

GE VERNOVA

GAS POWER

CUSTOMER TRAINING *

Flexible training solutions to meet your total plant needs



www.gevernovatechtraining.com



KNOWLEDGE IS POWER



GE Vernova offers comprehensive, flexible training solutions to meet your total power plant needs.

Gas Power Customer Training from GE Vernova

To operate a plant in today's intensely competitive power industry, you need special competencies. Plant personnel who have hands-on experience with the latest tools and technologies are vital to maintaining your plant's availability, reliability, and flexibility. GE Vernova's Gas Power Customer Training courses are constructed to develop your team's expertise with current content, delivered through a variety of flexible methods throughout your plant's lifecycle.

Click the tabs below for detailed brochure.

Our spectrum of over 200 high value Site-Specific courses are built—using site-specific manuals, configurations, drawings, and software (as available)—to meet your specific needs, and to develop your team's expertise. They are delivered either at your site or at one of our Gas Power global learning centers* in the language of your choice, and on a schedule that works for you. Courses may contain a mix of classroom learning, site walkdowns, and hands-on training.

With technology-specific content, our Open Enrollment training offers a comprehensive selection of more than 75 English language courses for small staff or new team member training, or to expand the skills of select employees.

Your employees train at one of our Gas Power learning centers or via Distance Learning with students from around the world. Courses offer a mix of learning techniques, and may contain walkdowns and/or hands-on training.

A cost-effective solution for a broad range GE Vernova offers a variety of training of employees, our 25-plus self-paced Online simulator solutions to help meet your needs-English language courses let you train your whether you require an onsite simulator personnel anytime, anywhere, and at their own tailored to your equipment or remote access to a technology-specific simulator. pace. Each course ranges in duration from one to These simulators are effective, convenient, and comprehensive, while posing no several hours, and can be started and stopped operational risk to GE Vernova's OEM equipment.

at the student's discretion.

 $^{\intercal}$ Many Site Specific courses may be available for delivery via Distance Learning upon request.

Our long-term flexible training agreement is our highest value offering, which allows you to simplify your budgeting and planning efforts. This agreement entitles you to a fixed number of annual training days for GE Vernova's Site-Specific and/or Open Enrollment courses, unlimited use of all our available Online courses, plus exclusive access to our Technology-Specific Simulator. We work with you throughout your plant's lifecycle to help you select the training solutions that best meet your evolving needs.



There are two different ways to navigate through our catalog of course offerings. Select the method that is easiest for you below.

Navigate by course offering type...

Navigate by frame size and/or upgrade type...



Screenshots shown above for illustration purposes only.

APPLICABILITY MENU (page 73) Please select a course category.

SITE SPECIFIC AT CUSTOMER SITE⁺ OR GAS POWER SERVICES LEARNING

OPEN ENROLLMENT AT LEARNING CENTER AND INSTRUCTOR LED DISTANCE LEARNING

GE VERNOVA

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ONLINE SELF-PACED LEARNING TECHNICAL COURSES

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ONLINE SELF-PACED LEARNING PRO-ACTIVE TRIP AVOIDANCE TRAINING

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Course ID# & Title		Plai	nt Pe	erso	nnel			elive etho					
(Click on Course Title to download detailed course outline)				1aintenance	ntenance	on & Controls			ЦŅ	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenan	Electrical Maintenanc	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # c	Location Opt	• Prerequisites
E-CCP10201 Combined Cycle - Power Plant Familiarization	~	~	✓	~	~	~	~			5	20	*	 Introduces participants to a typical combined cycle power plant through a bl (WHEN AVAILABLE). Familiarize with architecture and construction of major components e.g. gas Describes the operation and the maintenance considerations of a combine of Describes the operation and the maintenance considerations of a combine of the second second
E-CCP10203 Combined Cycle - Operation (GE Integrated Systems)∻		~	~				~		~	5	12	*	 Basic knowledge on Mechanical and Electrical theories/equipment Familiarize with theory and fundamentals of combined cycle power plant as Operations and Maintenance Courses. Includes introduction to thermodynamics, basics of major components (GT, Soverview
								-					 Basic knowledge of power plant equipment and systems is recommended. Reasonable computer skills
E-CCP10204 Combined Cycle - Fundamentals∻		~	✓				~		~	5	12	*	 Designed for installations in which GE has engineered the combined cycle sy Provides the information necessary to safely operate their specific combined Includes prestart system walk-downs, detail startup of the plant, monitoring shutdown and safety
													 Gas Turbine Operation background or training Steam Turbine Operation background or training Basic knowledge of power plant equipment and systems is recommended Ability to read technical documents Reasonable computer skills
E-GRL10502 General - Pipe Fitting & Handling		✓		~			~	~		2	12	СН	 Describes the structure, function, assembly, reassembly of fittings from vario Includes practical exercises on fittings, and requirements for cleanliness of fi Requires a minimum of 2 students.
											- - - - - - - - - - - - - - - - - - -		 Basic knowledge of power plant equipment and systems is recommended Ability to read technical documents (Mechanical) Familiarity with the erection of heavy equipment

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

blended learning solution of classroom lectures, videos, and factory and plant tours

as turbine, steam turbine, HRSG, generator and balance of plant equipment. e cycle plant.

as a foundation for the Gas Turbine (GT), Steam Turbine (ST) and Combined Cycle

, ST, HRSG, Generator), processes & systems, Combined Cycle controls and operation

system.

ed cycle power plant for peak availability and reliability.

ng equipment during normal operation, actions during contingent operations, and

rious manufacturers. ⁻fittings.



						•							
Course ID# & Title		Plar	nt P€	erso	nnel	I		elive etho					
(Click on Course Title to download detailed course outline)				1aintenance	ntenance	on & Controls			ЧЛ	Days	of Students	Options ⁺	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # c	Location Opt	• Prerequisites
E-GRL10503 General - Bearing Inspection		~		~			~	~		4	12	СН	 Covers the bearing casings: function, structure, quality. Addresses pocket bearings, insulated pocket bearings: function, structure, in insulation resistance, quality documents. Describes the combined axial- and radial bearings: function, structure, instal
		9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		-									 Basic knowledge of power plant equipment and systems is recommended Ability to read technical documents (Mechanical) Familiarity with the erection of heavy equipment
E-GRL10504 General - Leveling Work		~		~			~	~		2	12	СН	 Introduces the use of the levelling instrument, apply functional check of the Covers the use of the levelling tool for new erection and revisions, measure, Basic knowledge of power plants Ability to read technical documents (Mechanical) Familiarity with the erection of heavy equipment
E-GRL10505 General - Shaft Alignment		~		~			~	~		5	12	СН	 Introduces the types of couplings: toothed couplings, stiff friction clutch, she Includes how to perform coupling measurements: shaft alignment measurer teaches safety measures.
													 Basic knowledge of power plants Ability to read technical documents (Mechanical) Familiarity with the erection of heavy equipment
E-GRL10506 General - Practical Steam Turbine Maintenance (Brown Boveri Design)		~		~			~	~		15	10	СН	 Gives an overview on the turbine Design & function of the main parts. Allows hands-on training in handling of heavy turbine parts, adjusting of turb. Gives an insight on the condition of turbine parts, what needs to be checked. Executes hands-on training on tightening the various bolts correctly.
		9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9											 Mechanical background. Familiar with the erection of power plants.

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

installation and removal, checks and measurements on the bearing, measurement of

tallation and removal, quality documents.

ne levelling instrument, perform levelling of a turbine foundation. re, check and transfer heights using the levelling instrument.

hear bush coupling, expansion sleeve coupling. rements, testing and checking of: coupling nuts, friction parts, coupling flanges and

urbine parts taking various measurements before, during and after an overhaul. ed during an overhaul.



Course ID# & Title		Plai	nt Pe	erso	onnel			elive eth					
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			чл	Days	f Students	ons+	• Executive Summary
	Leadership	Supervisors	Operations	·	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options	• Prerequisites
E-CCP20601 Combined Cycle - Simulator based Process Training		✓	~			~	~			5	6	*	 Introduces the basics about the HMI and working environment using simulat Includes refresher on GT/ST/HRSG/WSC systems. Emphasizes Closed Loop Control of the HRSG/WSC and teaches operation a Performs Combined Cycle Power Plant start-up given the plant's different co Power Plant efficiency and Key Performance Indicators and includes Combin Teaches students how to handle various plant transient conditions like loss of
													 Basic knowledge of Power plant equipment, systems and operation Prior hands-on CCPP operation and field experience Ability to read technical documents Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-BOP10202 Balance of Plant- Operation (GE Integrated Systems)∻		~	~				~		~	5	12	*	 Designed for installations in which General Electric has engineered the site E Provides the information necessary to safely operate their specific balance o Includes BOP systems design principles, operating principles, startup, and no Combined cycle Operation training, experience or equivalent knowledge Basic knowledge of power plant equipment and systems is recommended Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

lator equipment.

n and control concept of the Combined Cycle Power Plant. conditions, covers CC Load Controller and AGC controller, covers Combined Cycle bined Cycle Power Plant shutdown options and the shutdown procedure. as of feedwater, loss of condensate system, operation with one main cooling water.

not have the prerequisites listed above.

Balance of Plant.

of plant systems at peak availability and reliability.

normal and shut-down operations.

not have the prerequisites listed above.



Course ID# & Title		Pla	nt P	erso	nne			elive eth					
(Click on Course Title to download detailed course outline)	rship	visors	tions	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	oom	-On	Site Walk-Down	on in Days		on Options⁺	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mecha	Electri	Instrui	Classroom	Hands-On	Site W	Duration in	Maximum	Location	
E-CON23401 Control System - Mark Vle (Aero) Operation, Maintenance & Troubleshooting∻		~	✓		~	~	~	~	~	5	12	*	 Introduces routine preventative maintenance procedures of the gas turbine high levels of availability and reliability. Covers functional sensor and actuator description, troubleshooting, and a su and control system maintenance. Operating and maintenance personnel should attend this course together to unit, and how unit operation may affect these requirements.
													 Basic understanding of gas turbine equipment and its operation Familiarity with control system basics Reasonable computer skills
E-CON13601 Control System - Millenium Operation, Maintenance & Troubleshooting		~	~		~	~	~	~		5	12	*	 Introduces routine preventative maintenance procedures of the support syshigh levels of availability, and reliability Covers functional sensor and actuator description, troubleshooting, and a suand control system maintenance. Operating and maintenance personnel should attend this course together to unit, and how unit operation may affect these requirements.
		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2											 Basic understanding of gas turbine equipment and its operation Familiarity with control system basics Reasonable computer skills
E-CON13602 Control System - Woodward Operation, Maintenance & Troubleshooting ∻		~	~		~	~	~	~		5	12	*	 Introduces plant maintenance personnel to the Woodward MicroNet[™] and N Designed for platforms that have CPUs with an Ethernet port(s) and do not I systems; from chassis to I/O cards to field termination modules. Provides training on Graphical Application Programmer (GAP) software naviologic, and turbine-based alarms. Overview of control actuator and other I/O calibration procedures will be disinterface (HMI)
													 Basic understanding of gas turbine equipment and its operation Familiarity with control system basics Reasonable computer skills

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

e support systems and of the major electrical and control system required to attain summary of calibration and inspections required for Gas Turbine package electrical to develop a working relationship regarding the maintenance requirements of the

ystems and of the major electrical and control system maintenance required to attain summary of calibration and inspections required for Gas Turbine package electrical to develop a working relationship regarding the maintenance requirements of the

I MicroNet Plus™ turbine control systems. t have a 2-line display, course content includes the hardware layout of typical vigation, Woodward software tools will be used to evaluate fuel control, sequence liscussed, additional class work includes general information on the operator



Course ID# & Title		Plar	nt Pe	erso	nnel			elive leth					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			nwo	Davs	f Students	ons⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical M	Electrical Main	Instrumentation	Classroom	Hands-On		6	#	Location Options	• Prerequisites
E-CON13603 Control System - RX3i Operation, Maintenance & Troubleshooting ∻		✓	~		~	✓	~	✓		5	12	*	 Introduces plant maintenance personnel to the RX3i turbine control system. Includes the hardware layout of typical systems; from chassis to I/O cards to Covers Proficy Machine Edition (PME) software tools to navigate through the
								_					 Basic understanding of gas turbine equipment and its operation Familiarity with control system basics Reasonable computer skills

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.
 ♦ Recommended course for new equipment

ms and operator interface (HMI screens) to field termination modules. he ladder logic, sequence logic, and turbine-based alarms



Course ID# & Title		Plar	nt Pe	erso	nne			elive letho	-				
(Click on Course Title to download detailed course outline)				Maintenance	intenance	ion & Controls			ЧN	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	<u> </u>	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # 0	Location Opt	• Prerequisites
E-CON10501 Control System - AC800M with IIT800xA		~			~	~	~	~		5	6	*	 Provides an overview on control system architecture and functional description of components Covers structures of the IIT800xA engineering workplace, gives an overview of the configuration of Covers AC800M hardware configuration using the Control Builder M Professional Includes Working with Function Designer - designing a graphic display using VB 6.0 Includes performing maintenance and troubleshooting with IIT800M and IIT800xA system Includes practical exercises on real life experiences, group works and interactive workshops
			-		- - - - - - - - - - - - - - - - - - -	-							• Fundamental skills regarding combined cycle power plants and considerable instrumentation & c
E-CON10201 Control System - ADVANT with IIT800xA		~			~	~	~	~		5	6	•	 Provides an overview on control system architecture and functional description of components Covers structures of the IIT800xA engineering workplace, gives an overview of the configuration of Covers AC800M hardware configuration using the Control Builder M Professional Includes Working with Function Designer - designing a graphic display using VB 6.0 Includes performing maintenance and troubleshooting with IIT800M and IIT800xA system Includes practical exercises on real life experiences, group works and interactive workshops
		- - - - - - - - - - - - - - - - - - -											 Basic knowledge of power plant equipment and systems Have attended an ADVANT course or possesses experience with ADVANT and IIT800xA systems
E-CON10202 Control System - ADVANT with OS520		~			~	~	~	~		5	6	*	 Provides an overview on control system architecture and functional description of components Covers configuration of ADVANT controllers using the engineering tool, Application Builder, Function communication protocols used within the ADVANT System Gives an insight about DB elements used in ADVANT System, signal tracing exercises Covers UNIX commands for OS520, X-workplace server, startup via XDM login process Includes designing a graphic display in OS520 Emphasizes on maintenance and troubleshooting with the ADVANT system
													 Basic knowledge of power plant equipment and systems Prior experience with ADVANT control systems Technical background (Instrumentation and Control)
E-CON11401 Control System - DLN 1.0 Standard Combustor	~	✓	✓			~	✓	~		2	12	*	 Familiarizes with the hardware and system changes included with upgrading to a DLN 1.0 combust Includes, operational changes of the gas turbine and review of gas fuel valve calibration Enhances learning experience by application of a generic cloud-based Simulator appropriate for the fuel value of the gas turbine.
												•	

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

w of the configuration of the IIT800xA system ssional ng VB 6.0 IT800xA system active workshops le instrumentation & control experience with AC800M and IIT800xA systems iption of components w of the configuration of the IIT800xA system ssional g VB 6.0

ption of components plication Builder, Function Chart Builder, Online Builder Commands, applies

ng to a DLN 1.0 combustion system e calibration ulator appropriate for this course



Course ID# & Title		Plai	nt Pe	erso	nne			elive leth					
(Click on Course Title to download detailed course outline)	Leadership		Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Optio	Executive Summary Prerequisites
E-CON11402 Control System - DLN 1.0+ Standard Combustor	- ~	✓	✓	-		_ ✓	✓	<u>+</u> ✓	•,		12		 Familiarizes the students with the hardware and system changes include Includes, operational changes with the upgrade and turbine operation, g Familiarity with operation of heavy-duty gas turbine
E-CON11901 Control System - DLN 2.6+ Standard Combustor	~	~	~			~	✓	✓		2	12	*	 Familiarizes the participants with the hardware and system changes ass Includes, operational changes due to upgrade including turbine start up, Enhances learning experience by application of a generic cloud-based Sin
E-CON11902 Control System - DLN 2.6+ Flex Combustor	~	~	~			~	~	~		1	12	*	 Familiarity with operation of heavy-duty gas turbine Familiarizes the participants with the hardware and system changes ass Includes, operational changes due to upgrade including turbine start up, Enhances learning experience by application of a generic cloud-based Single and the start up of the s
													 Familiarity with operation of heavy-duty gas turbine Basic knowledge of DLN combustion system Note: Participants will have difficulty to follow this course content if they d
E-CON10404 Control System - ALSPA Control System Fundamentals		~	✓		~	~	✓	~		5	6	СН	 This course familiarizes participants with the architecture of ALSPA cont to control and monitor the plant process. This course provides an overvio This course will also enable the participant to do basic application progra using various tools e.g. ALSPA Maintenance Server. This will also enable p At the end of the course there will a site visit, where a brief demonstration
													 Knowledge of power plants Fundamental skills regarding control systems Able to read technical documents
E-CON20406 Control System - ALSPA Control System Intermediate			~		~	~	~	~		5	6	СН	 This course familiarizes participants with advanced level programming of configuration. This course will enable them to set up ALSPA HMI for first time use. They in logic, without disturbing plant operation. They will learn about MFC300. At the end of the course there will a site visit, where a brief demonstration.
								7		-			 Knowledge of power plants Basic skills regarding ALSPA control systems Able to read technical documents Attended the course: E-CON10404 Control System – ALSPA Control System

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

with upgrading the current fuel gas system to a DLN 1.0+ combustion system fuel valve calibration will be reviewed

ciated with upgrading to a DLN 2.6+ combustion system ading and shutdown. Review the calibration process of gas fuel valves ulator, appropriate for this course

iated with upgrading to a DLN 2.6+ combustion system ading and shutdown. Review the calibration process of gas fuel valves Jator, appropriate for this course

not fulfill the prerequisite listed above.

