gap Measurement

f. Bearings
    i. Clearance Measurements
        1. Tools Used For Measurement
        2. Using Plastigauge
    ii. Visual Inspection

D. COMPONENT SERVICE PROCEDURES
    a. Cylinder / Block
        i. Glaze Breaking
            1. Purpose
            2. Tools
            3. Procedure
        ii. Honing
            1. Purpose
            2. Tools
            3. Procedure
        iii. Boring
            1. Purpose
            2. Tools
            3. Procedure Description
        iv. Line-Boring
            1. Purpose
            2. Tools
            3. Procedure Description
    b. Piston
        i. Knurling
            1. Purpose
            2. Tools
            3. Procedure Description

E. SHORT-BLOCK ASSEMBLY PROCEDURES
    a. Importance of Correct Torque of Fasteners
    b. Use of Engine Assembly Lubricants
        i. Types of Acceptable Lubricants
    c. Component Installation
        i. Crankshaft
            1. Main Bearing Inserts
            2. Rear Oil Seal
        ii. Piston / Ring / Connecting Rod Assembly
            1. Installing Ring On Pistons
            2. Using a Piston Ring Compressor

3. Rod Bearing Inserts
4. Installation of Assembly in Cylinder Block

iii. Camshaft Bearings (Cam-In-Block / Over-Head-Valve / Push Rod Engine)
iv. Camshaft (Cam-In-Block / Over-Head-Valve / Push Rod Engine)
v. Timing Chain (Cam-In-Block / Over-Head-Valve / Push Rod Engine)
1. Valve Timing
2. Checking Camshaft End-Play
vi. Core Plug Installation

Unit VI UPPER ENGINE CONSTRUCTION / DESIGN / RECONDITIONING

Learning Objectives

The student will be able to…

•demonstrate industry acceptable techniques to recondition a cylinder head
•properly operate a valve grinding machine and seat cutting machine
•explain the operation of different cylinder head designs and applications
•determine the necessity for cylinder head reconditioning or replacement
•analyze a damaged cylinder head and pinpoint potential causes of the damage
•successfully disassemble and reassemble all types of cylinder heads using the proper tools and equipment

A. COMPONENTS
a. Cylinder Heads
b. Valve Guides and Seals
c. Valves
d. Valve Seats
e. Valve Spring Assembly
f. Rocker Arms and Push Rods

B. CYLINDER HEAD
a. Construction Material
i. Cast Iron
ii. Aluminum
b. Combustion Chamber Designs
i. Wedge
1. Turbulent
ii. Hemispherical
1. Non-Turbulent
iii. Pent-Proof (“V”-Shaped)
1. Four-Cylinders
2. Efficiency
3. Lower Emissions
iv. Measuring For Warpage
1. Scores or Scratches
2. Maximum Allowances

C. VALVE GUIDES AND SEALS
a. Types of Guide Material
b. Lubrication and Cooling
c. Guide Failures
i. Galling
ii. Oil Consumption Through Guides
iii. Bellmouthing
d. Guide Measurement Procedures
i. Telescoping or Split-Ball Gauge

ii. Dial Indicator
iii. Maximum Clearances

e. Types of Valve Seals
i. Umbrella Type
ii. “O” Ring Type
iii. Positive Type

D. VALVES / VALVE SEATS
a. Valve Geometry
i. Valve Head
ii. Valve
iii. Valve Face / Margin
b. Valve Heat Transfer
c. Types of Valves
i. Swirl-Polished
ii. Aluminized Valve
iii. Sodium Valves
iv. Canted Valve
d. Valve Hard Facing
e. Valve Seats
i. Hardened Surface
ii. Seat Inserts
iii. Angles
1. Top
2. Face
3. Throat
f. Valve Assembly and Seat Diagnosis
i. Micrometer
ii. Valve Failures
1. Burning
2. Breakage

E. SPRING ASSEMBLY
a. Components
i. Function
1. Spring
2. Keepers / Retainers
3. Retainer Washers
4. Shims
5. Valve Rotators (Where Applicable)
b. Spring Harmonics
c. Valve Rotation
i. Advantages
1. Minimized Stem Deposits
2. Keeps Face and Seat Clean
3. Prevents Valve Edge Burning
4. Maintains Uniform Valve Head Temperatures
5. Prevent Valve Edge Distortion
6. Maintains Uniform Stem Tip Wear
7. Maintains Uniform Stem Lubrication
d. Spring Measurement
i. Squareness
ii. Free Standing Height
iii. Spring Pressure Testing

