Flow Chart of Math IV Pacing Guide
(Automotive)

Pre-knowledge
(First Semester) Completed by
the Mathematics Instructor

Embedded Math within Curriculum 2nd and 3rd Semesters

Module I
Competency 1:
The Study of angle measurements, degrees, fractional degrees and minutes, adding and subtracting angular measurements
Competency 2:
To study geometric circumference, circular measurements, arc lengths, and the area and volume of cylinders
Competency 3:
To study the metric system units of measure and complete assigned conversions between metric and Standard English forms
Competency 4:
To study integers & signed numbers, absolute values, (engine coolants and alignment adjustments)

Module II
Competency 1:
Simplifying ratios and identifying ratios versus rates
Competency 2:
Set up and solve proportions, define & calculate direct and indirect proportions
Competency 3:
To convert decimals and fractions to percents, solve problems using percents, and understand gear, fluid, and engine compression ratios
Competency 4:
To calculate repair costs, discounts, interest, payments, profit/loss, commissions, and tax payments
To complete repair orders

Module III
Competency 1:
To study the volume of a cylinder, engine specification, compression ratio, valve timing, intro to torque and horsepower
Competency 2:
To study formulas for hp loss, torque, in³ displacement, theoretic air capacity, volume efficiency, engine fluid capacity and volumetric efficiency
Competency 3:
To study the relationship between voltage, current and resistance utilizing Ohms law, describe battery ratings, and determine proper wire size and study range and domain using an Oscilloscope. (Graph Theory)
Competency 4:
To determine transmission gear ratios, torque, force, and pressure, Describe the difference between speed and torque. Explain relationships between engine speed, transmission ratio, drive axle ratio, and tire diameter on vehicle speed.

Module IV
Competency 1:
To study volume in a cylinder, determine hydraulic force, steering and suspension, brake operation & worn components, weight transfer, and alignment adjustment angles
Competency 2:
Learn how to read digital meters, scale measurements, and analog meters
Competency 3:
Learn how to read dial indicators, micrometers, and identify proper thread sizes
Competency 4:
To calculate and analyze wave patterns using the concept of range and domain illustrated by time vs. amplitude on the X & Y Cartesian coordinate plane

Post-knowledge
Last Semester- Real World Situational Math Project
Designed by the Math Instructor and Program Instructor