I system and components & supervisory functions of ALSPA HMI, which enables them of the ALSPA control system hardware and CONTROCAD engineering tool. Inming and basic HMI modification and, do basic diagnostic of ALSPA control system rticipants to read and understands basic project documentations. of the components/topics discussed in the classroom will be provided.

ALSPA CONTROCAD engineering tool and, provides an overview of ALSPA HMI

ill learn how to perform online forcing and setting update to make small modification firmware.

of the components/topics discussed in the classroom will be provided.

n Fundamentals



Course ID# & Title		Pla	nt Pe	erso	nne			elive leth	-				
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance		Instrumentation & Controls		Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options ⁺	Executive Summary Prerequisites
E-CON30401 Control System - ALSPA Control System Advanced						~	~	✓		5	6	СН	 This course familiarizes participants with redundant operation of MFC3000 ASLPA HMI and CONTROCAD tools. Acronis backup image procedure will als They will learn how to do online modification in application code of a running also be discussed. They will learn about MFC3000 firmware. Participants will learn basic concept of Profibus. Profibus system configurati discussed. Participants will also have a chance to learn DEPP2000. At the end of the course there will a site visit, where a brief demonstration of Fundamental skills regarding control systems Able to read technical documents Attended the course: E-CON20406 Control System – ALSPA Control System
E-CON13302 Control System - Mark VI Maintenance (HMI on 1st Day)	~	~	✓			~	~	~		5	12	*	 Familiarizes participants with the hardware and software components, provand associated equipment Instruction for the operator interface is covered on the first day and the rem Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simul basics and build up to intermediate skills including alarm and system troubl Basic knowledge and experience of Control System Understanding of basic Windows file structure
E-CON23301 Control System - Mark VI Troubleshooting (Advanced)		~				~	~	~		5	12	*	 Designed to test and sharpen troubleshooting and operations skills for the pavailability. Gain the fundamental skills of a competent Control Room Operator and those Exposure to diverse operating conditions with extensive practical training determined operational and controls skills, are recommended Attended Mark™VI Control System –Advanced level course, or possess equive Moderate hands-on field experience with Mark VI Control Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set the set of the

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

O controllers. Participants will learn about installation of new MFC3000 controller, lso be discussed.

ng MFC3000 controller. Limitation of online modification and its consequences will

tion and Profibus advanced troubleshooting using ProfiTrace tool will also be

of the components/topics discussed in the classroom will be provided.

n Intermediate

ovides detailed knowledge to maintain and troubleshoot the Mark VI control system

maining four days focus on the maintenance of the control system

ulator, through progressively challenging labs assisting the participants to learn the pleshooting

purpose of trip reduction and recovery, maintaining optimum performance and

ose skills of an experienced Mark VI TA. during hands-on sessions on a cloud-based technology-specific Simulator

ivalent knowledge, including experience with Toolbox software



Course ID# & Title		Plar	nt Pe	erso	nne			elive eth					
(Click on Course Title to download detailed course outline)	٥	rs	S	al Maintenance		tation & Controls	_		Down	ם Days	# of Students	Options+	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mechanical	Electrical	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in [Maximum	Location (
E-CON13304 Control System - Mark VI with Integrated Turbine & Compressor Controls HMI	~	~	~			~	~	~		1	12	*	 Designed to provide the skills necessary to use the operator interface for a second second
E-CON13305 Control System - Mark VI with Integrated Turbine & Compressor Controls Maintenance		~				~	~	✓		5	12	*	 Reasonable computer skills Designed to provide the skills necessary to operator and maintain the integ Familiarizes students with the hardware and software components, provide Includes training material derived from actual installed Mark VI control syst Enhances learning experience by application of a generic cloud-based Simu the participants to learn the basic skills including alarm and system trouble
													 Basic knowledge and experience of Mark VI Controls System Basic troubleshooting skills Reasonable computer skills
E-CON13306 Control System - Mark VI to Mark VIe Platform Upgrade Maintenance		✓				~	~	~		5	12	*	 Intended for personnel whose site has a Mark VIe control migration from Mark Familiarizes with the hardware and software components, provides detaile equipment Includes training material derived from actual Mark VIe control migration from Finances learning experience by application of a generic cloud-based Simulasics and build up to intermediate skills including alarm and system troub
					20 20 20 20 20 20 20 20 20 20 20 20 20 2								 GE Mark VI Control system knowledge and experience Basic computer skill
E-CON13401 Control System - Mark VIe Maintenance (Extended)∻		✓				~	~	~		10	12	*	 Familiarizes participants with the hardware and software components, pro and associated equipment Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simu the participants to learn the basics and build up to intermediate skills inclu- modifications Several labs contain optional exercises where participants are given the op
											5 5 6 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		 Basic knowledge and experience of Control System Understanding of basic Windows file structure

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

turbine-compressor set using the integrated Mark VI control system

ulator, appropriate for this course

grated Mark VI installation used to control a turbine-compressor set des fundamental knowledge to troubleshoot and maintain the associated equipment stems

ulator for a turbine compressor set, through progressively challenging labs assisting eshooting

1ark VI control system ed knowledge to troubleshoot and maintain the control system and associated

from Mark VI control installed systems ulator, through progressively challenging labs assisting the participants to learn the bleshooting

ovides detailed knowledge to maintain and troubleshoot the Mark VIe control system

ulator for Mark VIe hardware, through progressively challenging labs assisting uding alarm and system troubleshooting, hardware replacement and software

pportunity to examine their own software in relation to the learning objective



Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho					
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			Ş	Days	^c Students	tsuc	• Executive Summary
	Leadership	Supervisors	Operations		Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options	• Prerequisites
E-CON13402 Control System - Mark VIe Maintenance∻		~				✓	~	~		5	12	*	 Familiarizes with the hardware and software components, provides detailed associated equipment Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simul participants to learn the basics and build up to intermediate skills for alarm
								2 2 3 3 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3					 Basic knowledge and experience of Control System Understanding of basic Windows file structure
E-CON13403 Control System - Mark VIe Maintenance (HMI on 1st Day)	~	~	~			✓	✓	~		5	12	*	 Familiarizes with the hardware and software components, provides detailed associated equipment Instruction for the operator interface is covered on the first day and the rem Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simul participants to learn the basics and build up to intermediate skills including
		습子 수 수 수 수 수 주 수 주 수 수 주 수 수 주 수 수 주 수 수 주 수 수 주 수 주 수 주 주 수 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주 주 수 주						4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9					 Basic knowledge and experience of Control System Understanding of basic Windows file structure
E-CON13404 Control System - Mark VIe Maintenance Nuclear		~				√	✓	~		10	12	*	 Familiarizes trainees with the hardware and software components, provides associated equipment Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simul the participants to learn the basics and build up to intermediate skills include modifications
		6 9 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9											 Basic knowledge of power plant Basic knowledge and experience of Control system Reasonable computer skills
E-CON13413 Control System - Mark VIe Migration from Mark V (HMI on 1st day)	~	~	~			~	~	~		5	12	* US	 Intended for personnel whose site has a Mark VIe control migration from Material Familiarizes with the hardware and software components, provides detailed equipment Includes training material derived from actual Mark VIe control migration from Finances learning experience by application of a generic cloud-based Simul basics and build up to intermediate skills including alarm and system trouble Basic knowledge and experience of Mark V Controls System

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ed knowledge to maintain and troubleshoot the Mark VIe control system and

nulator for Mark VIe hardware, through progressively challenging labs assisting the m troubleshooting

led knowledge to maintain and troubleshoot the Mark VIe control system and

maining four days focus on the maintenance of the control system

nulator for Mark VIe hardware, through progressively challenging labs assisting the ng alarm and system troubleshooting

les detailed knowledge to troubleshoot and maintain the Mark VIe control system and

ulator for Mark VIe hardware, through progressively challenging labs assisting uding alarm and system troubleshooting, hardware replacement, and software

Mark V control system led knowledge to troubleshoot and maintain the control system and associated

from Mark V control installed systems ulator, through progressively challenging labs assisting the participants to learn the bleshooting



Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho					
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options ⁺	Executive Summary Prerequisites
E-CON13406 Control System - Mark VIe HMI	~	✓	✓			~	~			1	12	*	 Familiarizes with the operator screens of Mark Vie control system Develop skill to handle the alarms and use the HMI to monitor the turbine Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simul basic operation and build up skills to diagnose and resolve alarms Turbine operation training, experience or equivalent knowledge Reasonable computer skills (MS Windows Operating System)
E-CON23404 Control System - Mark VIe Troubleshooting (Advanced)		~				~	~	~		5	12	*	 Designed to test and sharpen troubleshooting and operations skills for the pavailability Will gain the fundamental skills of a competent Control Room Operator and Learn to follow an alarm through using the ToolboxST[™] software to identify Enhances learning experience by application of a generic cloud-based Simul Note: This course is instructed with a generic Gas Turbine HMI and 7FA control Fundamental operational and controls skills are recommended Attended Mark[™] VIe Control System Maintenance course, or possesses equ
E-CON13408 Control System - Mark VIe with Integrated Turbine & Compressor Controls Maintenance		~				~	~	~		5	12	*	 Moderate hands-on field experience with Mark[™] VIe Control Reasonable computer skills Designed to provide the skills necessary to operator and maintain the integ Familiarizes students with the hardware and software components, provide Includes training material derived from actual installed Mark VIe control system Enhances learning experience by application of a generic cloud-based Simuthe participants to learn the basic skills including alarm and system trouble Basic knowledge and experience of Mark VIe Controls System
E-CON13409 Control System - Mark VIe with Integrated Turbine & Compressor Controls Maintenance (HMI on 1st day)	~	~	~			~	~	~		1	12	*	 Basic knowledge and experience of Mark vie Controls System Basic troubleshooting skills Reasonable computer skills Designed to provide the skills necessary to use the operator interface for a feature develop operator skills for troubleshooting of alarms Enhances learning experience by application of a generic cloud-based Simul Basic knowledge and experience of Mark VIe Controls System Power plant Operation experience Reasonable computer skills

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ulator, through progressively challenging labs assisting the participants to learn the

purpose of trip reduction and recovery, maintaining optimum performance and

d an experienced Mark VIe Control TA including efficient resolution of alarms by the field device that caused the alarm and much more ulator, giving exposure to diverse operating conditions rol simulation.

uivalent knowledge, including experience with ToolboxST™ software

grated Mark VIe installation used to control a turbine-compressor set les fundamental knowledge to troubleshoot and maintain the associated equipment stems

ulator for a turbine compressor set, through progressively challenging labs assisting eshooting

turbine-compressor set using the integrated Mark VIe control system

ulator, appropriate for this course



Course ID# & Title		Plar	nt Pe	erso	onne			elive leth					
(Click on Course Title to download detailed course outline)				Mechanical Maintenance	aintenance	tion & Controls			nwo	Davs	of Students	Options+	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical	Electrical Maintenanc	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum #	Location Op	• Prerequisites
E-CON13410 Control System - Mark VIe Distributed Control System Maintenance∻		~				~	✓	✓		5	12	*	 Intended for Customers using the GE Mark VIe Control System as plant Distributed for Customers responsibility for the maintenance of the control syst Conducted based on a typical Mark VIe Distributed Control System installation
													 Have attended a GE Delivered Mark[™] VIe Control training course, or possess Hands-on field experience with Mark[™] VIe Control is highly recommended Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-CON13411 Control System - Mark VIe Distributed Control System Maintenance (Extended)		~				~	✓	~		10) 12	*	 Familiarize participants with the hardware and software components, provi and associated equipment Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based DCS S the basics and build up to intermediate skills including alarm and system tro Several sessions on Simulator contain optional exercises where participants learning objective. When available, the instructor will prepare a virtual HMI b
													 Controls System Experience Understanding of basic Windows file structure Reasonable computer skills
E-CON13412 Control System - Mark VIe Distributed Control System Operation		~	~			~	~	~	~	5	12	*	 Covers the responsibility of the plant operation using GE components as we Enhances learning experience by application of a generic cloud-based DCS S the basics and build up to intermediate operation skills. Integration of site-s
													 Familiar with an HMI-based Operator Interface Hands-on field experience with Outside Operation Duties is highly recomme Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

stributed Control System stem components as well as field instrumentation and communication networks ation, customer specific material is subject to availability at time of training and is not

ss equivalent knowledge of Mark™ VIe Control

not fulfill the prerequisites listed above.

vides detailed knowledge to troubleshoot and maintain the Mark VIe control system

Simulator, through progressively challenging labs assisting the participants to learn roubleshooting, hardware replacement, and software modifications ts are given the opportunity to examine their plant software in relation to the based on the site control software and screens

ributed Control System vell as field instrumentation and communication networks Simulator, through progressively challenging labs assisting the participants to learn -specific material is based on availability at time of training and is not guaranteed

nended



★ = Customer Site ♦ = Any Gas Power Learning Center

Gas Power Learning Center Locations: CH = Birr KW = Safat US = Houston

Course ID# & Title		Plar	nt Pe	erso	onne	I		elive leth	-				
(Click on Course Title to download detailed course outline)				Maintenance	Intenance	on & Controls			цм	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	· _		Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D		Location Opt	• Prerequisites
E-CON23405 Control System - OpFlex Enhanced Transient Stability Operation							~	~		1	12	*	 Designed to provide the skills required to start-up and operate units installe Designed to test and sharpen troubleshooting and operational skills for the availability Will gain knowledge of the advanced controls terminologies, concepts and p faults Enhances learning experience by application of a generic cloud-based Simula Fundamental operational skills Mark[™] VI or VIe Control System experience or possesses equivalent knowled Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set the set of the s
E-CON23406 ControlSystem- OpFlex Enhanced Transient Stability with AutoTune DX & Cold Day Performance Operation		✓	✓			×	~	~		1	12	*	 Designed to provide the skills required to start-up and operate units installe DX & Cold Day Performance technology Designed to test and sharpen troubleshooting and operational skills for the availability Will gain knowledge of the advanced controls terminologies, concepts and p faults Enhances learning experience by application of a generic cloud-based Simuli Fundamental operational skills Mark[™] VI or VIe Control System experience or possesses equivalent knowled Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-CON23407 ControlSystem- OpFlex Enhanced Transient Stability with AutoTune DX Operation		×	~			✓	~	~		1	12	*	 Designed to provide the skills required to start-up and operate units installed technology Designed to test and sharpen troubleshooting and operational skills for the pravailability Will gain knowledge of the advanced controls terminologies, concepts and prate Enhances learning experience by application of a generic cloud-based Simulate Fundamental operational skills Mark[™] VI or VIe Control System experience or possesses equivalent knowlede Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set the provide the start of the start of the provide the start of the

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

led or upgraded with advanced OpFlex Enhanced Transient Stability (ETS) technology e purpose of trip reduction and recovery, maintaining optimum performance and

practices and the skills required to perform tuning, identify and respond to sensor

ulator (ETS only), appropriate for the course content

edge

not fulfill the prerequisites listed above.

led or upgraded with advanced OpFlex Enhanced Transient Stability with AutoTune

e purpose of trip reduction and recovery, maintaining optimum performance and

practices and the skills required to perform tuning, identify and respond to sensor

ulator (ETS only), appropriate for the course content

edge

not fulfill the prerequisites listed above.

ed or upgraded with advanced OpFlex Enhanced Transient Stability with Autotune DX

purpose of trip reduction and recovery, maintaining optimum performance and

practices and the skills required to perform tuning, identify and respond to sensor faults ator (ETS only), appropriate for the course content

edge



★ = Customer Site ♦ = Any Gas Power Learning Center

Gas Power Learning Center Locations: CH = Birr KW = Safat US = Houston

Course ID# & Title		Plar	nt P4	erso	onne			elive					
(Click on Course Title to download detailed course outline)						& Controls		eth		Days	of Students	Options ⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenanc	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # c	Location Opt	• Prerequisites
E-CON23408 ControlSystem- OpFlex Enhanced Transient Stability with AutoTune LT Operation		✓	~			✓	~	~		1	12	*	 Designed to provide the skills required to start-up and operate units installed technology Designed to test and sharpen troubleshooting and operational skills for the pravailability Will gain knowledge of the advanced controls terminologies, concepts and prate Enhances learning experience by application of a generic cloud-based Simulat Fundamental operational skills Mark[™] VI or VIe Control System experience or possesses equivalent knowled Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set the start of the
E-CON23409 Control System - OpFlex Enhanced Transient Stability with AutoTune MX & Variable Load Path Operation		✓	~			×	~	~		2	12	*	 Designed to provide the skills required to start-up and operate units installed Variable Load Path technology Designed to test and sharpen troubleshooting and operational skills for the pravailability Will gain knowledge of the advanced controls terminologies, concepts and prate Enhances learning experience by application of a generic cloud-based Simulation Fundamental operational skills Mark[™] VI or VIe Control System experience or possesses equivalent knowled Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set the start of the star
E-CON10801 Control System - ActivePoint™ HMI Operation Familiarization	~	~	~			~	~	~		3	12	*	 Familiarizes with ActivePoint[™] HMI to improve usability, accessibility, and ease Learn the advanced features and intuitive visual coding, contextual data and th Develops skills to manage the enhanced Alarm System, which provides features Enhances learning experience by application of a generic cloud-based Simulato Help and Go to Definition in Logic. ActivePoint[™] Alarm Filtering and Viewing enl Power plant operations experience or training Computer literacy Note: Participants will have difficulty to follow this course content if they do not

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

d or upgraded with advanced OpFlex Enhanced Transient Stability with Autotune LT

purpose of trip reduction and recovery, maintaining optimum performance and

practices and the skills required to perform tuning, identify and respond to sensor faults ator (ETS only), appropriate for the course content

edge

not fulfill the prerequisites listed above.

