2020 Emission Management
Training Program

FW Murphy Production Controls is pleased to announce its 2020 training offerings.

We are constantly improving training programs offered to distributors, customers and end-users.

We advise that travel and accommodation arrangements be made no more than two weeks before the start of the course due to the possibility of the course schedule changing. _We will notify all registered participants as to status the class 14 calendar days before the scheduled start date._

All scheduled classes will be at one of our state-of-the-art facilities. We provide lunch each full training day as well as snacks and drinks. Special menus are available to accommodate dietary needs.

We can provide a list of local hotels before the start of each class if needed.

Notice: _Anyone wishing to attend these courses can register online or by contacting their FW Murphy Master Distributor. Master Distributors are listed online under Where To Buy> US Sales Distributors._

2020 Courses

Engine Basics

The core purpose of this course is to bring all future course participants up to a competent level of understanding of the basic operations of a gas-fired internal combustion engine and emissions creation and regulation.

We offer the course two times this year. Each course session is scheduled to last 3.5 days and will begin at 8:30 a.m. Tuesday and will last until noon Friday. Student count is a maximum of 16 participants with a minimum of six participants for each class to make the course the most effective possible.

Course enrollment closes three weeks before the start of the class.

The Engine Basics course curriculum includes:

- *Combustion Theory* – A review and discussion of combustion as it pertains to internal combustion engines, how combustion is affected by outside sources and how combustion affects the engines exhaust emissions.
- *Ignition Theory* – A review and discussion of ignition systems, past, present and future, as well as the basic components of the ignition system, how it affects the operation of the engine and how it can affect exhaust emissions.
- *Catalyst Basics* – A review and discussion of how catalytic converters work, their design and how they reduce the exhaust pollutants. This course will also cover basic troubleshooting, installation and maintenance of the converter systems.
- *Fuel System Basics* – A review and discussion of the fuel system designs and components used on gas-fired internal combustion engines. The course will cover carburetors, mixers, regulators, other fuel delivery systems and how their operation affects the engine's exhaust emissions. The course also covers the basic maintenance and troubleshooting of these components.
- *EPA Emissions Regulations* – A discussion of current EPA and State Regulations surrounding engine exhaust emissions.
- *Exhaust Gas Analyzer Basic* – A review and discussion of exhaust gas analyzer operations and maintenance. This course will be a generic review of analyzers and will not be manufacture specific.
- *Engine Type Review* – A review and discussion of engine types, makes and models. This course will also cover the identification of the most popular engine types used in the US.

Course List Price - $895

AFR Operations

The core purpose of this course is to familiarize the participant with the proper installation, operation and troubleshooting of the **AFR-1R, AFR-9R, AFR-64R and AFR-64L** air fuel ratio controllers.

We offer the course two times this year. Each course session is scheduled to last 3.5 days and will begin at 8:30 a.m. Tuesday and will last until noon Friday. Student count is a maximum of eight participants with a minimum of four participants for each class to make the course the most effective possible.

Course enrollment closes three weeks before the start of the class.

Participants are required to have a working knowledge of Windows®-based personal computers and a working knowledge of gas-fired internal combustion engines. ___We recommend all participants supply a laptop computer.___ If a laptop computer is not available, a limited number of loaner computers are available at the training facility. Submit requests for the use of the loaner computers three weeks before the start of the class.

The AFR Operations course curriculum includes:

- *Component Identification* – A review and discussion of the components used in conjunction with these products.
- *Component Installation* – A review and discussion of the proper installation procedures for all of the components used in conjunction with these products.
- *System Setup* – A review and discussion of the proper setup and operation of these systems.
- *Hands-on Training* – A practical look at the operation of the systems reviewed in this course. Participants will be required to set up the systems and achieve a desired exhaust emissions level on a working engine.
- *Systems Troubleshooting* – A review and discussion covering the troubleshooting of the AFR systems and engine-related problems. Participants will be required to troubleshoot the systems in a hands-on application on a working engine.

