

Powersports Technology | Two Year Program: Scope & Sequence

Year 1, Semester 1

PST101 - Powersports Foundations I
(19 Weeks)

District Pre-Assessment

Unit 1 (3 Weeks, 16 Days)

Foundations of Powersports, Safety & Tools

- Intro to the Powersports Industry
- Shop Safety Practices
- Shop Equipment & Hand Tools
- Technical Math
- Precision Measurement, Fasteners and Thread Repair
- Certification: Safety & Pollution Prevention (SP2) Certification, NC3 Precision Measurement Instruments (PMI) Certification, NC3 Torque, NC3 Multimeters
- CTSO Integration (Leadership Skills): Officer elections
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: 5.NF.B.3, 6.RP.A.3, G-GMD.A.3, ELA.11.12.RI.7
- Work-Based Learning: Integrated project with Professionals
- Technical Standard: 1.1.1 thru 1.1.15, 2.1.1 thru 2.1.5, 3.1.1 thru 3.1.9 4.1.1 thru 4.1.4

Unit 2 (6 weeks, 27 days)

Theory of Internal Combustion Engines

- Engine Design, Configurations & Construction
- Engine Ratings & Performance Measurements
- 4-Stroke Engine Theory, Operation & Components
- 2-Stroke Engine Theory, Operation & Components
- Marine Engine Theory, Operation & Components
- CTSO Integration (Leadership Skills): Officer training
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: 7.G.B.4 ELA.11.12.W.4, ELA.11.12.SL.4, ELA11.12.W.5, ELA.11.12.L.4, ELA.11.12.W.8
- Work-Based Learning: Guest speaker
- Technical Standard: 5.1.1 thru 5.1.15

Unit 3 (4 weeks, 18 days)

Lubrication & Cooling Systems

- 2-Stroke & 4-Stroke Engine Lubrication Theory, Operation & Components
- Friction-Reducing Devices
- Air and Liquid Cooling Theory, Operation and Components
- CTSO Integration (Leadership Skills): SkillsUSA Fall Leadership Conference
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Mock Interview
- Technical Standard: 5.2.1 thru 5.2.19

Unit 4 (6 weeks, 26 Days)

Internal Combustion Engine Inspection & Repair

- 2-Stroke Engine Top-End Cleaning, Inspection, Disassembly and Reassembly
- 2-Stroke Engine Bottom-End Cleaning, Inspection, Disassembly and Reassembly
- 4-Stroke Engine Top-End Cleaning, Inspection, Disassembly and Reassembly
- 4-Stroke Engine Bottom-End Cleaning, Inspection, Disassembly and Reassembly
- Certification: Briggs and Stratton small engine, Polaris bronze engine, Yamaha level 1
- CTSO Integration (Leadership Skills): Resume writing, job interview prep, community service # 1, fundraising event # 1
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Job application
- Technical Standard: 5.3.1 thru 5.3.27

Semester Exam

Year 1, Semester 2

PST102 - Powersports Foundations II
(18 Weeks)

Unit 5 (4 week, 18 days)

Fundamentals of Electricity

- Electrical Safety Precautions
- Electricity Theory
- Units of Electricity
- Principles of Magnetism
- Series and Parallel Circuit Design
- Ohm's Law Calculations
- Relay Operation
- CTSO Integration (Leadership Skills): Community service project# 2
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Mock interview
- Technical Standard: 6.1.1 thru 6.1.9

Unit 6 (4 weeks, 18 Days)

Electrical/Electronic Systems Diagnosis & Repair

- Electrical Meters and Measurements
- Chassis Wiring Diagnosis & Repair
- Electronic Devices
- Electrical Circuit Diagnosis
- Battery, Alternator and Starter Components, Operation, Diagnosis and Repair.
- Lighting, Gauges and Accessories Operation, Diagnosis and Repair.
- CTSO Integration (Leadership Skills): SkillsUSA Region 5 conference
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Guest speaker
- Technical Standard: 6.2.1 thru 6.2.23, 6.3.1 thru 6.3.11

Unit 7 (5 Week, 25 Days)

Fuel, Ignition & Engine Management Systems

- Fuel & Oxygen Stoichiometry
- Carburetors
- Fuel Delivery Systems
- Fuel Injection Systems
- Intake and Throttle Control/Governor Systems
- Exhaust Systems
- Primary & Secondary Ignition System Theory, Operation & Components
- Engine Management Systems
- Turbo and Superchargers Theory and Operation
- Certification: Polaris Manufacture Bronze, Silver, Level 1 & 2
- CTSO Integration (Leadership Skills): Fundraising event
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Service learning project with community partner
- Technical Standard: 7.1.1 thru 7.1.14, 7.2.1 thru 7.2.9, 7.3.1 thru 7.3.21

Unit 8 (6 Week, 29 Days)

Drives, Clutches, Axles & Transmission Systems

- Gear Types
- Gear Ratios
- Primary Drives
- Clutch Systems
- Transmissions
- Constant Velocity Transmission Operation
- Differentials and Axles
- Certification: Polaris Manufacture Bronze, Silver, Level 1 & 2
- CTSO Integration (Leadership Skills): SkillsUSA Arizona State Championships
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Workplace visit
- Technical Standard: 8.1.1 thru 8.1.35