F. ROCKER ARMS AND PUSH RODS

a. Types of Rocker Arms
    i. Cast
    ii. Stamped Steel
    iii. Rollerized
    iv. Cam Followers (Over-Head-Cam / Cam-In-Head)
b. Rocker Arm Stands and Studs
c. Rocker Arm Shafts
d. Rocker Arm Lubrication
    i. Oil Galleries
    ii. Push Rod
e. Rocker Arm Geometry
f. Fault Detection
    i. Wear Patterns
    ii. Measuring

G. CYINDER HEAD RECONDITIONING PROCEDURES
a. Cylinder Head Disassembly
    i. Cam-In-Block / Over-Head-Valve / Push Rod Engine Type
    ii. Over-Head-Cam / Cam-In-Head Type
    iii. Removing Valves / Spring Assembly
        1. Matching Components and Location
            a. Keeping Parts Organized
b. Valve Guide Service
    i. Cleaning
    ii. Reaming
    iii. Knurling
        1. Clearance
        2. Procedure
        3. Advantages
        4. Disadvantages
    iv. Installing Valve Guide Inserts
        1. Types of Inserts
        2. Methods of Removal and Installation
    v. Guide Beveling
c. Valve Resurfacing
    i. Valve Cleaning – Carbon Build-Up Removal
        1. Scraper
        2. Old Valve
        3. Wire Wheel
    ii. Machining the Valve Face
        1. Setting Up the Machine
        2. Chucking the Valve
        3. Using the Machine
        4. Grinding the Valve
            a. Edge Breaking
            b. Hard-Faced Valves
            c. Grinding Patterns
            d. Final Inspection
        5. Machining the Valve Seat
            a. Preliminary Checks
            b. Stone Selection
            c. Dressing the Stone
                i. Safety
            d. Inserting the Valve Seat Pilot

e. Grinding the Seat
    i. Face Angle
    ii. Top Angle
    iii. Throat Angle
f. Checking Contact Area
    i. Adjustment
    ii. Further Cutting
    iii. Lapping the Valve

H. CYLINDER HEAD REASSEMBLY
    a. Installing Valve Seals
        i. Care
        ii. Special Tools
    b. Installing Valve Springs
        i. Special Tools
        ii. Installing Keepers and Retainers
        iii. Pre-Lubricants

Unit VII VALVE ACTUATION AND VALVE TIMING SYSTEMS AND COMONENTS

Learning Objectives

The student will be able to…

•analyze and engine's valve timing system to determine type and function
•properly set valve timing using appropriate service information
•explain the fundamental design differences on OHV and OHC timing systems
•properly diagnose engine concerns cause by inadequate valve timing
•explain the problems associated with improper valve timing on freewheeling and non-freewheeling engines

A. LIFTER THEORY
    a. Valve Train Clearance
        i. Temperature
    b. Types of Lifters
        i. Hydraulic
        ii. Solid
        iii. Rollerized
    c. Hydraulic Lifter
        i. Maintain Zero Lash (Clearance)
        ii. Lifter Construction
            1. Oil Flow
            2. Construction
        iii. Lifter Operation
        iv. Pump-Up
    d. Fault Detection
        i. Leak-Down Test
        ii. Wear Patterns
    e. Cam Followers (OHC)
        i. Tappets (OHC Version of a Lifter)
            1. Similar Function

B. CAMSHAFT THEORY
    a. Camshaft Design (Profile)
        i. Clearance Ramps
        ii. Heal / Toe
        iii. Lifter Base Diameter

iv. Lift
v. Duration
vi. Overlap (Lobe Centers)

b. Interchangeability for Solid and Hydraulic Camshafts
c. Camshaft End Thrust
    i. Measurement
d. Lifter Duration
e. Fault Detection
    i. Wear Patterns
    ii. Measuring Techniques
        1. Lobe Lift
        2. Base Circle Run-Out
        3. Straightness
f. Camshaft / Lifter Break-In
    i. Assembly Lubricants

