

**College of Micronesia – FSM**  
**P.O. Box 159**  
**Kolonia, Pohnpei**

## Course Outline Cover Page

**Ignition, Electrical, and Transmission Systems**

Course Title

**VTM 103**

Department and Number

**Course Description:** This course deals with automotive ignition, electrical and transmission systems. It covers the conventional ignition system from the early models and progresses through to the electronic ignition. The electrical system covers operational theory, testing, magnetism, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. The transmission system takes into more detail about the principles involved in the operation and maintenance of automatic transmission and transaxles.

The subjects combined in this course gives more emphasis to the basic theory and operation of the ignition system for the student to establish a fundamental understanding most especially to the electronic ignition system that made a dramatic advancement and still continue to develop its fast changing technology through the years.

**Prepared by:** Pablo H. Lamsis, Jr.

**State:** Pohnpei Campus

	<b>Hours per Week</b>	<b>No. Of Weeks</b>	<b>Total Hours</b>	<b>Semester Credits</b>
Lecture	3	16	48	3
Laboratory	3	16	48	1
Total Semester Credits:				4

**Purpose of Course**

Degree Requirement \_\_\_\_\_  
 Degree Elective \_\_\_\_\_  
 Advanced Certificate \_\_\_\_\_  
 Certificate \_\_\_\_\_ XX \_\_\_\_\_  
 Remedial \_\_\_\_\_  
 Other (Workshop) \_\_\_\_\_

**Prerequisite Course(s):** VTM 101 & VTM 102

\_\_\_\_\_  
Signature, Chairman, Curriculum Committee

\_\_\_\_\_  
Date Approved by Committee

Signature, President, COM-FSM

Date Approved by the President

**I. LEARNING OUTCOMES:**

**A. General Learning Outcomes:** Upon successful completion of this course, students will competently be able to:

1. Identify and describe function of parts of the contact point (conventional type) ignition system and compare them to the electronic ignition system. Perform basic ignition system testing and maintenance.
2. Explain electrical operational theories, and carry out basic testing and repairs of batteries, charging, starting systems and electrical accessories.
3. Explain the principles involved in the operation of automatic transmission and transaxles and be able to carry out basic maintenance.

**B. Specific Learning Outcomes:** Upon successful completion of this course, students will be able to:

**Learning Outcome 1: Identify and describe function of parts of the contact point (conventional type) ignition system and compare them to the electronic ignition system. Perform basic ignition system testing and maintenance.**

- Assessment Criteria:
- a. Using a block diagram, explain the function of the conventional contact point ignition system.
  - b. Trace electronic ignition system layout and explain function of related components.
  - c. Carry out basic maintenance of the ignition system.

Assessment Method: Multiple choice questions  
Short answer questions  
Practical exercises/tests

**Learning Outcome 2: Explain electrical operational theory, carry out basic testing and repairs of batteries, charging, starting systems and electrical accessories.**

- Assessment Criteria:
- a. Explain electrical operational theory.
  - b. Explain the principles of magnetism.
  - c. Carry out battery testing, starting and charging systems checks.
  - d. Demonstrate how to check basic electrical circuitry.

Assessment Method: Multiple choice questions  
Short answer questions  
Practical exercises/tests

**Learning Outcome 3: Explain the principles involved in the operation of automatic transmission and transaxles and be able to carry out basic maintenance.**

Assessment Criteria: a. Explain the basic operation of an automatic transmission.  
b. Perform basic automatic transmission and transaxle maintenance.

Assessment Method: Multiple choice questions  
Short answer questions  
Practical exercises/tests

***STUDENTS WILL BE MADE AWARE OF OCCUPATIONAL HEALTH AND SAFETY ISSUES IN ALL SITUATIONS AND BE EXPECTED TO DEMONSTRATE SAFE WORKING PRACTICES AT ALL TIMES.***

**II. COURSE CONTENTS:**

1. Ignition system
  - Design, function, and operation of contact point ignition system..
  - Design, function and operation of basic electronic ignition system.
2. Electrical system
  - Electrical operational theory.
  - Principles of magnetism
  - Testing of battery, starting and charging systems.
  - Testing of electrical circuitry.
3. Automatic transmission and transaxle
  - Basic operation of automatic transmission.
  - Basic maintenance of automatic transmission and transaxle.

**III. TEXTBOOK:**

Modern Automotive Technology, Duffy, 2003

**IV. REQUIRED COURSE MATERIALS:**

**1. Instructor:**

- a. Classroom with whiteboard
- b. Laboratory equipment with tools of the trade
- c. Text, Teacher's Resource Guide, workbook

d. Computer, Overhead projector, transparencies

**2. Student:**

- a. Text(s), handouts provided when deemed necessary by the Instructor
- b. Ring binder
- c. College ruled note sheet, pencil or pen
- d. Tool Kit

**V. REFERENCE MATERIALS:**

*Modern Automotive Technology, James Duffy*

*How Stuff Works, www.howstuffworks.com*

*Manufacturer's Service Manuals*

*Selected Films and Charts from Various Sources*

**VI. METHODS OF INSTRUCTION:**

1. Computer Aided Instruction
2. Practical/Experimentation
3. Lecture/Demonstration

**VII. EVALUATION:**

Final Grade for this course will be based on meeting the course requirements at the following percentage rates:

90% - 100%	A – Excellent
80% - 89%	B – Above Average
70% - 79%	C – Average
60% - 69%	D – Below Average
0 % - 59%	F – Failure

**VIII. ATTENDANCE POLICY:**

The COM-FSM attendance policy will apply.

**IX. ACADEMIC HONESTY POLICY:**

The COM-FSM academic honesty policy will apply.