d or upgraded with advanced OpFlex Enhanced Transient Stability with AutoTune MX &

purpose of trip reduction and recovery, maintaining optimum performance and

practices and the skills required to perform tuning, identify and respond to sensor faults ator (ETS only), appropriate for the course content

edge

not fulfill the prerequisites listed above.

se of use of the control system the ability to determine the root cause of a critical event 'at a glance' res such as; Go to Display Screen, Alarm Help and Go to Definition in Logic etc. tor, guiding the participants through scenarios related to each topic.Display Screen, Alarm enhances usability, and provides the user with a better understanding of the alarms



-			_			-							
Course ID# & Title		Pla	nt P	erso	onne	I		elive leth	-				
(Click on Course Title to download detailed course outline)				Maintenance	aintenance	tion & Controls			uwc	Days	of Students	Options ⁺	• Executive Summary
	Leadership	Supervisors	Operations	· · ·	Electrical Maintenan	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in [Location Op	• Prerequisites
E-CON33402 Control System - Proficy CIMPLICITY™ for Turbine Controls (Advanced)		~	~			~	~	~		5	12	*	 Focuses on the development, maintenance and troubleshooting of a CIMPLI Offered as the final course in the progressive series on Mark Controls Will develop the skills necessary to import points into the project point data Enhances learning experience by application of a generic cloud-based Simul
													 Advanced knowledge or experience with control system of GE Industrial equilibrium Practical to high level of computer literacy including Windows OS fundament Note: Participants will have difficulty to follow this course content if they do not a statement of the statement o
E-CON13414 Control System - Mark VIe Foundation Fieldbus		~	~			~	~	~		2	4	*	 Designed to familiarize with the Foundation Fieldbus technology using with Learn how FFB devices are field wired with a Mark VIe control panel and how Be introduced to hardware configurations, linking hardware to software, and navigate FFB configurations within ToolboxST[™] Participants will have the opportunity to work on the FFB training hardware
													 Fundamental operational and control skills Attended Mark[™] VIe Control System Maintenance course, or possesses equ Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-CON13701 Control System - Control Server and Thin	✓	√	~			✓	✓			2	6	*	 This training course will explain the structure and use of the Control Server It will provide explanation of the virtual environment and the physical hardward
Client Familiarization													Control system experience Computer literacy
E-ELX10902 Electrical - Electrical Control System		✓	✓		✓	✓	✓	- - - - - - - - - - - - - - - - - - -		3	12	* •	 Course covers the Electrical Control System (ECS) functionality, and is desig This course utilizes site specific drawings and software
(ECS) Training					-								 Basic knowledge of electrical circuits and control systems Basic knowledge of Microsoft Windows operating system
E-ELX10903 Electrical - Intelligent Electronic Device (IED) IED's – Protection & Control		~	✓		~	~	~			7	12	*	 This course covers the Intelligent Electronic Devices (IED) functionality, and functionality and troubleshooting. This course utilizes site specific drawings and software. The participants will
													 Basic knowledge of electrical circuits and control systems Basic knowledge of Microsoft Windows operating system

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

LICITY[™] project, as applied to GE Control System for Gas and Steam Turbines

- tabase, create new or modify existing screens and graphics
- ulator, appropriate for the course content
- uipment
- ntals
- not fulfill the prerequisites listed above.
- h the Mark Vie control system

bw the devices communicate their data to application code within ToolboxST™ nd basic troubleshooting from within ToolboxST™. Virtual HMI's will be used to

re to enhance their learning experience

uivalent knowledge, including experience with ToolboxST™ and ControlST software

not fulfill the prerequisite listed above.

- system
- ware used to host the vHMIs

igned to enhance participant competence in ECS's functionality and troubleshooting

nd is designed to enhance participant competence in IED's protection & Control

vill conduct hands-on lab work using the applicable software.



		<u> </u>				·							
Course ID# & Title		Plai	nt Pe	erso	nne			elive letho					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			n	Days	f Students	ons+	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maint	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da		Location Options	• Prerequisites
E-CCP20604 Combined Cycle - Simulator based Steam Cycle Operation		~	✓				~	✓		5	6	*	 Introduces the basics about the HMI and working environment using simula Overview of steam turbine systems, operation and control concept of the st stress evaluation Discusses starting and operating instructions for the steam turbine, startup capabilities of the ST and Combined Cycle Power Plant startup and shutdow Have fundamental skills regarding combined cycle power plants and considered and conside
E-CCP20605 Combined Cycle - Simulator Based Steam Turbine Operation		~	~				~			2	6	*	 Introduces the basics about the HMI and working environment using simulation of the steam turbine startup and steam quality requires the steam turbine operation. Covers the startup of the steam turbine using the automatic controller, hand parameters, using the alarms, events and trend displays to analyze the process includes Operator actions under transient conditions (ST operation concept). Fundamental skills regarding control systems.

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

lator equipment steam turbine and steam bypass system, limiters for the steam turbine, thermal

IP prerequisites, fixed pressure and sliding pressure concept, online testing own procedures

derable field experience

lator equipment quirement for the startup, understanding of concept of GT hold points in context with

Indling the Combined Cycle Power Plant load conditions, observing the key plant bocess

ot during GT fuel switch over etc.)



Course ID# & Title		Pla	nt Pe	erso	onne			elive leth	-				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			UN	Days	of Students	Options ⁺	• Executive Summary
	Leadership	Supervisors	Operations	· _ ·	Electrical Maintenanc	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # o	Location Opti	• Prerequisites
E-ELX10301 Excitation - EX2100e Maintenance		~			~	~	~	~	~	4	12	*	 Designed to enhance the skills of maintenance and operations personnel to Includes classroom theory, exercises, and site visits to enhance learning exp Uses a EX2100e simulator for "hands-on" training along with Site-Specific so Reasonable computer skills Knowledge of generator, excitation and static start operation recommended
E-ELX10302 Excitation - EX2100e Operation & Maintenance		~	✓		✓	~	✓	✓	✓	5	12	*	 The participants will learn about the functionality, operation, maintenance, a This training utilizes a classroom simulator to provide attendees the ability t Training consists of classroom theory, classroom exercises, and a site walk d Participants will perform classroom hands-on lab exercises using an EX2100 Reasonable computer skills
E-ELX10303 Excitation - EX2100e Generator Operation		~	~		~	✓	~	✓	~	1	12	*	 Reasonable computer skills Focuses on generator fundamentals and safe operation through the applicat Focus on excitation theory, control hardware and software and utilization of Familiarizes with Exciter faults and alarm messages, limiter values. Site-spect Prior generator operation experience and knowledge of excitation systems is Reasonable computer skills
E-ELX10304 Excitation - EX2100e Platform Upgrade Maintenance		~			✓	~	✓	~	✓	1	12	*	 Designed for turbine-generator maintenance personnel whose site has migr Focuses on excitation hardware, software, and GE supplied documentation to Conducted with lectures and demonstrations using an EX2100e simulator at Recommended complementary course is "EX2100e Generator Operation"
													 Prior experience with generator excitation Technical background (Electrical or Control) Reasonable computer skills
E-ELX10305 Excitation - Aero EX2100e and Integrated Generator Protection System (IGPS)	~	~	✓		✓	✓	✓	✓	✓	4	12	*	 Focuses on the layout of the generator control panel, the EX2100e regulator Conducted with a classroom simulator to provide attendees the ability to sa Reasonable computer skills
E-ELX11501 Excitation - Generator Excitation, Protection and Static Starter		~	~		~	✓	✓		✓	5	12	*	 Designed to support safe operation of the generator and develop competence Utilize site specific drawings and system settings Includes hands-on practice on the excitation training module
Introduction \diamond											- - - - - - - - - - - - - - - - - - -		 Reasonable computer skills Knowledge of excitation and static start operation

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

 \diamond Recommended course for new equipment

to operate, maintain, and troubleshoot an EX2100e Exciter or Regulator system sperience

software and documentation

d

e, and troubleshooting an EX2100e static exciter or regulator system. to safely operate and maintain the generator excitation system. down.

00e simulator for classroom training.

ation of "hands-on" training with a simulator of operator interfaces ecific software will be used for discussion, if available

is recommended

grated to an EX2100e generator excitation control system n to help participants diagnose faults and efficient troubleshooting and ToolboxST™ interface

or configuration, operation, maintenance, and troubleshooting, as well as the IGPS. safely operate and maintain the generator excitation and protection system.

ence in maintenance and troubleshooting skills



Course ID# & Title		Plar	nt Pe	erso	nne			elive eth	-				
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options ⁺	Executive Summary Prerequisites
E-ELX11101 Excitation - Combisystem Excitation & Static Starting Device Maintenance∻		✓			~	~	~	~	~	5	8	*	 Overview of electrical safety rules and measures Includes excitation system soft- and hardware functions (voltage controller Includes synchronous turbo generator (design and function, characteristics, sudden variations, operating limits, protection) Includes converters and its subsystems (power parts, auxiliaries, control, m messages, events and records), how to use the software tools for the comm hardware diagrams Basic knowledge of power plant and its control system is recommended Have attended Electrical Operation & Maintenance course for legacy Alston experience Technical background – Electrical Note: Participants will have difficulty to follow this course content if they do n
E-ELX10901 Electrical - Operation & Maintenance (GE Integrated Systems)∻		✓	~		~	~	~		~	5	12	*	 Covers Single Line Diagram and overview of electrical main components, Ele Overview of generator monitoring and maintenance, MV and LV Switchgear Discussion on Generator Circuit Breaker and Transformer: Function and design Discussion on UPS-System, Batteries, stand-by DG set: Function and design Review of Fault tracing in electrical and electronic systems, interfaces to Dis Basic knowledge of power plant equipment and systems Technical experience or certificate (Electrical or Mechanical) is recommended Ability to understand Technical drawing and documents
E-ELX30101 Protection - MiCOM Generator & Transformer Protection		✓			 Image: A start of the start of		 Image: A set of the set of the	v	~	4	6	*	 Overview of electrical safety rules and measures Includes protection functions: Basic theory and applications Includes numerical generator protection system: System layout, hardware of Includes documentation: Protection, measuring and metering single line dia operation & maintenance manual Includes user interface program S1: Configuration and parameterization of the Includes functional checks and maintenance: Test functions, checklists, error electrical systems, interfaces to Distributed Control System Basic knowledge of power plant equipment and systems Technical background or relevant experience (Electrical) Ability to read technical documents

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

er, limit controllers, superimposed controllers, reference signal sources) cs, steady-state and transient behavior, dynamic response of the excitation system on

monitoring, and protection), front panel handling (set points, actual values, fault mon control equipment, cross-start manipulations (if applicable), O&M handbook,

m Generator control system or possesses equivalent knowledge or relevant

not fulfill the prerequisites listed above

Electrical Operation Concept, operation ranges and capabilities and safety measures ar design, function, operation, control modes and safety features esign operating modes, monitoring, checks and inspections gn, operation, control, protection, routine maintenance, safe working practices Distributed Control System

ded

e components, software and firmware, signal data flow iagrams, tripping logic diagram, schematic diagrams, setting lists, training manual,

the system

red quantities, recording of disturbances

ror handling, diagnostics, service information, and technical support, Fault-tracing in



Course ID# & Title		Plar	nt Pe	erso	nnel			elive leth						
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			n	Davs	f Students	+000		• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	- nostion Ontions		• Prerequisites
E-ELX30501 Excitation - LS2100e LCI for Turbine Static Start		~			~	~	~	✓	~	2	12	*		 Designed for operations and maintenance personnel: configuration, mainten Includes hardware identification, Control System ToolboxST[™] communicatio Utilizes simulators, and walk down (if available) of the site LCI[™] starter to en
						-								 Technical (Electrical) experience/education Reasonable computer skills
E-ELX30202 Protection - REG216 Protection System Maintenance		~			~	~	~	~		4	6	CI	-	 This course explains the systems basic configuration and its main features. Includes, system software and hardware concepts, explains the purpose of the and parameterize the different protection functions and to change their sett interpret signals and messages of the system. Also, Troubleshoot the system, carry out periodic functional checks, regular in the system.
		• • • • • • • • • • • • • • • • • • •												 Have experience in electrical operation and maintenance of GE power plants Be able to interpret technical documents: Single Line Diagrams (SLD) and dra Fully competent on other brand electrical protection system

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

enance and troubleshooting of the LCI™ static starter tions, UCSB programming, Alarm Viewer configuration and diagnostic testing enhance learning experience

f the various protection functions and state respective standard settings, configure ettings (limit values, response times), using the user interface program CAP216,

r maintenance and state electrical safety rules for working on the equipment.

nts drawings



Course ID# & Title		Plar	nt Pe	erso	onne			elive letho	-				
(Click on Course Title to download detailed course outline)				1aintenance	Intenance	on & Controls			цм	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # c	Location Opt	• Prerequisites
E-AER10101 Gas Turbine - LM2500 Aero Package Operation/Familiarization∻		~	✓	~	✓		✓		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring None
E-AER10201 Gas Turbine - LM2500+ Aero and LM2500+ Xpress Package Operation/ Familiarization∻		~	✓	~	✓		✓		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operati Focuses on operator responsibilities such as startup, loading and monitoring None
E-AER10102 Gas Turbine - LM2500+ Package Maintenance∻		~		~			✓		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventat Covers basic troubleshooting, and a summary of the inspections required for Operation and maintenance personnel should attend together to develop a Also includes detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components
			-		-								 Attend Aero Package Operation/Familiarization Course or having equivalent Prior general knowledge of power plant systems and operation
E-AER10202 Gas Turbine - LM2500+ and LM2500+ Xpress Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventat Covers basic troubleshooting, and a summary of the inspections required fo Operation and maintenance personnel should attend together to develop a Also includes detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components
													 Attend Aero Package Operation/Familiarization Course or having equivalent Prior general knowledge of power plant systems and operation
E-AER10103 Gas Turbine - LM2500 Engine Familiarization	✓	~	✓	~			✓			3	12	*	 Covers overview of Gas Turbine theory, construction, and operation Introduces major components, typical alarms and troubleshooting
													Technical background or relevant experience

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ation of the LM2500 gas turbine and their associated systems ing during operation and interpretation of fault annunciation for suitable remedy

ation of the LM2500+ gas turbine and their associated systems ing during operation and interpretation of fault annunciation for suitable remedy

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements on of the O&M Manual

nt knowledge

GE VERNOVA

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements on of the O&M Manual

nt knowledge



	Plan	t Pe	rsor	nnel			eliver etho					
			laintenance	ntenance	on & Controls			NN			ons+	• Executive Summary
Leadership	Supervisors	Operations	_	Electrical Mai	Instrumentati	Classroom	Hands-On	Walk-		#	Location Opti	• Prerequisites
	✓		✓			~	~		5 8			 Provides the skills necessary to perform Level 1 Maintenance on the LM2500 Gas Turbine Cover detail maintenance procedures such as removal, inspection, and replacement of external components Includes hands-on sessions on a LM2500 training engine, enhancing the practical experience of the participant
												 Attended LM2500 Engine Familiarization course, or possesses equivalent knowledge Reasonable level of mechanical maintenance skill and use of hand tools is required Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the prerequisites listed about the presence of the presence of
	✓		✓			~	✓		5 8			 Provides the skills necessary to perform Level 2 Cold Maintenance on the LM2500 Gas Turbine Cover detail maintenance procedures such as removal, inspection, and replacement of internal components Includes hands-on sessions on a LM2500 training engine, enhancing the practical experience of the participant
												 Attended LM2500 Engine Familiarization course, or possesses equivalent knowledge Reasonable level of mechanical maintenance skill and use of hand tools is required Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the prerequisites listed about the presence of the presence of
	~		~			~	✓		5 8			 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM2500 Gas Turbine Cover detail maintenance procedures such as removal, inspection, and replacement of internal components Includes hands-on sessions on a LM2500 training engine, enhancing the practical experience of the participant
												 Attended LM2500 Engine Familiarization course, or possesses equivalent knowledge Reasonable level of mechanical maintenance skill and use of hand tools is required Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the prerequisites listed about the presence of the presence of
	~		✓			~	~		5 8	8		 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM2500+ Gas Turbine Cover detail maintenance procedures such as removal, inspection, and replacement of internal components Includes hands-on sessions on a LM2500+ training engine, enhancing the practical experience of the participal
												 Attended LM2500+ Engine Familiarization course, or possesses equivalent knowledge Reasonable level of mechanical maintenance skill and use of hand tools is required Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the prerequisites listed about the prevention of th
	Leadership	 ▲ ▲ ▲ ▲ Supervisors 	Image: second secon		Image: Sector	Image: Sector of the sector	Image: Sector of the sector	Image: Sector in the sector	Leadership · · ·	Leadership · · · Supervisors · · · · Supervisors · · · · · · · · · · · · Supervisors · · · · · · · Supervisors · · · · · · · · Supervisors · · · · · · · · · Supervisors · · ·	Leadership - - Supervisors - - - Supervisors - - - - Supervisors - - - - - Supervisors - - - - - - Supervisors -	Leadership Leadership Albervisors Supervisors Albervis

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ractical experience of the participants nowledge required not fulfill the prerequisites listed above. M2500 Gas Turbine lacement of internal components ractical experience of the participants knowledge required not fulfill the prerequisites listed above. M2500 Gas Turbine lacement of internal components ractical experience of the participants knowledge required not fulfill the prerequisites listed above. M2500+ Gas Turbine lacement of internal components practical experience of the participants knowledge required



Course ID# & Title		Plar	nt Pe	erso	nne			elive eth					
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls			Site Walk-Down	Duration in Days		Location Options⁺	Executive Summary Prerequisites
E-AER10203 Gas Turbine - LM2500+ Borescope Inspection		~		✓			~	~		2	8	US	 Familiarizes the procedures required to assess the physical condition of a LN Includes hands-on sessions on a LM2500+ training engine, enhancing the pro- Attended LM2500+ Engine Familiarization course, or possesses equivalent k Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not see the second second
E-AER10204 Gas Turbine - LM2500+/G4 Engine Familiarization	~	~	~		~		~			3	12	*	 Covers overview of Gas Turbine theory, construction, and operation Introduces major components, typical alarms and troubleshooting Technical background or relevant experience
E-AER10205 Gas Turbine - LM2500+ Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LM2500 Cover detail maintenance procedures such as removal, inspection, and replate Includes hands-on sessions on a LM2500+ training engine, enhancing the provided LM2500+ Engine Familiarization course, or possesses equivalent k Reasonable level of mechanical maintenance skill and use of hand tools is reflaced to the Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set to the result of the provided to the participants will have difficulty to follow the participants will have difficulty to follow the participant of the partic
E-AER10206 Gas Turbine - LM2500+ Level 2 Cold Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LM Cover detail maintenance procedures such as removal, inspection, and repla Includes hands-on sessions on a LM2500+ training engine, enhancing the pro- Attended LM2500+ Engine Familiarization course, or possesses equivalent k Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-AER10108 Gas Turbine - LM2500 Borescope Inspection		✓		~			~	✓		2	8	KW US	 Familiarizes the procedures required to assess the physical condition of a LN Includes hands-on sessions on a LM2500 training engine, enhancing the prace Attended LM2500 Engine Familiarization course, or possesses equivalent kn Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

LM2500+ gas turbine internal components using borescope equipment practical experience of the participants

knowledge required

not fulfill the prerequisites listed above.

