Virginia Western Community College
MTS 125
Motorsports Technology I

Prerequisites
MTS 120

Course Description
Introduces the student to the various systems of the racecar. Focuses on the inter-related functions and the theoretical concepts of the high performance race engine. Emphasizes hands-on skills with identification and installation of component parts of a race engine.

Semester Credits: 3 Lecture Hours: 2 Lab/Clinical/Internship Hours: 2

Required Materials

Textbook:
None

Other Required Materials:
None

Course Outcomes

At the completion of this course, the student should be able to:

- Students will demonstrate an awareness racecar system
- Students will be able to accurately lay out parts used in racecar systems
- Students will be able to fabricate bare chassis, roll cage, or component parts
- Students will be able to demonstrate assembly safety procedures
- Students will be able to prepare vehicle for pre-assembly
- Students will become familiar with how to install necessary components of a racecar including: fluid, wiring, safety, suspension, steering, braking and drive-line
- Student will identify driver and crew safety equipment
- Students will identify correct assembly and disassembly techniques for an engine.

Topical Description

I. Task_Competencies

1 Demonstrate positive work ethic.

2 Demonstrate integrity.

3 Demonstrate teamwork skills.

4 Demonstrate self-representation skills.

5 Demonstrate diversity awareness.

6 Demonstrate conflict-resolution skills.

7 Demonstrate creativity and resourcefulness.

8 Demonstrate effective speaking and listening skills.

9 Demonstrate effective reading and writing skills.

10 Demonstrate critical-thinking and problem-solving skills.

11 Demonstrate healthy behaviors and safety skills.

12 Demonstrate an understanding of workplace organizations, systems, and climates.

13 Demonstrate lifelong-learning skills.

14 Demonstrate job-acquisition and advancement skills.

15 Demonstrate time-, task-, and resource-management skills.

16 Demonstrate job-specific mathematics skills.

17 Demonstrate customer-service skills.

18 Demonstrate proficiency with technologies common to a specific occupation.

19 Demonstrate information technology skills.

20 Demonstrate an understanding of Internet use and security issues.

21 Demonstrate telecommunications skills.

22 Examine aspects of planning within an industry/organization.

23 Examine aspects of management within an industry/organization.

24 Examine aspects of financial responsibility within an industry/organization.

25 Examine technical and production skills required of workers within an industry/organization.

26 Examine principles of technology that underlie an industry/organization.

27 Examine labor issues related to an industry/organization.

28 Examine community issues related to an industry/organization.

29 Examine health, safety, and environmental issues related to an industry/organization.

30 Identify the purposes and goals of the student organization.

31 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.

32 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.

33 Identify Internet safety issues and procedures for complying with acceptable use standards.

34 Follow safety practices.

35 Perform housekeeping duties.

36 Demonstrate required worker and shop safety.

37 Follow safety clothing and equipment guidelines.

38 Identify basic elements in a drawing or a sketch.

39 Interpret basic welding symbol information.

40 Fabricate simple parts from a drawing or a sketch.

41 Perform routine inspections and maintenance of tools.

42 Demonstrate hand and power tool safety.

43 Demonstrate the use of a horizontal saw, a band saw, and a cold-cut saw.

44 Demonstrate the use of a bead roller and the use of bead roller dies.

45 Demonstrate the use of a tubing bender.

46 Demonstrate the use of a tubing notcher (end-mill type notcher).

47 Demonstrate the use of an English wheel.

48 Demonstrate the use of forming hammers.

49 Demonstrate the use of a sheet metal brake.

50 Demonstrate the use of a metal roller.

51 Demonstrate the use of a hydraulic shear.

52 Demonstrate the use of automotive machine shop equipment.

53 Perform safety inspections of welding equipment, and report all problems.

54 Set up for gas metal arc welding operations and base metal preparation.

55 Demonstrate single pass fillet weld, all positions, on carbon steel, using short circuit transfer.

56 Demonstrate safety inspections of equipment, materials to be cut, and work area.

57 Identify PAC safety procedures.

58 Set up for manual plasma arc-cutting operations.

59 Operate plasma arc-cutting equipment.

60 Perform shape-cutting operations.

61 Identify safety procedures.

62 Lay out parts.

63 Fabricate bare chassis, roll cage, or component parts.

64 Fabricate sheet metal.

65 Estimate cost of materials for fabrication project.

66 Demonstrate assembly safety procedures.

67 Prepare vehicle for pre-assembly.

68 Install all necessary components (e.g., fluid, wiring, safety, suspension, steering, braking, and drive-line).

69 Identify driver safety equipment.

70 Identify crew safety equipment.

71 Identify autobody safety procedures.

72 Demonstrate cylinder leakage test.

73 Demonstrate correct disassembly of engine.

74 Check engine wear and specifications.

75 Demonstrate assembly of engine.

76 Identify high-performance engine parts.

77 Demonstrate high-performance safety equipment.

78 Identify the types of motorsports.

79 Identify all rules, regulations, and technical specifications in the motorsports field.

80 Identify careers in the field of motorsports technology.

Notes to Instructors

- None