District Post-Assessment

Year 2, Semester 1

PST201 Powersports Technician I
(19 Weeks)

Unit 1 (1 Week, 7 days)

Shop Orientation, Tools & Safety

- Shop Safety Practices
- Shop Equipment & Hand Tools
- Technical Math
- Precision Measurement, Fasteners and Thread Repair
- CTSO Integration (Leadership Skills): Officer elections
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: 5.NF.B.3, 6.RP.A.3, G-GMD.A.3, ELA.11.12.RI.7
- Work-Based Learning: Integrated project with professionals
- Technical Standard: 1.1.1 thru 1.1.15, 2.1.1 thru 2.1.5, 3.1.1 thru 3.1.9 4.1.1 thru 4.1.4

Unit 2 (4 Weeks, 17 days)

Brakes, Wheels & Tires

- Braking System Components, Operation, Diagnosis and Repair
- Wheels & Tire Components, Operation, Diagnosis and Repair
- Traction Control Systems
- Certification: Polaris Manufacture Bronze, Silver, Level 1 & 2
- CTSO Integration (Leadership Skills): Officer training
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2, ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Guest speaker
- Technical Standard: 9.1.1 thru 9.1.39

Unit 3 (3 Weeks, 15 Days)

Frames, Suspension & Steering System

- Frame Design & Characteristics
- Suspension System Components, Operation, Diagnosis and Repair
- Steering System Components, Operation, Diagnosis and Repair
- CTSO Integration (Leadership Skills): Community service # 1
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: 8.G.B.7 ELA11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Workplace Visit (Tatum motorsports)
- Technical Standard: 10.1.1 thru 10.1.19

Unit 4 (3 Weeks, 13 Days)

Hydraulic System

- Hydraulic System Theory, Components, Operation, Diagnosis and Repair
- CTSO Integration (Leadership Skills): SkillsUSA Fall Leadership Conference
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F, 8.C
- Academic Standards: G-GMD.A.3, 6RPA.3, ELA11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Workplace visit (CAT / John Deer)

Unit 5 (7 Weeks, 35 Days)

Motorcycle Maintenance & Diagnosis

- Service Motorcycle Engine & Chassis
- Motorcycle Preventative Maintenance
- Diagnose Engine, Chassis, Electrical and Computer Faults
- Diagnose Owner Induced Faults
- Certification: Polaris Manufacture Bronze, Silver, Level 1 & 2
- CTSO Integration (Leadership Skills): Resume writing, job interview prep, fundraising event # 1
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F,8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Guest Speaker
- Technical Standard: 6.2.12, 6.3.6, 7.2.6, 7.3.14, 8.1.12, 9.1.14, 9.1.20, 10.1.11

Semester Exam

Common AZCCR Math Standards (CAM5)
English Language Arts Standards (ELAS)

Year 2, Semester 2

PST202 Powersports Technician II (18 Weeks)

Unit 6 (5 Weeks, 25 Days)

Powersport Equipment Maintenance & Diagnosis

- Service Powersport Engine & Chassis
- Powersport Preventative Maintenance
- Diagnose Engine, Chassis, Electrical and Computer Faults
- Diagnose Owner Induced Faults
- CTSO Integration (Leadership Skills): Community service # 2
- Professional Skills:1.A, 2.C, 3.A, 3.D, 4.F,8.C
- Academic Standards: A11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5, EL4, 9.1.20, 10.1.11
- Work-Based Learning: Externship
- Technical Standard: 6.2.12, 6.3.6, 7.2.6, 7.3.14, 8.1.12, 9.1.1

Unit 7 (2 Weeks, 10 Days)

Power Equipment Dealership Operations & Service Writing

- Use manufacturer information resources
- Interpret and complete service bulletins
- Perform vehicle identification and pre-delivery inspections
- Customer interaction development
- CTSO Integration (Leadership Skills): SkillsUSA Region 5 Conference
- Professional Skills:1.A, 2.C, 3.A, 3.D, 4.F, 7.B, 8.C, 9.0
- Academic Standards: 5.NF.B.6 ELA11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: School based enterprise

Unit 8 (5 Weeks, 25 Days)

Marine Equipment Maintenance & Diagnosis

- Service Marine Equipment Engine & Chassis
- Marine Equipment Preventative Maintenance
- Diagnose Engine, Chassis, Electrical and Computer Faults
- Diagnose Owner Induced Faults
- Certification: Polaris Manufacture Bronze, Silver, Level 1 & 2
- CTSO Integration (Leadership Skills): Fundraising event # 2
- Professional Skills: 1.A, 2.C, 3.A, 3.D, 4.F,8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Externship
- Technical Standard: 6.2.12, 6.3.6, 7.2.6, 7.3.14, 8.1.12, 9.1.14, 9.1.20, 10.1.11

Unit 9 (6 Weeks, 30 Days)

Powersports Internship/Capstone

- Capstone Projects
- Internships at local Powersports Businesses
- CTSO Integration (Leadership Skills): SkillsUSA Arizona State Championships
- Professional Skills:1.A, 2.C, 3.A, 3.D, 4.F,8.C
- Academic Standards: ELA11-12.SL.4, ELA11-12-R1.2. ELA11-12.W.8, ELA11-12.W.5
- Work-Based Learning: Internship