00+ Gas Turbine lacement of external components

practical experience of the participants

knowledge

required

not fulfill the prerequisites listed above.

_M2500+ Gas Turbine

lacement of internal components

practical experience of the participants

knowledge required

equired

not fulfill the prerequisites listed above.

LM2500 gas turbine internal components using borescope equipment

actical experience of the participants

knowledge

required



Course ID# & Title		Pla	nt Pe	ersc	onne			elive eth	-				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			vn	Days	f Students	ons⁺	• Executive Summary
	Leadership		Operations	·	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options	• Prerequisites
E-AER10301 Gas Turbine - LM6000 Aero Package Operation/Familiarization∻		~	~	~	~		~		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operati Focuses on operator responsibilities such as startup, loading and monitoring
						-							• None
E-AER10302 Gas Turbine - LM6000 Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventat Covers basic troubleshooting, and a summary of the inspections required fo Operation and maintenance personnel should attend together to develop a Also includes detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components This course is applicable for all models of the LM6000 aeroderivative Gas Turbine components
													 Attend Aero Package Operation/Familiarization Course or having equivalent Prior general knowledge of power plant systems and operation
E-AER10303 Gas Turbine - LM6000 Engine Familiarization	~	~	~	~	- - - - - - - - - - - - - - - - - - -		~			3	12	*	 Covers overview of Gas Turbine theory, construction, and operation Introduces major components, typical alarms and troubleshooting
					-	*					-	-	Technical background or relevant experience
E-AER10304 Gas Turbine - LM6000 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LM6000 Cover detail maintenance procedures such as removal, inspection, and replate Includes hands-on sessions on a LM6000 training engine, enhancing the prate This course is applicable for all models of the LM6000 aeroderivative Gas Tu
													 Attended LM6000 Engine Familiarization course, or possesses equivalent kn Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-AER10305 Gas Turbine - LM6000 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Cover detail maintenance procedures such as removal, inspection, and repla Includes hands-on sessions on a LM6000 training engine, enhancing the pra This course is applicable for all models of the LM6000 aeroderivative Gas Tu
													 Attended LM6000 Engine Familiarization course, or possesses equivalent kn Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

 \diamond Recommended course for new equipment

tion of the LM6000 gas turbine and their associated systems ng during operation and interpretation of fault annunciation for suitable remedy

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements on of the O&M Manual

urbine

nt knowledge

000 Gas Turbine placement of external components ractical experience of the participants Furbine knowledge

required

not fulfill the prerequisites listed above.

_M6000 Gas Turbine

placement of internal components

ractical experience of the participants

urbine

knowledge

required



Course ID# & Title		Plar	nt P€	erso	nnel			elive etho					
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days		Location Options⁺	Executive Summary Prerequisites
E-AER10306 Gas Turbine - LM6000 Level 2 Hot Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM Cover detail maintenance procedures such as removal, inspection, and replate Includes hands-on sessions on a LM6000 training engine, enhancing the prate This course is applicable for all models of the LM6000 aeroderivative Gas Ture Attended LM6000 Engine Familiarization course, or possesses equivalent kn Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-AER10307 Gas Turbine - LM6000 Borescope Inspection		~		~			~	~		2	8	US	 Familiarizes the procedures required to assess the physical condition of a LN Includes hands-on sessions on a LM6000 training engine, enhancing the prace This course is applicable for all models of the LM6000 aeroderivative Gas Ture Attended LM6000 Engine Familiarization course, or possesses equivalent kn Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not
E-AER11201 Gas Turbine - LM9000 Aero Package Operation / Familiarization ∻		~	✓	~	~		~		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring None
E-AER11202 Gas Turbine - LM9000 Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventati Covers basic troubleshooting, and a summary of the inspections required for Operation and maintenance personnel should attend together to develop a Also includes detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components Attended Aero Package Operation/Familiarization Course or having equivale Prior general knowledge of power plant systems and operation
E-AER10401 Gas Turbine - LMS100 Aero Package Operation/Familiarization∻		~	~	~	~		~		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring None

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

M6000 Gas Turbine lacement of internal components actical experience of the participants urbine

nowledge required

not fulfill the prerequisites listed above.

LM6000 gas turbine internal components using borescope equipment ractical experience of the participants

urbine

knowledge

required

not fulfill the prerequisites listed above.

tion of the LM6000 gas turbine and their associated systems ng during operation and interpretation of fault annunciation for suitable remedy

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements n of the O&M Manual

lent knowledge

tion of the LMS100 gas turbine and their associated systems ng during operation and interpretation of fault annunciation for suitable remedy



Course ID# & Title		Plai	nt Pe	erso	onne	I		elive etho	-				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			uv	Days	f Students	ons+	• Executive Summary
	Leadership	Supervisors	Operations		Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Option:	• Prerequisites
E-AER10402 Gas Turbine - LMS100 Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventat Covers basic troubleshooting, and a summary of the inspections required for Operation and maintenance personnel should attend together to develop a Also includes detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components
													 Attend Aero Package Operation/Familiarization Course or having equivalent Prior general knowledge of power plant systems and operation Participants MUST bring safety glasses and work shoes for tours
E-AER10403 Gas Turbine - LMS100 Engine	✓	~	~	~			✓			3	12	*	 Covers overview of Gas Turbine theory, construction, and operation Introduces major components, typical alarms and troubleshooting
Familiarization						-					-		Technical background or relevant experience
E-AER10404 Gas Turbine - LMS100 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LMS10 Cover detail maintenance procedures such as removal, inspection, and replate Includes hands-on sessions on a LMS100 training engine, enhancing the practice of the procedure of the proced
											2		 Attended LMS100 Engine Familiarization course, or possesses equivalent kr Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do n
E-AER10405 Gas Turbine - LMS100 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LN Cover detail maintenance procedures such as removal, inspection, and replate Includes hands-on sessions on a LMS100 training engine, enhancing the prate
													 Attended LMS100 Engine Familiarization course, or possesses equivalent kr Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do n
E-AER10406 Gas Turbine - LMS100 Level 2 Hot Maintenance		✓		✓			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM Cover detail maintenance procedures such as removal, inspection, and repla Includes hands-on sessions on a LMS100 training engine, enhancing the pra
													 Attended LMS100 Engine Familiarization course, or possesses equivalent kr Reasonable level of mechanical maintenance skill and use of hand tools is re Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do n

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements n of the O&M Manual

nt knowledge

00 Gas Turbine lacement of external components ractical experience of the participants

knowledge

required

not fulfill the prerequisites listed above.

_MS100 Gas Turbine

lacement of internal components

ractical experience of the participants

knowledge

required

not fulfill the prerequisites listed above.

MS100 Gas Turbine

lacement of internal components

ractical experience of the participants

knowledge required

not fulfill the prerequisites listed above.

Courses can be conducted in various languages with translated material and/or intrepreter, upon request



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Course ID# & Title		Plai	nt Pe	erso	nne			elive eth					
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			u۸	ays	f Students	ons+	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Options⁺	• Prerequisites
E-AER10501 Gas Turbine - TM2500 Aero Package Operation/Familiarization∻		~	~		~		~		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring None
E-AER10601 Gas Turbine - TM2500+ Aero Package		~	~		~		✓		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring
Operation/Familiarization∻ E-AER10502 Gas Turbine - TM2500 Aero Package Maintenance∻		~		~			~		~	5	12	*	 None Introduces operations and maintenance personnel to the routine preventati Covers basic troubleshooting, and a summary of the inspections required for Operation and maintenance personnel should attend together to develop a second structure detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components
		4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			4 5 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8				•		 ⊕ ⊕		 Attended Aero Package Operation/Familiarization Course or having equivale Prior general knowledge of power plant systems and operation
E-AER10602 Gas Turbine - TM2500+ Aero Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventati Covers basic troubleshooting, and a summary of the inspections required for Operation and maintenance personnel should attend together to develop a Also includes detail Level 1 maintenance work packages and familiarization Does not include repair procedures for Gas Turbine components
											- - - - - - - - - - - - - - - - - - -		 Attended Aero Package Operation/Familiarization Course or having equivale Prior general knowledge of power plant systems and operation

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

tion of the TM2500 gas turbines and their associated systems ng during operation

tion of the TM2500+ gas turbines and their associated systems ng during operation

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements on of the O&M Manual

lent knowledge

ative maintenance procedures and minor mechanical maintenance for minor Gas Turbine generator mechanical maintenance a working relationship regarding the maintenance requirements n of the O&M Manual

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Course ID# & Title		Plai	nt Pe	erso	nnel			elive etho	-									
(Click on Course Title to download detailed course outline)				Aaintenance	intenance	ion & Controls			ЧN	Days	of Students	ions⁺	• Executive Summary					
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # c	Location Option:	• Prerequisites					
E-GAS10401 Gas Turbine - Familiarization for Power Plant Management	~	~	~				~	~		5	12	*	 Introduces Gas Turbine Power Plant Fundamentals Covers Power Plant Designation System, reading Process & Instrumentation Gives an insight on Gas Turbine Operation with simulator support and maintee This course is for Legacy Alstom products only (GT13E2, GT24, GT26) 					
		* * * * * * * * * * *			6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8				- - - - - - - - - - - - - - - - - - -				Technical backgroundFamiliar with managing aspects of Power Plants					
E-GAS12001 Gas Turbine - Operation∻		✓	~				~	~	~	10	12	*	 Develops a background in Gas Turbine-generator design, construction and op Provides detailed description and function of the Gas Turbine-generator majo Include the operator's responsibilities regarding systems operations, operation instruction and exercises, sitespecific process alarms and HMI control screen Learn to interpret fault annunciation and determine if it can be remedied by opersonnel Focuses on the starting, loading, and specific operator checks of the various sand the affect that operation has on major mechanical maintenance May include site visits to familiarize personnel with the physical layout of the 					
													 Basic knowledge of Power plant equipment, systems and operation Prior hands-on gas turbine equipment experience is recommended Ability to read technical drawings Reasonable computer skills 					
E-GAS22101 Gas Turbine - Operation E-Class (Advanced)		~	~				~			5	12	*	 Designed to enhance GE E-class (7EA and 9E) Gas Turbine-generator operator Provides a detailed overview of Gas Turbine operating sequences and contro Expands upon background in Gas Turbine-generator operation that improves necessary corrective action Focuses on the Gas Turbine and generator control and protection, the operatigenerator systems Minimal discussion on turbine auxiliary support systems 					
													 Prior Gas Turbine experience as control room or outside operator, I&C or Med Have attended a GE Gas Turbine Operation course, or possesses equivalent k Technical background (Mechanical or Controls) Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do no 					

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

on Diagram (P&ID) ntenance overview

operations of the unit installed at their plant

ajor components, the auxiliary systems

ational data acquisition, evaluation of anomalies through the use of classroom ens are explained

by operator action or with the assistance of instrumentation and/or maintenance

is system parameters to ensure reliable operation of the Gas Turbine-generator unit,

he Gas Turbine generator, its auxiliaries and piping systems

ator knowledge and skills rol and protection functions ves the participant's ability to properly analyze operating problems and take the

rational relationships of the compressor, combustion and turbine sections and

echanical Technician t knowledge



Course ID# & Title		Plar	nt Pe	ersc	onne	I		elive eth						
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options⁺	Executive Summary Prerequisites	
E-GAS22201 Gas Turbine - Operation F-Class (Advanced)		×	~				~			5	12	*	 Designed to enhance GE F-class Gas Turbine-generator operator knowledge Provides a detailed overview of Gas Turbine operating sequences and contre Expands upon background in Gas Turbine-generator operation that improvenecessary corrective action Focuses on the Gas Turbine and generator control and protection, the operagenerator systems Minimal discussion on turbine auxiliary support systems Prior Gas Turbine experience as control room or outside operator, I&C or Me Have attended a GE Gas Turbine Operation course, or possesses equivalent Technical background (Mechanical or Controls) Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do n 	
E-GAS22501 Gas Turbine- Operation H-Class (Advanced)			~				~			5	12	*	 Designed to enhance GE H-class Gas Turbine-generator operator knowledg Provides a detailed overview of Gas Turbine operating sequences and contrest expands upon background in Gas Turbine-generator operation that improvenecessary corrective action Focuses on the Gas Turbine and generator control and protection, the operation generator systems Minimal discussion on turbine auxiliary support systems Prior Gas Turbine experience as control room or outside operator, I&C or Meter Have attended a GE Gas Turbine Operation course, or possesses equivalent Technical background (Mechanical or Controls) Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not set the set of the se	
E-GAS20203 Gas Turbine - Operation Training on GT26 Simulator		~	~				~		~	2	6	*	 Introduces the basics about the HMI and working environment using simulation Reviews preparation steps for GT startup, checking the release criteria for sectores Startup of the gas turbine (run-up, idle and load operation), handling Addresses observing the key plant parameters, using the alarms, events and Includes Operator actions under transient conditions (handling GT PLS, TRIF Gas Turbine Operation experience or equivalent knowledge Control System ALSPA or Advant IIT800xA (whichever applicable) operation Note: Participants will have difficulty to follow this course content if they do not set the set of the	

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ge and skills trol and protection functions ves the participant's ability to properly analyze operating problems and take the

rational relationships of the compressor, combustion and turbine sections and

lechanical Technician It knowledge

not fulfill the prerequisites listed above.

ge and skills trol and protection functions ves the participant's ability to properly analyze operating problems and take the

rational relationships of the compressor, combustion and turbine sections and

echanical Technician

t knowledge

not fulfill the prerequisites listed above.

lator equipment

startup

ng different plant load conditions, understanding the concept of "hold points" nd trend displays to analyze the process

IP etc.)

n training, experience or equivalent knowledge not have the pre-requisites listed above.