Course List Price - $995

EICS® Operations

The core purpose of this course is to familiarize the participant with the proper installation, operation and troubleshooting of the **EICS – Engine Integrated Control System.**

We offer this course three times this year. Each course session is scheduled to last 3.5 days and will begin at 8:30 a.m. Tuesday and will last until noon Friday. Student count is a maximum of eight participants with a minimum of four participants for each class to make the course the most effective possible.

Course enrollment closes three weeks before the start of the class.

Participants are required to have a working knowledge of Windows®-based personal computers and a working knowledge of gas-fired internal combustion engines. *We recommend all participants supply a laptop computer.* If a laptop computer is not available, a limited number of loaner computers are available at the training facility. Submit requests for the use of the loaner computers three weeks before the start of the class.

EICS Operations course curriculum includes:

- *Component Installation* – A refresher review of the installation procedures for all of the components used in conjunction with these products.
- *System Software* – A review and discussion of the installation and use of the PC-based software used in conjunction with these products.
- *System Setup* – A review and discussion of the proper setup and operation of these systems.
- *Hands-on Training* – A practical look at the operation of the systems review in this course. Participants will be required to set up the systems and achieve a desired exhaust emissions level on a working engine.
- *Systems Troubleshooting* – A review and discussion covering the troubleshooting of the EICS system and engine-related problem. Participants will review and practice the use of the PC-based plotting software. Participants will be required to troubleshoot the systems in a hands-on application on a working engine.

Course List Price - $1,095

IntelliSpark® Ignition

The core purpose of this course is to familiarize the participant with the proper installation, operation, programming and troubleshooting of the **IntelliSpark IS-8, IS-16 and IS-32** ignition systems.

We offer this course two times this year. Each course session is scheduled to last 3.5 days and will begin at 8:30 a.m. Tuesday and will last until noon Friday. Student count is a maximum of eight participants with a minimum of four participants for each class to make the course the most effective possible.

Course enrollment closes three weeks before the start of the class.

Participants are required to have a working knowledge of Windows®-based personal computers and a working knowledge of gas-fired internal combustion engines. ***We recommend all participants supply a laptop computer.*** If a laptop computer is not available, a limited number of loaner computers are available at the training facility. Submit requests for the use of the loaner computers three weeks before the start of the class.

IntelliSpark Ignition course curriculum includes:

- ***Component Identification & Operation*** – A review and discussion of the components used in conjunction with these products and how they are designed to operate.
- ***Component Installation*** – A review and discussion of the proper installation procedures for all of the components used in conjunction with these products.
- ***System Design*** – An in-depth look at the engineering behind the design of the IntelliSpark ignition systems.
- ***System Setup*** – A review and discussion of the proper setup and operation of these systems.
- ***System Installation*** – Participants will be required to install an ignition system on a working engine using different crankshaft/camshaft arrangements.
- ***Hands-on Training*** – A practical look at the operation of the systems reviewed in this course. Participants will be required to set up the systems on a working engine.
- ***Systems Troubleshooting*** – A review and discussion covering the troubleshooting of the ignition systems and engine-related problem. Participants will be required to troubleshoot the systems in a hands-on application on a working engine.

Course List Price - $895

Custom Training Offered

Custom Training – Custom, onsite training is available to all distributors, customers and end users on any FW Murphy product. These training courses can be customized to fit specific needs.
Please contact your FW Murphy Master Distributor for details.

2020 Course Dates

Class	Date Start	Date End
Engine Basics	Tuesday, April 14 Tuesday, September 15	Friday, April 17 Friday, September 18
AFR Operations	Tuesday, April 21 Tuesday, August 18	Friday, April 24 Friday, August 21
IntelliSpark Operations	Tuesday, March 31 Tuesday, August 25	Friday, April 3 Friday, August 28
EICS Operations	Tuesday, March 10 Tuesday, July 14 Tuesday, November 10	Friday, March 13 Friday, July 17 Friday, November 13