C. CAMSHAFT DRIVE METHODS / VALVE TIMING SYSTEMS
    a. Gear-To-Gear
    b. Chain Drive
        i. Chain Guides
        ii. Tensioners
            1. Hydraulic
            2. Mechanical
    c. Drive Belt
        i. Idler Pulleys
        ii. Tensioners
            1. Hydraulic
            2. Mechanical
        iii. Belt Service Requirements
    d. Fault Detection
        i. Cam Drive Wear
            1. Deflection Method
            2. Pin Movement Method
            3. Distributor Rotor Movement Method

Unit VIII COMPLETE ENGINE ASSEMBLY AND START-UP PROCEDURES

Learning Objectives

The student will be able to…

•demonstrate industry acceptable techniques to properly reassemble a gasoline automotive four-stroke engine
•recognize the importance of following proper fastener torque procedures
•explain why it is necessary to prime the lubrication system before starting the engine
•explain common problems overlooked during the reassembly procedure

A. ENGINE REASSEMBLING
    a. Installation of Cylinder Head Assembly
        i. Head Gasket Installation
        ii. Surface Preparation
        iii. Torque Sequence
        iv. Timing Belt Installation (OHC)
    b. Installation of Lifters and Push Rods
        i. Lifter Pre-Prime (Hydraulic)
        ii. Camshaft / Lifter Assembly Lube

iii. Installing the Push Rods
1. Lubrication
iv. Lifter Pre-Load (Zero Lash)

c. Installing the Manifolds (Intake and Exhaust)
i. Gasket Surface Preparation
ii. Types of Gaskets and Seals
iii. Torque Sequence

d. Installing All Bolt-On Items and Accessories
i. Harmonic Balancer
ii. Flywheel / Flex Plate
iii. Core Plug Installation
iv. Oil Pan and Covers

B. ENGINE START-UP PROCEDURES

a. Priming the Oil Pump
i. Importance and Purpose

b. Initial Start-Up
i. Safety Practices
ii. Break-In Speed
iii. Maintaining All Fluid Levels

c. Lifter Adjustment
i. Hydraulic
ii. Solid
iii. Methods of Oil Retention During Adjustment

d. Post Start-Up Procedures
i. Set Ignition Timing
ii. Adjust Carburetor (If Equipped)
iii. Top Off All Fluids
iv. Check For Fluid Leaks
v. Re-Torque Head Bolts (As Required)

<u>Unit IX</u> **COURSE REVIEW / FINAL EXAM**

A. REVIEW OF ENGINE THEORY OF OPERATION / BASIC ENGINE CONSTRUCTION
B. ENGINE PRE-TEARDOWN DIAGNOSIS
C. MEASUREMENT TECHNIQUES AND EQUIPMENT / COMPONENT INSPECTION
D. ENGINE REMOVAL FROM VEHICLE – GENERAL PROCEDURE
E. LOWER ENGINE (SHORT-BLOCK) CONSTRUCTION / DESIGN / SERVICE
F. UPPER ENGINE CONSTRUCTION / DESIGN / RECONDITIONING
G. VALVE ACTUATION AND VALVE TIMING SYSTEMS AND COMONENTS
H. COMPLETE ENGINE ASSEMBLY AND START-UP PROCEDURES

Evaluation of student learning:

A. Lab Work 50%
B. Test/Quizzes/Homework Assignments/Final Exam 50%

Academic Integrity Statement:

Mercer County Community College is committed to Academic Integrity-- the honest, fair and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work, and that faculty and academic support services staff members will take reasonable precautions to prevent the opportunity for academic dishonesty.

Reasonable Accommodations for Students with Documented Disabilities

Mercer County Community College is committed to supporting all students in their academic and co-curricular endeavors. Each semester, a significant number of students document disabilities, which may require learning, sight, hearing, manual, speech, or mobility accommodations to ensure access to academic and co-curricular activities. The college provides services and reasonable accommodations to all students who need and have a legal entitlement to such accommodations.

For more information regarding accommodations, you may visit the Office of Academic Support Services in FA129 or contact them at 609.570.3422 or urbanb@mccc.edu.