Course ID# & Title Plant Personnel							elive etho							
(Click on Course Title to download detailed course outline)		S		Mechanical Maintenance	Electrical Maintenance	ation & Controls			Jown	Days	# of Students	Options ⁺	Executive Summary Prerequisites	
	Leadership	Supervisors	Operations	Mechanica	Electrical N	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in	Maximum #	Location O		
E-GAS12002 Gas Turbine - Maintenance∻		~		✓		-	✓		~	5	12	*	 Offers a firm understanding of the basic maintenance requirements of GE he Provides participants a basic understanding of Gas Turbine construction, ho procedures 	
		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			-								 Basic knowledge of power plant equipment, systems and operation Prior hands-on plant maintenance experience is recommended Reasonable computer skills 	
E-GAS20101 Gas Turbine - GT13E2 Inspection		~		~			√		✓	10	12	*	 Covers preparation and setting up site for a C-inspection, planning manpow Includes working with documentation: O&M manuals and test certificates Overview of disassembly and reassembly of the turbine instrumentation, ap turbine components, covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor po Includes preparation work for start-up of the Gas Turbine and cleaning of systems) 	
													 Mechanical background Familiarity with the service or erection of power plants 	
E-GAS10102 Gas Turbine - GT13E2 Mechanical		~		✓			✓		✓	7	12	*	 This course familiarizes personnel with detailed knowledge and operation of The training includes, handling of site documentation, description of all com 	
Systems & Components		4 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4			•							·	 Able to interpret technical documents, such as Piping & Instrumentation Dia Mechanical background Familiar with the service of erection of power plants 	
E-GAS20201 Gas Turbine - GT26 Inspection (retractable EV Burner)		~		~			✓		~	10	12	*	 Covers preparation and setting up site for C-inspection, planning manpower Includes working with documentation: O&M manuals and test certificates Overview of disassembly and reassembly of the turbine instrumentation, ap turbine components, covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor po Includes preparation work for start-up of the Gas Turbine and cleaning of systematical background 	
		- - - - - - - - - - - - - - - - - - -											 Mechanical background Familiar with the service or erection of power plants 	

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

heavy duty Gas Turbines and their auxiliary support systems installed at site now it works and the maintenance requirements, troubleshooting and inspection

wer

applying step by step sequences for disassembly, inspections, and reassembly of all

position), coupling alignment systems, "motor roll" and for first ignition after the inspection

of the GT13E2 mponents and their function, description of all systems and their function viagrams (P&ID) and drawings

er

applying step by step sequences for disassembly, inspections, and reassembly of all

position), coupling alignment systems, "motor roll" and for first ignition after the inspection



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Course ID# & Title		Plai	nt Pe	erso	nnel			elive leth					
(Click on Course Title to download detailed course outline)				Maintenance	intenance	ion & Controls			UM	ays	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Opt	• Prerequisites
E-GAS10204 Gas Turbine - GT26 Mechanical Systems & Components (retractable EV Burner)		~		~			~		~	10	12	*	 Covers GT26 Thermal Block: main components and parts dimensions, weigh Overview of the Gas Turbine systems - purpose, design and function of the for system, fuel oil system, NOx water system, air intake system, variable inlet g Includes purpose, design and function of the Gas Turbine main components: instrumentation to the thermal block, sealing and cooling air Includes discussion on the use of operation and maintenance manuals: asse certificates, exercises finding the required documents in the maintenance manuals
		 A A B C C				0 0 0 0 0 0 0 0 0 0 0 0 0 0							 Able to interpret technical documents such as the Piping & Instrumentation Mechanical background Familiar with the service or erection of power plants
E-GAS10205 Gas Turbine - GT24/GT26 Routine Maintenance		~		~			~	~		5	12	СН	 Cover the design and function of an annular combustor engine of GT 24 and Overview of the purpose and the duration of the three types of inspection or before, during and after an A, B or C-inspection overview Describe the correct use of the relevant documentation such as Test Certific tools, for performing the tasks required for an inspection, the function of the Perform in-situ Radial Rotor Position measurements, calculations and possib Burners, EV Lances, SEV Lances, Flame Monitors, Pulsation Probes EV and SE Apply all EHS procedures relevant to the task
											-		 Basic knowledge of power plant equipment, systems and operation Experience in power plant and/or general equipment maintenance

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

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following systems: lube oil system, jacking oil system, power oil system, fuel gas t guide vanes, blow off valves

ts: compressor, combustion chamber, turbine, rotor, blades and vanes, bearings,

sembly and disassembly procedures, working with quality documentation and test manual

on Diagram (P&ID) and drawings

d GT 26

on the Gas Turbine (A, B, C) - Describe and carry out the required measurements

ficates, Procedures and O&M Manuals, select and correctly use of the relevant special ne installed Instrumentation

sible adjustments, describe and apply the disassembly and re-assembly of, EV SEV, Ignition Probes, in-situ Boroscope preparations and inspections

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Course ID# & Title		Pla	nt P	ersc	onne	I		elive etho	-				
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options ⁺	Executive Summary Prerequisites
E-STM10702 Steam Turbine - Conversion/Modification/ Upgrade Operation with Controls Upgrade		~	~	~		~	~			5	12	*	 Prepares both Operations and Maintenance personnel of a GE Steam Turbi reliability and production Discuss major components: site specific turbine-generator including auxilia Review the HMIs, monitoring capabilities, process alarms, start-up and shu Prepare to handle complex process situations by learning to detect the ear examined, and corrective actions are discussed
													 Basic knowledge of power plant equipment, systems and operation Ability to read technical documents Reasonable computer skills
E-STM10801 Steam Turbine - Maintenance∻		*	 Provides a thorough understanding of the maintenance requirements for G of daily inspections and regular maintenance activities Discussion on scheduling and preparation for the minor and major inspective Covers impact of operation on maintenance, routine maintenance, and instance 										
			 Basic knowledge of power plant equipment and systems Prior hands-on plant maintenance experience is recommended Reasonable computer skills 										
E-STM10802 Steam Turbine - Operation∻		~	~				~		~	10	10 12	*	 Designed to enable operators, engineers, supervisors, and maintenance per Develops a background in Steam Turbine - generator process design specifics white Provides recommended design, starting and loading specifics, Operator's date Emphasis on the operator's understanding of design functionality and operator
													 Basic knowledge of power plant equipment, systems and operation Prior hands-on steam plant experience is recommended Ability to read technical documents Reasonable computer skills
E-STM10803 Steam Turbine - Operation (Basic)		*	 Designed to enable plant personnel to safely operate a GE manufactured s Develops a background in steam turbine-generator operation which will er Provides recommended starting and loading specifics, Operator's daily and Develops operator's basic understanding of the various auxiliary systems, or 										
													 Basic knowledge of power plant equipment, systems and operation Prior hands-on steam plant experience is recommended Ability to read technical documents Reasonable computer skills

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

 \diamond Recommended course for new equipment

pine which has just completed a major upgrade to help achieve peak availability,

iaries

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utdown processes & permissive, P&ID's and devices summaries

arly warning signs, root causes of the most common operational problems are

GE Steam Turbines and their support systems to facilitate planning and safe execution

tions spections

personnel to safely operate a GE manufactured Steam Turbine-generator unit hich will enable participants to properly analyze and effectively troubleshoot operating issues aily and weekly tests along with all site-specific process alarms and control HMI screens eration of the various auxiliary systems, control systems and operating parameters

steam turbine-generator unit enable participants to analyze operating problems and take the corrective actions d weekly tests along with all Site-Specific process alarms and control HMI screens , control systems and operating parameters



Course ID# & Title		Plar	nt Pe	erso	nnel	I		elive eth					
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			цv	Days	of Students	Options+	Executive Summary
	Leadership	Supervisors	Operations		Electrical Mainten	Instrumentation	Classroom	Hands-On	Site Walk-Dow	Duration in Da	Maximum # o	Location Opti	• Prerequisites
E-STM20701 Steam Turbine - Operation (Advanced)		✓	~				~			5	12	*	 Help to develop the skills needed to operate GE Steam Turbine for peak avail Discussion on major components and students explore: turbine-generator at Review of auxiliary systems in detail by discussing unit specific process alarn and limits of all Steam Turbine support systems Operators are prepared to handle complex process situations by learning to The root causes of the common operational problems are reviewed and potential
													 Basic knowledge of power plant equipment, systems and operation Prior steam turbine training, hands-on experience or equivalent knowledge Ability to read technical documents Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.

♦ Recommended course for new equipment

ailability, reliability and production r auxiliaries, HMIs, process alarms, and start-up and shutdown processes arms, HMI monitoring capability, P&IDs and devices summaries, learn the full potential

to detect the early warning signs of trouble otential corrective actions are discussed

not have the prerequisites listed above.



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		<u> </u>				<u> </u>							
Course ID# & Title		Plar	nt Pe	erso	nne			elive leth	-				
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			۲N	Davs	f Students	ons⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical M	Electrical Maint	Instrumentation	Classroom	Hands-On	Site Walk-Dov		#	Location Options ¹	• Prerequisites
E-BOI10302 Heat Recovery Steam Generator (HRSG) - Operation & Maintenance (GE Engineered)∻		~	~	~		~	~		~	3	12	*	 Designed for GE engineered HRSG equipment only Familiarize with HRSG architecture and its auxiliary systems Covers operator's daily responsibilities, tracking and troubleshooting of typi Reviews inspection and maintenance requirements of HRSG
		4 4 5 5 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			•	0 		•					 Basic knowledge of power plant Power plant operational experience or training Reasonable computer skill

+ Many Site Specific courses may be available for delivery via Distance Learning upon request.
 ♦ Recommended course for new equipment

pical issues including water chemistry

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Course ID# & Title		Plai	nt Pe	ersc	onne			elive etho	-				
(Click on Course Title to download detailed course outline)	_eadership	Supervisors	Operations	Mechanical Maintenance		Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	ocation Options⁺	Executive Summary Prerequisites
E-GEN10504 Generator - Hydrogen Cooled Operation & Auxiliary Systems		 S 	<u>∨</u>	∠	<u>ш</u>	 Ir 	✓		√ √	3	8	⊥ CH KW	 Provides a description of hydrogen cooled generator: functional description of Includes Generator Cooling System GRH or MKA: functional description of a generator Seal Oil System GHE or MKW: functional description of a generator Gas System GRV or MKG: functional description, preparate CO2, operation and monitoring Includes Generator Stator Water System GST or MKF: functional description of Familiarity with the assembly and operation of the generator and the auxiliant technical background or relevant experience
E-GEN10403 Generator - Water & Hydrogen Cooled Operation & Maintenance of Auxiliary Systems		~	~	~	✓	~	~			5	12	*	 Cover and explain the layout and function of the generator auxiliaries; H2-coordinates the processes of gas sealing and gas extracting from the seal oil by means of Carry out maintenance-related procedures such as; purging the generator and List from memory the operating parameters of the cooling system and its auxiliarity and state their permissible ranges List the H2-specific safety rules and measures for operation of and maintenance
					-								 Basic knowledge of power plant equipment and systems Experience with electromechanical systems and components Technical background (Electrical or Mechanical)
E-GEN10301 Generator - Mechanical Systems & Components		~		~			~		✓	5	10	*	 Discusses basic types of power plant and their main functional units Covers functional principle of generators, electrical quantities and ratings of Includes design features of air-cooled and hydrogen-cooled turbo generators, systems, corona protection, wedging, winding supports, rotor retaining ring Overview of the cooling systems of stator and rotor (air-water, water, hydrose) Overview of instrumentation and monitoring, excitation system, winding are of phase separation replacement, practical training of phase separation replacement
		- - - - - - - - - - - - - - - - - - -											Knowledge of power plantsAble to read technical documents
E-GEN10903 Generator - Hydrogen Cooled Auxiliaries Maintenance		~		~			~		~	3	10	*	 Provides an overview of O&M documents such as descriptions, P&IDs, P-FU erection) and other procedures Includes manuals and data sheets of components and sub-systems, practice Overview of mandatory safety rules and regulation on all involved systems
													 Prior experience related to the service or erection of major components Ability to read technical drawings and documents Technical background (Mechanical)

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 \diamond Recommended course for new equipment

n of a generator, description of excitation equipment, normal operation and monitoring a generator, freparation and start up, normal operation and monitoring a generator, description of excitation equipment, normal operation and monitoring ration, scavenging air and CO2, filling with hydrogen or draining, scavenging the H2 and

n of a generator, description of excitation equipment, normal operation and monitoring iliary systems

ooling system triple circuit seal oil system, water cooling system, describe from memory of the P&ID and the O&M manual and the auxiliary systems, regenerating the H2-gas dryer, change-over filter cartridges uxiliary systems (differential-pressure control, core monitoring, gas and water purity

nance on H2-cooled generators

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of turbo generators, generator type designations

cors, design of stator and rotor functional units (magnetic cores, windings, insulation ngs, connections)

rogen), and the associated sealing systems

and rewinding of stator and rotor, theoretical education of DVV, theoretical education eplacement

FUPs, setting lists, Inspection and Test Plans, Test Certificates for commissioning (and

tical examples and experience exchange is (gas, fire, pressure)

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						-							
Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho	-				
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			UN	Days	f Students	⁺SNO	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options ⁺	• Prerequisites
E-GEN10901 Generator - Hydrogen Cooling System Operation & Maintenance		~	~	~	~	~	~			3	12	*	 Discussion on H2-related safety rules Overview of the gas cooling system with its gas unit: configuration, component Overview of the seal oil system with its seal oil unit: configuration, component Includes Instrumentation and Monitoring, interpretation of process value reas scenarios Covers Maintenance procedures: purging of the generator, replacement of oi Discussion on cooling and humidification of the brush-gear cooling air Explains periodic checks of levels, pressures, flow rates, temperatures, gas prunits (readiness for operation, change-over functions)
		9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9											 Experience in operation and maintenance of large power plants Ability to read technical documents
E-GEN10102 Generator - Air or Hydrogen Cooled for Gas Turbine Operation & Maintenance		~	✓	~	✓		~		~	5	8	•	 Covers the components, architecture, operation and maintenance of the air- Functional description of the excitation System, including operation, settings Functional description of the protection System, including operation, mainte
													 Technical background (Electrical) Experience with electromechanical systems and components is recommend Basic knowledge of excitation regulation and electrical protection Note: Participants will have difficulty to follow this course content if they do not

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♦ Recommended course for new equipment

nents, and function nents, and function readings such as pressure, flow rates, gas purity, humidity, alarms and fault handling

oil filter cartridges, regeneration of the gas dryer

purity, gas leakage, gas reserves and periodic functional checks of the various pump

ir- or hydrogen Cooled generator (as applicable) ngs and troubleshooting ntenance and troubleshooting

nded

not fulfill the prerequisities listed above.



		<u> </u>				•							
Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho					
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			own	Days	f Students	ons+	• Executive Summary
	Leadership	Supervisors	Operations	_	Electrical Maint	Instrumentation	Classroom	Hands-On	Site Walk-Dov	Duration in Da	Maximum # of	Location Options	• Prerequisites
O-CCP10205 Combined Cycle - Operation Familiarization		~	~	~			~			5	15	KW US	 Offers a firm understanding of the basic operations of GE Combine Cycle Pla Cycle Plants Gives participants an understanding of basic Combine Cycle Power Plants of shutdown and abnormal operations Emphasis upon safe, efficient power plant operations
													• None

Plants and is designed for those persons with no or limited knowledge of Combine s operations as well as a fundamental knowledge on plant start-up, normal operations,



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Course ID# & Title		Plar	nt Pe	erso	nne	I		elive eth	-				
(Click on Course Title to download detailed course outline)	-eadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options⁺	Executive Summary Prerequisites
O-ELX10101 Excitation - EX2000 Generator Excitation Maintenance		✓	<u> </u>		<u>-</u> ✓	_ ✓	✓ ✓	_ ✓			12		 Offers training in the skills needed to do basic operation, maintenance and t Learn how to operate the EX2000 Exciter, how to use the Diagnostic Keypace Consists of classroom instruction, practical lab exercises using EX2000 simulation
			-								- - - - - - - - - - - - - - - - - - -		 Ability to work with excitation systems The student should have reasonable computer skills
O-ELX10201 Excitation - EX2100 Generator Excitation Maintenance	~	~	~		~	~	~	~		5	12	٠	 Offers training in the skills needed to do basic operation, maintenance and t Learn how to operate the EX2100 Exciter, how to use the Diagnostic Keypace Consists of classroom instruction, practical lab exercises using EX2100 simular Ability to work with excitation systems The student should have reasonable computer skills.
O-ELX20201 Excitation - EX2100 Generator Excitation Maintenance (Advanced)	~	~	~		~	~	~	~		5	12	•	 Provides background in advanced EX2100 Digital Excitation System mainter The training is divided equally between classroom theory and practical lab e Consists of classroom presentations, discussions and using EX2100 hardwa The student should have reasonable computer skills
			-		6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8						- - - - - - - - - - - - - - - - - - -		 Participants should bring a copy of their EX2100 system elementary drawing Recommended prior cours(s): • Excitation - EX2100 Generator Excitation Ma
O-ELX10301 Excitation - EX2100e Generator Excitation Maintenance∻		~			~	~	~	~		5	12	٠	 Offers training in the skills needed to do basic operation, maintenance and t Learn how to operate the EX2100e Exciter from HMI and local keypad and h Consists of a classroom instruction and lab exercises using EX2100e simulation
											4.0		Reasonable computer skills Fahanaa skille meneter meintein and traublachest an EV2100
D-ELX10301 Excitation - EX2100e Generator	~	•	~		~	~				5	10		 Enhance skills necessary to operate, maintain, and troubleshoot an EX21006 Consists of remote lecture, classroom exercises, operation overview, basic t
Excitation Maintenance - Distance Learning											- - - - - - - - - - - - - - - - - - -	2 2 3 4 4 5 4 5 4 5 5 5 6 6 6 7 6 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8	 Reasonable computer skills Desktop/laptop with high speed internet connection
O-ELX20301 Excitation - EX2100e Generator Excitation Maintenance (Advanced)∻		~			~	~	~			5	12	٠	 Provides background in EX2100e Digital Excitation System operation, mainter Consists of classroom theory and practical lab exercises Includes EX2100e hardware for lab exercises which are designed to teach EX
											-		 Previous experience with EX2000 or EX2100 or EX2100e Reasonable computer skills

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troubleshooting on an EX2000 excitation system ad and GE Control System Toolbox to troubleshoot problems nulators and actual EX2000 Exciters

troubleshooting on an EX2100 excitation system ad and GE Control System Toolbox to troubleshoot problems nulators and actual EX2100 Exciters

enance and troubleshooting using the Control System Toolbox exercises

vare to complete lab exercises troubleshooting and maintenance techniques

ng with them to class 1aintenance (O-ELX10201)

d troubleshooting on an EX2100e excitation system how to use the GE Control System ToolboxST™ to troubleshoot problems lators and actual EX2100e Exciters

DOe Static Exciter and Regulator system and the related communication networks c troubleshooting, and maintenance procedures

ntenance and troubleshooting using the ToolboxST™ application program

EX2100e operation, troubleshooting and maintenance techniques



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Course ID# & Title		Plar	nt Pe	erso	nne			elive etho					
(Click on Course Title to download detailed course outline)		S		Mechanical Maintenance	Electrical Maintenance	ation & Controls				Days	# of Students	Options+	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mechanica	Electrical N	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in	Maximum #	Location O	
O-ELX11002 Excitation - LS2100 LCI for Turbine Static Start	~	~	~		~	~	~	~		4	12	٠	 Designed for engineering and maintenance personnel who configure and mai
O-ELX11003 Excitation - LS2100e LCI for Turbine Static Start		~			~	~	~	~		4	12	•	 Designed for engineering and maintenance personnel who configure, and maintenance personnel who configure
													 Electrical experience / education Reasonable computer skills Participants should bring a copy of their Innovation Series LCI[™] static starte
O-CON13301 Control System - Mark VI Operation		~			~	~	~	✓		10	12	US	 Provides training on the essential elements of the Mark VI turbine control sy Includes instruction on the hardware and software components of the Mark VI co Includes, practical exercises on Mark VI equipment
													 Basic understanding of turbine equipment and its operation (gas or steam) Familiarity with control system basics
O-CON23301 Control System - Mark VI Maintenance (Advanced)		✓			 Image: A start of the start of	~	~	~		5	10	US	 Provides the knowledge required to properly maintain your Mark VI Control I Addresses the following questions: a. What if your unit is in a critical condition? It's shutting down, running back troubleshooting skills or those gained from the Advanced Mark VI Trouble b. How is it to be properly calibrated or replaced? Should you, or how do you consequences? You have received an alarm indicating a valve failure. c. What are the differences between pneumatic and hydraulic? You have det fuse, voter mismatch. d. How is it to be repaired? Not for customers with aeroderivative applications GE Mark*VI Control Owners
													 GE Mark VI Control Owners Recommended prior course(s): Control System - Mark VI Troubleshooting (Or those who possess a high degree of troubleshooting skills

 \diamond Recommended course for new equipment

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naintain the LCI™ static starter ations, understanding the monitor commands student material retention

ter system elementary drawing with them to class

maintain the LCI™ static starter ions, UCSB programming, and Alarm Viewer configuration g LCI™ starter along with lectures and hands-on exercises are used to reinforce

ter system elementary drawing with them to class

system

control system and its interface system (HMI), alarm troubleshooting and LVDT calibration

keeping your units available and reliable, 100% hands-on, realistic and practical

ck, or worse it has tripped or you cannot obtain a ready to start. Using your existing leshooting course, you have isolated the cause to a singular device. ou, force its variable into a safe state so it can be replaced and what are the

etermined the probable cause of a diagnostic alarm; open or shorted circuit, blown

(Advanced) (O-CON23302)



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Course ID# & Title		Plar	nt Pe	erso	nnel			elive leth	-				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			Ч	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	E	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # o	Location Opti	• Prerequisites
O-CON23302 Control System - Mark VI Troubleshooting (Advanced)		~			~	~	~	~		5	12	US	 Designed to test and sharpen troubleshooting and operations skills for the pavailability Gain the fundamental skills of a competent Control Room Operator and tho Covers operating conditions from typical to extreme situations and is 100%
											2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		 Fundamental operational and controls skills, with a moderate level of comple Recommended prior course(s): Control System - Mark VI Operation (O-COI Or possess equivalent knowledge, including experience with Toolbox
O-CON13405 Control System - Mark VIe Familiarization (Advanced Viewer)	~	~			~	~	~	~		5	18	•	 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe installed systems, le programmed to simulate a turbine, labs are progressively challenging and as alarm and system troubleshooting
		-	-	-									Basic control system knowledge
D-CON13405 Control System - Mark VIe Familiarization (Advanced Viewer) - Distance Learning	~	~			~	~		~		5	6		 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe installed systems, le programmed to simulate a turbine, labs are progressively challenging and as alarm and system troubleshooting
		-		-									Basic control system knowledge
O-CON13406 Control System - Mark VIe Familiarization (ActivePoint™)	~	~			~	~	~	~		5	18	•	 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe installed systems, le programmed to simulate a turbine, labs are progressively challenging and as alarm and system troubleshooting
													Basic control system knowledge
D-CON13406 Control System - Mark VIe Familiarization (ActivePoint™) - Distance Learning	~	~			~	~		~		5	6		 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe installed systems, le programmed to simulate a turbine, labs are progressively challenging and as alarm and system troubleshooting
		- - - - - - - - - - - - - - - - - - -									*		Basic control system knowledge

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purpose of trip reduction and recovery, maintaining optimum performance and

ose skills of an experienced Mark VI TA % hands-on training that is realistic and practical

puter literacy are recommended DN13301)

les detailed knowledge to troubleshoot and maintain the control system and

lessons followed by hands-on labs that are performed on an HMI computer specially assist the students in learning the basics and building to intermediate skills including

les detailed knowledge to troubleshoot and maintain the control system and

essons followed by hands-on labs that are performed on an HMI computer specially assist the students in learning the basics and building to intermediate skills including

les detailed knowledge to troubleshoot and maintain the control system and

lessons followed by hands-on labs that are performed on an HMI computer specially assist the students in learning the basics and building to intermediate skills including

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lessons followed by hands-on labs that are performed on an HMI computer specially assist the students in learning the basics and building to intermediate skills including



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Course ID# & Title		Plar	nt Pe	erso	nnel			elive eth					
(Click on Course Title to download detailed course outline)				Maintenance	intenance	ion & Controls			MN	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	· _ ·	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # 0	Location Opt	• Prerequisites
O-CON13407 Control System - Mark VIe Intermediate (Advanced Viewer)		~			~	~	~	~		5	18	*	 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe control migration from performed on an HMI computer specially programmed to simulate a turbine skills including alarm and system troubleshooting CIMPLICITY[™] Software, experiment of the statement of the
													 Control system experience Recommended prior course(s): Control System - Mark Vle Familiarization (Article System - Mark Vle Familiarization)
D-CON13407 Control System - Mark VIe Intermediate (Advanced Viewer) - Distance Learning		~			~	~		~		5	8		 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe control migration from performed on an HMI computer specially programmed to simulate a turbine skills including alarm and system troubleshooting CIMPLICITY™ Software, exceeded and the statement of the statement
					90 	-				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			 Control system experience Recommended prior course(s): Control System - Mark Vle Familiarization (Article System - Mark Vle Familiarization)
O-CON13408 Control System - Mark VIe Intermediate (ActivePoint™)		~			~	~	~	~		5	18	*	 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe control migration fro performed on an HMI computer specially programmed to simulate a turbine skills including alarm and system troubleshooting, CIMPLICITY[™] Software, end
		-											 Control system experience Recommended prior course(s): Control System - Mark Vle Familiarization (Additional Additional Additational Additional Additional Additional Add
D-CON13408 Control System - Mark VIe Intermediate (ActivePoint™) - Distance Learning		~			~	~		~		5	8		 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe control migration fro performed on an HMI computer specially programmed to simulate a turbine skills including alarm and system troubleshooting, CIMPLICITY[™] Software, end
													 Control system experience Recommended prior course(s): Control System - Mark VIe Familiarization (Action)

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> les detailed knowledge to troubleshoot and maintain the control system and

rom Mark V control installed systems, lessons followed by hands-on labs that are le, labs are progressively challenging and assist the students to learn intermediate editing and valve calibration

Advanced viewer) (O-CON13405 or D-CON13405)

les detailed knowledge to troubleshoot and maintain the control system and

rom Mark V control installed systems, lessons followed by hands-on labs that are le, labs are progressively challenging and assist the students to learn intermediate editing and valve calibration

Advanced viewer) (O-CON13405 or D-CON13405)

les detailed knowledge to troubleshoot and maintain the control system and

rom Mark V control installed systems, lessons followed by hands-on labs that are ie, labs are progressively challenging and assist the students to learn intermediate editing and valve calibration

ActivePoint[™]) (O-CON13406 or D-CON13406)

les detailed knowledge to troubleshoot and maintain the control system and

rom Mark V control installed systems, lessons followed by hands-on labs that are ne, labs are progressively challenging and assist the students to learn intermediate editing and valve calibration

ActivePoint™) (O-CON13406 or D-CON13406)



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Course ID# & Title		Plar	nt Pe	erso	nne	I		elive eth	-				
(Click on Course Title to download detailed course outline)				Maintenance	aintenance	tion & Controls			nwa	Days	of Students	Options ⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in E	Maximum #	Location Op	Prerequisites
O-CON23401 Control System - Mark VIe Maintenance (Advanced)		~			~	~	~	~		5	12	CH KW US	 Provides the knowledge required to properly maintain your Mark VIe Control Addresses the following questions: a. What if your unit is in a critical condition? It's shutting down, running back troubleshooting skills or those gained from the Advanced Mark VI Troubles b. How is it to be properly calibrated or replaced? Should you, or how do you, consequences? You have received an alarm indicating a valve failure. c. What are the differences between pneumatic and hydraulic? You have det fuse, voter mismatch. d. How can it be stroked, tested, calibrated? Not for customers with aeroderivative applications.
													 Recommended prior course(s): • Control System - Mark Vle Familiarization (• Control System - Mark Ve / Vle Troubleshooting Advanced (O-CON33401) Or those who possess a high degree of troubleshooting skills.
O-CON33401 Control System - Mark Ve / VIe Troubleshooting (Advanced)		~			~	~	~	~		5	12	*	 Designed to test and sharpen troubleshooting and operations skills for the pur Will gain the fundamental skills of a competent Control Room Operator and an and how to respond to different levels of alarms throughout operation, follow a that caused the alarm and much more, GE documentation will be taught and u maintained
					•	•							 Fundamental operational and controls skills recommended Recommended prior course(s): • Control System - Mark* VIe Familiarization Or possesses equivalent knowledge, including experience with ToolboxST™
O-CON13401 Control System - Mark VIe Migration from Mark V, Familiarization		~			~	~	~	~		5	18	US	 Familiarizes students with the hardware and software components, provide associated equipment Includes training material derived from actual Mark VIe control migration fro performed on an HMI computer specially programmed to simulate a turbine, build up to intermediate skills including alarm and system troubleshooting
													Control system experience
O-CON13501 Control System Introduction to Mark		 Image: A start of the start of			~	~	~	~		5	12	US	Introduces the fundamentals of the Mark VIeS Functional Safety System
Control System - Introduction to Mark VIeS Functional Safety System													Familiarity with Safety applications, PLC, and HMI communication experience

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> ol keeping your units available and reliable, 100% hands-on, realistic and practical

ck, or worse it has tripped or you cannot obtain a ready to start. Using your existing leshooting course, you have isolated the cause to a singular device. ou, force its variable into a safe state so it can be replaced and what are the

etermined the probable cause of a diagnostic alarm; open or shorted circuit, blown

(O-CON13405, D-CON13405, O-CON13406, or D-CON13406)

urpose of trip reduction and recovery, maintaining optimum performance and availability an experienced Mark VIe Control TA, including how to properly start and stop a unit an alarm through using the ToolboxST[™] software to find the singular field device used throughout the course, the same way your unit is designed to be operated and

n (O-CON13405, D-CON13405, O-CON13406, or D-CON13406)

le detailed knowledge to troubleshoot and maintain the control system and

rom Mark V control installed systems, lessons followed by hands-on labs that are le, labs are progressively challenging and assist the students to learn the basics and

nce



★ = Customer Site ↓ ← = Any Gas Power Learning Center ↓ = Distance Learning Gas Power Learning Center Locations: CH = Birr ↓ KW = Safat ↓ US = Houston

Course ID# & Title		Plar	nt Pe	erso	nne			elive eth	-				
(Click on Course Title to download detailed course outline)				1aintenance	ntenance	on & Controls			ЦŅ	Days	of Students	Options+	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # o	Location Opti	• Prerequisites
O-CON20701 Control System - Mark VIe (Aero) Operation, Maintenance & Troubleshooting		~	~		~	~	~	~		10	8	US	 Introduces routine preventative maintenance procedures of the support syshigh levels of availability, and reliability from the Aeroderivative Gas Turbine Covers functional sensor and actuator description, troubleshooting, and a suand control system maintenance Operating and maintenance personnel should attend this course together to unit, and how unit operation may affect these requirements Does not include repair procedures for Gas Turbine components
						6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8					6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		 Basic understanding of Gas Turbine equipment and its operation Familiarity with control system basics
O-CON10801 Control System - Woodward (Aero) Operation, Maintenance & Troubleshooting		~	~		~	~	~	~		5	8	US	 Introduces plant maintenance personnel to the Woodward MicroNet[™] and I Designed for platforms that have CPUs with an Ethernet port(s) and do not systems; from chassis to I/O cards to field termination modules Provides training on Graphical Application Programmer (GAP) software naviologic, and turbine-based alarms Overview of Control actuator and other I/O calibration procedures will be divinterface (HMI)
			- - - - - - - - - - - - - - - - - - -		2 4 4 5 6 7 7 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8	5 5 7 8 8 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8					8 6 6 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8		 Basic understanding of Gas Turbine equipment and its operation Familiarity with control system basics
O-CON13602 Control System - RX3i Operation, Maintenance & Troubleshooting		~	~		~	~	~	~		5	8	US	 Introduces plant maintenance personnel to the RX3i turbine control system Includes the hardware layout of typical systems; from chassis to I/O cards to Software tools will be used to evaluate fuel control Calibration procedures will be discussed Includes general information on the operator interface (HMI)
											9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		 Basic understanding of Gas Turbine equipment and its operation Familiarity with control system basics
O-CON11401 Control System - Aero DLE Familiarization and Mapping Overview		✓	~				~			3	12	٠	 Offers an insight into the design philosophy and software of the DLE control Includes overview of the "mapping" of the gas turbine control schedules, cau In addition, the course includes a "lessons learned" section and practice solv
													 Basic understanding of gas turbine equipment and its operation Familiarity with control systems Ability to speak and understand English Reasonable computer skills

♦ Recommended course for new equipment

Customer self-registration capability at: <u>www.gevernovatechtraining.com</u>

ystems and to the major electrical and control system maintenance required to attain ne

summary of calibration and inspections required for Gas Turbine package electrical

r to develop a working relationship regarding the maintenance requirements of the

l MicroNet Plus™ turbine control systems t have a 2-line display, course content includes the hardware layout of typical

vigation, Woodward software tools will be used to evaluate fuel control, sequence

discussed, additional class work includes general information on the operator

ms to field termination modules

ol system

ause and effect information, interpretation of alarm data and troubleshooting of alarms plving actual field problems



★ = Customer Site ♦ = Any Gas Power Learning Center ■ = Distance Learning Gas Power Learning Center Locations: CH = Birr KW = Safat US = Houston

	Plar	nt Pe	erso	nne	I			-				
			Aaintenance	intenance	ion & Controls			wn	ays	of Students	ions⁺	• Executive Summary
Leadership	Supervisors	Operations	Mechanical N	Electrical Ma	Instrumentat	Classroom	Hands-On	Site Walk-Do	Duration in D	Maximum # c	Location Opt	• Prerequisites
~	~	✓			~	~			2	6	US	• This training course will explain the structure and use of the Control Servers hardware used to host the vHMIs
												 Control system experience Computer literacy
✓	✓	✓			✓				2	6		This training course will explain the structure and use of the Control Server s hardware used to host the vHMIs
				***					20 20 20 20 20 20 20 20 20 20 20 20 20 2			 Control system experience Computer literacy
	~	~		~	~	~	~		5	12	•	 This course familiarizes participants with the architecture of ALSPA control to control and monitor the plant process This course provides an overview of the ALSPA control system hardware and This course will also enable the participant to do basic application programmer using various tools e.g. ALSPA Maintenance Server. This will also enable part At the end of the course there will a site visit, where a brief demonstration or programmer will also enable the part of the site visit.
												 Knowledge of power plants Fundamental skills regarding control systems Able to read technical documents
	~	~		~	~	~	~		5	12	٠	 This course familiarizes participants with advanced level programming of ALSPA This course will enable them to set up ALSPA HMI for first time use. They will in logic, without disturbing plant operation. They will learn about MFC3000 fit At the end of the course there will a site visit, where a brief demonstration of
									2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			Attended course: O-CON10402 Control System – ALSPA Control System Fur
	~	~		~	✓	~	~		5	12	*	 This course familiarizes participants with redundant operation of MFC3000 ASLPA HMI and CONTROCAD tools. Acronis backup image procedure will als They will learn how to do online modification in application code of a running also be discussed. They will learn about MFC3000 firmware Participants will learn basic concept of Profibus. Profibus system configuration Participants will also have a chance to learn DEPP2000 At the end of the course there will a site visit, where a brief demonstration of Attended course: O-CON20401 Control System – ALSPA Control System Interview
	ership	 Leadership Supervisors 	 Leadership Supervisors Operations 	· · Leadership · · · Leadership · · · · Dearship · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · ·	Image: Sector of the sector	Image: Sector	M Leadership Image: Control Cadership Image: Control Image: Control Image: Control Image: Control	Image: Second and second	Doutlot Image: constraint of the set of th	Method Image: Second secon	Image: Plant Personal Line Image: Plant Personal Line Image: Plant Personal Line Image: Plant Per	Method Method Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control Image: Second Control <thimage: c<="" second="" td=""></thimage:>

 \diamond Recommended course for new equipment

Customer self-registration capability at: www.gevernovatechtraining.com

r system. It will provide explanation of the virtual environment and the physical

r system. It will provide explanation of the virtual environment and the physical

ol system and components & supervisory functions of ALSPA HMI, which enables them

nd CONTROCAD engineering tool

mming and basic HMI modification and, do basic diagnostic of ALSPA control system articipants to read and understands basic project documentations n of the components/topics discussed in the classroom will be provided

PA CONTROCAD engineering tool and, provides an overview of ALSPA HMI configuration vill learn how to perform online forcing and setting update to make small modification) firmware

of the components/topics discussed in the classroom will be provided

undamentals

00 controllers. Participants will learn about installation of new MFC3000 controller, also be discussed

ing MFC3000 controller. Limitation of online modification and its consequences will

ion and Profibus advanced troubleshooting using ProfiTrace tool will also be discussed

of the components/topics discussed in the classroom will be provided

itermediate



★ = Customer Site ♦ = Any Gas Power Learning Center ■ = Distance Learning Gas Power Learning Center Locations: CH = Birr KW = Safat US = Houston

	Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho					
	(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			٨IJ	Days	f Students	ons+	• Executive Summary
		Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maint	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options	• Prerequisites
-	O-CON33404 Control System - Foundation Fieldbus∻		~	~			~		~		5	4	US	 Foundation Fieldbus (FFB) is an open source digital standard for field device This course will introduce you to FFB as it pertains to a Mark VIe control syst and how the devices communicate their data to application code within Too turbine will be reviewed. Throughout the course, you will be introduced to hardware configurations, li Virtual HMI's will be used allowing trainees to navigate FFB configurations w
														 Ability to understand and speak English Basic turbine operations experience Computer literacy Familiarity with the Mark Vie Control System and ControlST or be taking this

ces that uses digital communication in place of traditional analog communication. /stem. You will learn how FFB devices are field wired back to a Mark VIe control panel polboxST. Examples using some of the most commonly used FFB devices on a GE

, linking hardware to software, and basic troubleshooting from within ToolboxST. within ToolboxST.

is training module as part of a Mark Vie training program

CUSTOMER COURSE CATALOG Open Enrollment - Aeroderivative Gas Turbines



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Course ID# & Title		Pla	nt Pe	ersc	onne			elive leth					
(Click on Course Title to download detailed course outline)	-eadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls		Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	_ocation Options⁺	Executive Summary Prerequisites
O-AER10101 Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization		 ✓ 	<u>~</u>	<	 ✓		✓			-	15	KW US	 Covers topics from basic Gas Turbine theory to detailed turbine operation to ens Develops a background in Gas Turbine operation that enables participants to Emphasizes the operator's responsibilities with regard to auxiliary systems, Interprets fault annunciation and how to determine if the annunciated fault maintenance personnel, focuses on package familiarization, starting, loading to ensure safe and reliable operation of the Gas Turbine None
D-AER10101 Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization - Distance Learning		~	~	~	~					5	8		 Covers topics from basic Gas Turbine theory to detailed turbine operation to ens Develops a background in Gas Turbine operation that enables participants to Emphasizes the operator's responsibilities with regard to auxiliary systems, Interprets fault annunciation and how to determine if the annunciated fault maintenance personnel, focuses on package familiarization, starting, loading to ensure safe and reliable operation of the Gas Turbine None
O-AER10105 Gas Turbine - LM2500 Engine Familiarization	~	~	✓	~			~			3	15	KW US	
D-AER10105 Gas Turbine - LM2500 Engine Familiarization - Distance Learning	~	~	~	✓						3	8		 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation Technical background or relevant experience
O-AER10106 Gas Turbine - LM2500 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the Gas Tur Includes hands-on maintenance procedures such as removal, adjustment, an Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LM2500 Engine Familiarizatio
O-AER10104 Gas Turbine - LM2500 Level 2 Cold Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the Ga Includes hands-on maintenance procedures such as removal, inspection, and Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): • Gas Turbine - LM2500 Engine Familiarization

 \diamond Recommended course for new equipment

Customer self-registration capability at: www.gevernovatechtraining.com

nsure consistent, trouble-free performance from the engine and its associated equipment to analyze operating problems properly and take the necessary corrective action s, operational data taking and evaluation

It can be remedied by operator action or by the assistance of instrumentation and/or ing, and specific operator checks of the various turbine support and auxiliary systems

nsure consistent, trouble-free performance from the engine and its associated equipment to analyze operating problems properly and take the necessary corrective action s, operational data taking and evaluation

It can be remedied by operator action or by the assistance of instrumentation and/or ing, and specific operator checks of the various turbine support and auxiliary systems

urbine , and replacement of external parts

ion (O-AER10105)

Gas Turbine and replacement of internal parts

ion (O-AER10105)



Course ID# & Title	Plant Personnel							elive eth	-				
(Click on Course Title to download detailed course outline)				Mechanical Maintenance	intenance	ion & Controls			UM	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical N	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # (Location Opt	• Prerequisites
O-AER10103 Gas Turbine - LM2500 Level 2 Hot		<		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the Gas Includes hands-on maintenance procedures such as removal, inspection, and
Maintenance													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LM2500 Engine Familiarization
O-AER10102		~		 Image: A start of the start of			✓	✓		2	8	US	• Familiarizes the procedures required to assess the operational condition of in
Gas Turbine - LM2500 Borescope Inspection													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LM2500 Engine Familiarization
O-AER10203 Gas Turbine - LM2500+/G4 Engine	~	✓	✓	~			✓			3	15	KW US	 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation
Familiarization					-	-					- - - - - - - - - - - - -		Technical background or relevant experience
D-AER10203 Gas Turbine - LM2500+/G4 Engine	~	✓	✓	✓						3	8		 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation
Familiarization - Distance Learning											-		Technical background or relevant experience
O-AER10204 Gas Turbine - LM2500+ Level 1		~	- - - - - - - - - - - - - - - - - - -	~	- - - - - - - - - - - - - - - - - - -		✓	✓		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the Gas Turb Includes hands-on maintenance procedures such as removal, adjustment, and
Maintenance													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LM2500+ Engine Familiarizatio
O-AER10205 Gas Turbine - LM2500+ Level 2 Cold		✓		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the Gas Includes hands-on maintenance procedures such as removal, inspection, and
Maintenance													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): • Gas Turbine - LM2500+ Engine Familiarizatio
O-AER10202 Gas Turbine - LM2500+ Level 2 Hot		✓		✓	-		~	~		5	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the Gas Includes hands-on maintenance procedures such as removal, inspection, and
Maintenance													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): • Gas Turbine - LM2500+ Engine Familiarizatio

♦ Recommended course for new equipment

Customer self-registration capability at: <u>www.gevernovatechtraining.com</u>

Gas Turbine and replacement of internal parts

ion (O-AER10105)

f internal Gas Turbine components using borescope equipment

ion (O-AER10105)

urbine and replacement of external parts

ation (O-AER10203 or D-AER10203)

Gas Turbine and replacement of internal parts

ation (O-AER10203 or D-AER10203)

Gas Turbine and replacement of internal parts

ation (O-AER10203 or D-AER10203)



Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho	-				
(Click on Course Title to download detailed course outline)				Maintenance	aintenance	tion & Controls			nwo	Days	of Students	Options ⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenan	Electrical Ma	Instrumentation & Cont	Classroom	Hands-On	Site Walk-Down	Duration in I	Maximum #	Location Op	• Prerequisites
O-AER10201		✓		✓			✓	✓		2	8	US	• Familiarizes the procedures required to assess the operational condition of i
Gas Turbine - LM2500+ Borescope Inspection													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LM2500+ Engine Familiarizati
O-AER10301 Gas Turbine - LM6000 Aero Package Operation/Familiarization		~	~	~	~		✓			5	15	KW US	 Covers topics from basic Gas Turbine theory to detailed turbine operation to ensible operations a background in Gas Turbine operation that enables participants to Emphasizes the operator's responsibilities with regard to auxiliary systems, Interprets fault annunciation and how to determine if the annunciated fault maintenance personnel, focuses on package familiarization, starting, loading to ensure safe and reliable operation of the gas turbine This course is applicable for all models of the LM6000 aeroderivative Gas Turbine None
D-AER10301 Gas Turbine - LM6000 Aero Package Operation/Familiarization - Distance Learning		~	~	~	~					5	8		 Covers topics from basic Gas Turbine theory to detailed turbine operation to ens Develops a background in Gas Turbine operation that enables participants to Emphasizes the operator's responsibilities with regard to auxiliary systems, Interprets fault annunciation and how to determine if the annunciated fault maintenance personnel, focuses on package familiarization, starting, loading to ensure safe and reliable operation of the gas turbine This course is applicable for all models of the LM6000 aeroderivative Gas Tur None
O-AER10306 Gas Turbine - LM6000 Engine Familiarization	~	~	✓	~			✓			3	15	KW US	 Focuses is on basic turbine construction, major components, and operation This course is applicable for all models of the LM6000 aeroderivative Gas Turbine
		-						- - - - - -			-		Technical background or relevant experience
D-AER10306 Gas Turbine - LM6000 Engine Familiarization - Distance Learning	~	~	~	~				- - - - - - - - - - - - - - - - - - -		3	8		 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation This course is applicable for all models of the LM6000 aeroderivative Gas Turbine
													Technical background or relevant experience

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> internal Gas Turbine components using borescope equipment

tion (O-AER10203 or D-AER10203)

nsure consistent, trouble-free performance from the engine and its associated equipment to analyze operating problems properly and take the necessary corrective action s, operational data taking and evaluation

It can be remedied by operator action or by the assistance of instrumentation and/or ing, and specific operator checks of the various turbine support and auxiliary systems

urbine

nsure consistent, trouble-free performance from the engine and its associated equipment to analyze operating problems properly and take the necessary corrective action s, operational data taking and evaluation

It can be remedied by operator action or by the assistance of instrumentation and/or ing, and specific operator checks of the various turbine support and auxiliary systems

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urbine

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Course ID# & Title Plant Personnel Delivery	
Method	
(Click ou Conrse Litle to download detailed conrse ontline) Days Days Days Days Days Days Days Days	mary
Leadership Leadership Supervisors Supervisors Operations Mechanical Maintenan Mechanical Maintenan Mechanical Maintenan Instrumentation & Cor Instrumentation & Cor Classroom Instrumentation & Cor Site Walk-Down Duration in Days Maximum # of Studen Location Options ⁺ Location Options ⁺	
Gas Turbine - I M6000 Level 1 • Includes hands-	ills necessary to perform Level 1 Maintenance on the Gas Tur -on maintenance procedures such as removal, adjustment, a pplicable for all models of the LM6000 aeroderivative Gas Tu
Basic understan Reasonable leve	nding of a Gas Turbine is highly recommended el of mechanical skill and use of hand tools prior course(s): • Gas Turbine - LM6000 Engine Familiarizatio
Gas Turbine - I M6000 Level 2 Cold	ills necessary to perform Level 2 Cold Maintenance on the Ga -on maintenance procedures such as removal, inspection, an pplicable for all models of the LM6000 aeroderivative Gas Tu
Basic understan Reasonable leve	nding of a Gas Turbine is highly recommended el of mechanical skill and use of hand tools prior course(s): • Gas Turbine - LM6000 Engine Familiarizatio
O-AER10305 Gas Turbine - LM6000 Level 2 Hot Maintenance \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark 7 8 US \cdot Provides the ski · Includes hands- · This course is ap	ills necessary to perform Level 2 Hot Maintenance on the Ga -on maintenance procedures such as removal, inspection, an pplicable for all models of the LM6000 aeroderivative Gas Tu
Basic understan Reasonable leve	nding of a Gas Turbine is highly recommended el of mechanical skill and use of hand tools prior course(s): • Gas Turbine - LM6000 Engine Familiarizatio
	e procedures required to assess the operational condition of pplicable for all models of the LM6000 aeroderivative Gas Tu
Reasonable leve	nding of a Gas Turbine is highly recommended el of mechanical skill and use of hand tools prior course(s): • Gas Turbine - LM6000 Engine Familiarizatio
Gas Turbine - LMS100 Aero Package • Focuses on oper	basic skills and knowledge required to ensure proper operation erator responsibilities such as startup, loading and monitoring
Operation/Familiarization • None	
Gas Turbine - LMS100 Aero Package • Focuses on oper	basic skills and knowledge required to ensure proper operation erator responsibilities such as startup, loading and monitoring
Operation/Familiarization - Distance Learning • None	- Table de la companyation de la companyation
Gas Turbine - LMS100 Engine US • Focuses is on base	as Turbine theory, construction, and operation asic turbine construction, major components, and operation
Familiarization • Technical backg	ground or relevant experience

♦ Recommended course for new equipment

Customer self-registration capability at: <u>www.gevernovatechtraining.com</u>

urbine and replacement of external parts Furbine

ion (O-AER10306)

Gas Turbine and replacement of internal parts Furbine

ion (O-AER10306)

Gas Turbine and replacement of internal parts Furbine

ion (O-AER10306)

f internal Gas Turbine components using borescope equipment furbine

ion (O-AER10306)

tion of the turbine and their associated systems ng during operation

tion of the turbine and their associated systems ng during operation



Course ID# & Title		Plar	nt Pe	erso	onnel			elive etho	-				
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	s-On	Site Walk-Down	Duration in Days	-#	ion Options+	Executive Summary Prerequisites
	Lead	Supe	Oper	Mech	Elect	Instru	Class	Hands-On	Site /	Durat	Maximum	Location	
O-AER10402 Gas Turbine - LMS100 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LMS100 Consists of classroom instruction, and also includes hands-on maintenance Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): • Gas Turbine - LMS100 Engine Familiarizatio
O-AER10403 Gas Turbine - LMS100 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LN Consists of classroom instruction, and also includes hands-on maintenance Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LMS100 Engine Familiarizatio
O-AER10404 Gas Turbine - LMS100 Level 2 Hot Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM Consists of classroom instruction, and also includes hands-on maintenance Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): Gas Turbine - LMS100 Engine Familiarizatio
O-AER10406		✓		✓			✓	✓		2	8	US	Familiarizes the procedures required to assess the operational condition of i
Gas Turbine - LMS100 Borescope Inspection													 Basic understanding of a Gas Turbine is highly recommended Reasonable level of mechanical skill and use of hand tools Recommended prior course(s): • Gas Turbine - LMS100 Engine Familiarizatio
O-AER10501 Gas Turbine - TM2500 & TM2500+ Aero Package Operation/Familiarization		✓	✓	✓	~		~			5	15	KW US	 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring None
D-AER10501 Gas Turbine - TM2500 & TM2500+ Aero Package Operation/Familiarization - Distance Learning		✓	✓	✓	✓					5	8		 Introduces the basic skills and knowledge required to ensure proper operation Focuses on operator responsibilities such as startup, loading and monitoring None

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> 00 Gas Turbine

e procedures such as removal, adjustment, and replacement of external parts

ion (O-AER10405)

LMS100 Gas Turbine ce procedures such as removal, inspection, and replacement of internal parts

ion (O-AER10405)

MS100 Gas Turbine e procedures such as removal, inspection, and replacement of internal parts

ion (O-AER10405) f internal Gas Turbine components using borescope equipment

ion (O-AER10405)

tion of the TM2500 model turbines and their associated systems ng during operation.

tion of the TM2500 model turbines and their associated systems ng during operation.

CUSTOMER COURSE CATALOG Open Enrollment - Heavy Duty Gas Turbines



★ = Customer Site ↓ ← = Any Gas Power Learning Center ↓ = Distance Learning Gas Power Learning Center Locations: CH = Birr ↓ KW = Safat ↓ US = Houston

Course ID# & Title		Plar	nt Pe	erso	nne			elive letho					
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options ⁺	Executive Summary Prerequisites
O-GAS12002 Gas Turbine - 6, 7, 9, B, E, F Class Introduction to Maintenance Theory		~		~			✓			5	12	٠	 Offers a firm understanding of the basic maintenance requirements of all ty Provides participants a basic understanding of gas turbine construction, how None
D-GAS12002 Gas Turbine - 6, 7, 9, B, E, F Class Maintenance Familiarization - Distance Learning		~		~						5	8		 Offers a firm understanding of the basic maintenance requirements of all ty Provides participants a basic understanding of gas turbine construction, how None
O-GAS22101 Gas Turbine - Operation E-Class (Advanced)		~	~				~	~	~	5	12	•	 Designed to enhance GE E-class (7EA and 9E) Gas Turbine-generator operations Provides a detailed overview of Gas Turbine operating sequences and control expands upon background in Gas Turbine-generator operation that improved necessary corrective action Focuses on the Gas Turbine and generator control and protection, the operation generator systems Minimal discussion on turbine auxiliary support systems Prior Gas Turbine operating experience or
		- - - - - - - - - - - - - - - - - - -									-		 Familiarity with the Gas Turbine operation and control systems Recommended prior course(s): • Gas Turbine - 6,7,9,B,E & F Class Operation
O-GAS22201 Gas Turbine - Operation F-Class (Advanced)		~	~				~	~		5	12	*	 Designed to enhance GE F-class Gas Turbine-generator operation skills and protection functions Builds upon student's operational skills and expands upon the student's bac properly analyze operating problems and take the necessary corrective actio Focuses on Gas Turbine and generator control and protection, operational recooling system Minimal discussion on turbine auxiliary support systems Prior Gas Turbine operating experience or Familiarity with the Gas Turbine operation and control systems Recommended prior course(s): Gas Turbine - 6,7,9,B,E & F Class Operation

types of GE heavy duty gas turbines and their auxiliary support systems ow it works and the maintenance requirements and inspection procedures

types of GE heavy duty gas turbines and their auxiliary support systems ow it works and the maintenance requirements and inspection procedures

ator knowledge and skills trol and protection functions ves the participant's ability to properly analyze operating problems and take the

rational relationships of the compressor, combustion and turbine sections and

n (O-GAS12003 or D-GAS12003)

d provides a detailed overview of Gas Turbine operating sequences and control and

ackground in Gas Turbine-generator operation, improving the participant's ability to tion

relationships of the compressor, combustion and turbine sections and generator $% \left({{{\mathbf{r}}_{i}}} \right)$

n (O-GAS12003 or D-GAS12003)



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Course ID# & Title		Plar	nt Pe	erso	nne			elive leth					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			L	ıys	^c Students	+suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Options⁺	• Prerequisites
O-GAS12003 Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization		~	~				~		~	5	15	KW US	 Offers a basic understanding of the construction and operations of all types are the 3, 5, 6, 7 and 9 B/E and F class unit types Discussions on starting, loading, control and protection features of the turbi Emphasis on basic gas turbine operating cycle Overview of gas turbine major components and equipment arrangements at between frame sizes Familiarity with GE Manuals and reference drawings Includes fundamentals of gas turbine start-up, speed, load, shutdown and ter / protection features of the key turbine support systems such as the lubrication auxiliary systems are covered as time permits) Generator construction and maintenance intervals
D-GAS12003 Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization - Distance Learning			~							5	8		 Entry- level course, no previous turbine experience required Offers a basic understanding of the construction and operations of all types are the 3, 5, 6, 7 and 9 B/E and F class unit types Discussions on starting, loading, control and protection features of the turbi Emphasis on basic gas turbine operating cycle Overview of gas turbine major components and equipment arrangements ar between frame sizes Familiarity with GE Manuals and reference drawings Includes fundamentals of gas turbine start-up, speed, load, shutdown and te / protection features of the key turbine support systems such as the lubricat auxiliary systems are covered as time permits) Generator construction and 0 maintenance intervals
													Entry- level course, no previous turbine experience required

es of GE heavy duty gas turbine-generators, Model Series (MS) / frame sizes covered

bine, generator and the functions of key accessory systems

and how these relate to overall operation and performance, base design differences

temperature control and protection features, Operating parameters and control cating oil, hydraulics, fuels, variable inlet guide vanes, and starting means (Other d Operating Fundamentals, Operating factors and considerations that affect

es of GE heavy duty gas turbine-generators, Model Series (MS) / frame sizes covered

bine, generator and the functions of key accessory systems

and how these relate to overall operation and performance, base design differences

temperature control and protection features, Operating parameters and control cating oil, hydraulics, fuels, variable inlet guide vanes, and starting means (Other d Operating Fundamentals, Operating factors and considerations that affect



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Course ID# & Title		Plar	nt Pe	erso	nne	l		elive etho	-				
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			un	Days	f Students	ons⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options	• Prerequisites
O-GAS20401 Gas Turbine - GT11, GT13E2, GT24/GT26 Routine Maintenance				~			~			5	10	СН	 Understanding the design and function of an annular combustor engine Stating the purpose and the duration of the three types of inspection on the Describes and carry out the required measurements before, during and afte Describes the correct use of the relevant documentation such as Test Certifit Selecting and correct use of the relevant special tools, for performing the tas Performing in-situ Radial Rotor Position measurements, calculations and po Describes and apply the disassembly and re-assembly of: EV Burners, EV Lar Describes the function of the installed Instrumentation Performing an in-situ Boroscope preparations and inspections Applying all EHS procedures relevant to the task
													 Have elementary background of power plants Be able to read technical documents Have a mechanical background Be familiar with the service or erection of power plants Have general knowledge about Gas Turbine hardware
O-GAS10102 Gas Turbine - GT13E2 Mechanical Systems & Components		~		~			~			7	15	•	 Covers GT13E2 Thermal Block: Main components and Parts dimensions, wei Overview of the Gas Turbine Systems - Purpose, design and function of the f System, Fuel oil System, NOx Water System, Air intake System, Variable inlet Includes discussion of using the operation and maintenance manuals: Assembly Provides exercises on finding the required documents in the maintenance m main components: compressor, combustion chamber, turbine, rotor, blades Able to interpret technical documents such as the Piping & Instrumentation Mechanical background Familiar with the service or erection of power plants
O-GAS20101 Gas Turbine - GT13E2 Inspection		~		~			~			10	15	•	 Covers preparation and setting up site for a C-inspection, planning manpower includes working with documentation: O&M manuals and test certificates Overview of disassembly and reassembly of the turbine instrumentation, ap turbine components, covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor point includes preparation work for start-up of the Gas Turbine and cleaning of systematical background) Familiar with the service or erection of power plants

 \diamond Recommended course for new equipment

Customer self-registration capability at: www.gevernovatechtraining.com

the Gas Turbine (A, B, C) fter an A, B or C-inspection. (C-Inspection in summarizing form only) tificates, Procedures and O&M Manuals tasks required for an inspection possible adjustments Lances, SEV Lances, Flame Monitors, Pulsation Probes EV and SEV, Ignition Probes

eight and function.

e following Systems: Lube oil System, Jacking oil System, Power oil System, Fuel gas let guide vanes, Blow off valves

bly and disassembly procedures, Working with quality documentation and test certificates e manual Gas Turbine components - purpose, design and function of the Gas Turbine es and vanes, bearings, instrumentation to the thermal block, sealing and cooling air

on Diagram (P&ID) and drawings

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applying step-by-step sequences for disassembly, inspections, and reassembly of all

position), coupling alignment systems, "motor roll" and for first ignition after the inspection



	Course ID# & Title		Plar	nt Pe	erso	nnel			elive etho	-				
	k on Course Title to download iled course outline)				laintenance	ntenance	on & Controls			u۸	Days	f Students	ons+	• Executive Summary
		Leadership	Supervisors	Operations	Mechanical Maintenan	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options+	• Prerequisites
Gas T	AS10201 Furbine - GT26/GT24 Mechanical ems & Components (Retractable EV er)		✓		~			~			10	15	 لينا المراجعة 	 Covers GT26/GT24 Thermal Block: Main components and Parts dimensions, Overview of the Gas Turbine Systems - Purpose, design and function of the f System, Power oil System, Fuel gas System, Fuel oil System, NOx Water Syst Blow off valves. Includes purpose, design and function of the gas turbine main components: Rotor, Blades and vanes, Bearings, Instrumentation to the thermal block, Sea Includes discussion on the use of operation and maintenance manuals: Asse quality documentation and test certificates, exercises finding the required de Able to interpret technical documents such as the Piping & Instrumentation Mechanical background Familiar with the service or erection of power plants
Gas T	AS20201 Furbine - GT26 Inspection actable EV Burner)		~		~			✓			10	15	*	 Covers preparation and setting up site for C-inspection, planning Manpower Includes working with documentation: O&M manuals and test certificates Overview of disassembly and reassembly of the turbine instrumentation, ap turbine components, covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor posterior) Includes preparation work for start-up of the Gas Turbine and cleaning of systematical background
				-		*					-	-		Familiar with the service or erection of power plants
Gas T	AS32501 Furbine – Operation HA-Class anced)		~	~							5	15	US	 This course is designed to enhance GE H-class gas turbine-generator operation and control and protection functions. The course builds upon student's operation enables participants to properly analyze operating problems and take the ne and protection and does not include discussions on auxiliary support system
														Experience with Gas Turbine Operation.

s, weight and function. e following Systems: Lube oil System, Jacking oil stem, Air intake System, Variable inlet guide vanes,

s: Compressor, Combustion chamber, Turbine,

ealing and cooling air.

sembly and disassembly procedures, working with

documents in the maintenance manual.

on Diagram (P&ID) and drawings

er

applying step-by-step sequences for disassembly, inspections, and reassembly of all

position), coupling alignment systems, "motor roll" and for first ignition after the inspection

ation skills and provides a detailed overview of H-class turbine operating sequences erational skills and develops a background in gas turbine-generator operation that necessary corrective action. Focus will be on the gas turbine and generator control ems.



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Course ID# & Title		Plai	nt Pe	erso	nne	I		elive leth	-				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls			٨N	Days	f Students	ons+	• Executive Summary
	Leadership	Supervisors	Operations	E	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Option	• Prerequisites
O-GRL10501 General - Practical Steam Turbine Maintenance (Brown Boveri Design)		~		✓			~	~		15	8	СН	 Gives an overview on the turbine design & function of the main parts Allows hands-on training in handling of heavy turbine parts, adjusting of turbine gives an insight on the condition of turbine parts, what needs to be checked Executes hands-on training on tightening the various bolts correctly
			-		- - - - - - - - - - - - - - - - - - -								Mechanical backgroundFamiliar with the erection of power plants
O-STM10703 Steam Turbine - Maintenance Familiarization (GE design)		~		~			~			5	15	KW US	 Provides a thorough understanding of the maintenance requirements for GE maintenance fundamentals and preventive maintenance requirements Covers operation impact on maintenance, routine maintenance, and inspect
											-		Prior hands-on plant maintenance experience
D-STM10703 Steam Turbine - Maintenance Familiarization (GE design) - Distace		~		~						5	8		 Provides a thorough understanding of the maintenance requirements for GE maintenance fundamentals and preventive maintenance requirements Covers operation impact on maintenance, routine maintenance, and inspect
Learning													Prior hands-on plant maintenance experience
O-STM20701 Steam Turbine - D11 Operation (Advanced)		~	✓				~			5	15	KW US	 Designed to enhance GE D11 Steam Turbine-Generator operation skills Provides a detailed overview of D11 turbine operating sequences and control Develops a background in Steam Turbine-Generator (ST-GN) operation that enables Focuses on the ST-GN control and protection and will include discussions or Review of the entire alarm list for the most current D11 control specification
													• None
O-STM10702 Steam Turbine - D11, A10 Operation		~	~				~			5	15	KW US	 Designed to enable operators, supervisors, and engineering personnel to sate Provides a background in Steam Turbine-generator operation, which will enable pare Offers detail on turbine and generator equipment as well as their support sy Includes in-depth instruction on the start-up and loading activities, and the and the use of the control interface (HMI)
				-		-							• None
D-STM10702 Steam Turbine - D11 Operation - Distance Learning		~	✓							5	8		 Designed to enable operators, supervisors, and engineering personnel to sate Provides a background in Steam Turbine-generator operation, which will enable pare Offers detail on turbine and generator equipment as well as their support sy Includes in-depth instruction on the start-up and loading activities, and the and the use of the control interface (HMI)
													• None
						-		-		-			

♦ Recommended course for new equipment

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urbine parts taking various measurements before, during and after an overhaul ted during an overhaul

GE steam turbines and their support systems, understanding of steam turbine

ctions

GE steam turbines and their support systems, understanding of steam turbine

ctions

trol and protection functions, builds upon student's operational skills is participants to properly analyze operating problems and take the necessary corrective action on auxiliary support systems.

on to date as well as full analysis of all possible unit trips.

safely operate a GE designed steam-turbine generator unit participants to properly analyze operating problems and take the necessary corrective action systems

e operational duties of the operator, in-depth instruction on alarm troubleshooting

afely operate a GE designed steam-turbine generator unit

participants to properly analyze operating problems and take the necessary corrective action systems

e operational duties of the operator, in-depth instruction on alarm troubleshooting

CUSTOMER COURSE CATALOG Open Enrollment - Heat Recovery Steam Generators



Course ID# & Title		Plar	nt Pe	erso	nnel			elive eth					
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			own	Days	f Students	⁺suo	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical N	Electrical Mai	Instrumentati	Classroom	Hands-On	alk-D	Duration in Da	#	Location Options	• Prerequisites
O-BOI10301 Heat Recovery Steam Generator (HRSG) - Operation & Inspection		~	~	~		2 2 2 2 2 2 2 2 2 2 2 2 2 2	~			2	18	US	 Addresses HRSG inspection and maintenance cycles and activities to outage Generation Facilities Covers the arrangement of both horizontal and vertical units, cycle perform metallurgical design issues for cyclic operation, advanced condition assessn
						-							• None

age work on the Gas Turbine and Balance of Plant for both Combined Cycle and Co-

rmance, control, pressure part and non-pressure part degradation, water treatment, ssment and remaining life estimation, and practical inspection and repair activities



						-							
Course ID# & Title		Pla	nt P	erso	nne	I		elive leth					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			own	Days	f Students	ons⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical M	Electrical Maint	Instrumentation	Classroom	Hands-On	Site Walk-Dov	Duration in Da	Maximum # of	Location Options	• Prerequisites
O-GEN10701 Generator - Generator Fundamentals	~	~	~		~		~			5	12	٠	 The course introduces the participant to the design and construction of generators and describes the synchronous and isochronous operation of generators 4 days of technical training in a classroom setting and a 1-day lab session.
										2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	- - - - - -	- - - - - - - - - -	Laptop or computer with an Internet connection
D-GEN10701 Generator - Generator Fundamentals - Distance Learning	~	~	~		~					5	12		 The course introduces the participant to the design and construction of generators and describes the synchronous and isochronous operation of generators 4 days of technical training in a virtual classroom setting and a 1-day virtual Laptop or computer with an Internet connection capable of streaming 1080 A webcam is recommended but not required

enerator fields and stators. It investigates the functions of the generator components

enerator fields and stators. It investigates the functions of the generator components

al lab session.

80p video

CUSTOMER COURSE CATALOG

Online - Technical Courses - Controls and Excitations



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Course IDH & Title Plat Versone (Click on Course Title to download detailed course outline) Image: State										
detailed course outline) R </th <th>Course ID# & Title</th> <th></th> <th>Pla</th> <th>nt P</th> <th>ersc</th> <th>onne</th> <th></th> <th></th> <th></th> <th></th>	Course ID# & Title		Pla	nt P	ersc	onne				
W-CON13402 V					0	ntenance	∞	S	ons	
Control System - Mark [™] Vie CIMPLICITY [™] Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course is designed as a self-paced, web-based training curriculum. Narrated presentations - Mark [™] Vie CIMPLICITY [™] W-CON13403 V V V This course will cover the knowledge and skills necessary to understand, interact with, and e Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course will cover the knowledge and skills necessary to understand, interact with, and e Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course will cover the knowledge and skills necessary to understand, interact with, and e Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course will cover the knowledge and skills necessary to understand, interact with, and e Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course will cover the knowledge and skills necessary to understand, interact with, and e Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course with weeks access; 1-2 hours per week W-CON13404 Control System - Mark [™] Vie CIMPLICITY [™] V V V V V V Vecos a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course is designed as a self-paced, web-based training curriculum. Narrated presentation - Unartion: 4 weeks access; 1-2 hours per week Vecos to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of Acoes to a virtualized cloud hosted HMI with GT simulation will allow th		Leadership	Supervisors	Operations	Mechanical M	Electrical Mai	Instrumentatio	Duration in Ho		
W-CON13403 Control System - Mark™ VIe CIMPLICITY™ Projects - Online Series with Simulation✓✓✓<	Control System - Mark™ VIe CIMPLICITY™ ActivePoint™ - Online Series with		~	~		~	~	6	A	 Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply c This course is designed as a self-paced, web-based training curriculum. Narrated presentation
Control System - Mark [™] Vie CIMPLICITY [™] Projects - Online Series with SimulationImage: Series with SimulationImage: Series with SimulationImage: Series With SimulationA ccess to a virtualized cloud hosted HMI with GT simulation will allow the student to apply of This course is designed as a self-paced, web-based training curriculum. Narrated presentation • Duration: 4 weeks access; 1-2 hours per week • Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommendedW-CON13404 						-				
W-CON13404 Control System - Mark TM VIe CIMPLICITYTM Advanced Viewer - Online Series with SimulationImage: Simulation - Online Series with SimulationImage: Simulation - Online Series with SimulationImage: Simulation - Online Series with Simulation - Online Series with SimulationImage: Simulation - Online Series with Simulation - Online Series with SimulationImage: Simulation - Online Series with Simulation - Online Series with SimulationImage: Simulation - Online Series with SimulationImage: Simulation - Online Series with Simulation - Online Series with SimulationImage: Simulation - Simulation - Online Series with SimulationImage: Simulation - Simulation - Simulation - Online Series with SimulationImage: Simulation - Online Series with SimulationImage: Simulation -	Control System - Mark™ VIe CIMPLICITY™	n - Mark™ VIe CIMPLICITY™	~		~	~	6	4	 Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply c This course is designed as a self-paced, web-based training curriculum. Narrated presentation 	
Control System - Mark TM VIe CIMPLICITY TM Advanced Viewer - Online Series with Simulation W-CON13405 Control System - Mark TM VIe Foundation - Online Series with Simulation (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIe Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series with Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simulation) (Control System - Mark TM VIE Foundation - Online Series With Simula			2 - - - - - - - - - - - - -			2 - - - - - - - - - - - - -				
W-CON13405 Control System - Mark™ VIe Foundation - Online Series with Simulation✓✓✓✓✓%%%<	Control System – Mark™ VIe CIMPLICITY™ Advanced Viewer - Online Series with		~	~		✓	~	6	4	 Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply c This course is designed as a self-paced, web-based training curriculum. Narrated presentation
Control System - Mark™ VIe Foundation – Online Series with Simulation Online Series with Simulation will allow the student to apply control System - Mark™ VIe Foundation will allow the student to apply control Series with Simulation Online Series With Simulation Series With Simulation Series With S			4 			* * * * * * * * * * * * * * * * * * *	0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommen	Control System - Mark™ VIe Foundation -		~	~		✓	~	80	4	 Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply c This course is designed as a self-paced, web-based training curriculum. Narrated presentation
										Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommen

an ActivePoint™ HMI / course objectives hands-on following guided lab procedures tions, demonstration videos and guided lab exercises will be utilized

ended

l edit CIMPLICITY™ Project based HMI displays v course objectives hands-on following guided lab procedures tions, demonstration videos and guided lab exercises will be utilized

ended

l edit CIMPLICITY™ Advanced Viewer HMI displays v course objectives hands-on following guided lab procedures tions, demonstration videos and guided lab exercises will be utilized

ended

principles of configuration and troubleshooting the Mark[™] VIe control system y course objectives hands-on following guided lab procedures tions, demonstration videos and guided lab exercises will be utilized

ended

CUSTOMER COURSE CATALOG Online - Technical Courses - Aeroderivative Gas Turbines



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Course ID# & Title		Plar	nt P	ersc	onne				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	on & Controls	ours	ons	• Executive Summary
	Leadership	Supervisors	Operations	_		Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-AER10101 Aeroderivative Engine - LM2500	✓	~	~	~	✓	~	2	1	 Provides a basic overview of GE Gas Turbines Includes theory of operation, the influencial properties of a Gas Turbine, configuration and control of the influencial properties of a Gas Turbine, configuration and control of the influencial properties of the i
Familiarization		• • • • • • •			*	•	* * * * *		• None
W-AER10301 Aeroderivative Engine - LM6000 Familiarization	~	~	~	~	~	~	2	4	 Provides a basic overview of GE Gas Turbines Includes theory of operation, the influencial properties of a Gas Turbine, configuration and co This course is applicable for all models of the LM6000 aeroderivative Gas Turbine
		- - - - - - - - - - - - - - - - - - -							• None

construction, and key components of the unit assembly

construction, and key components of the unit assembly

CUSTOMER COURSE CATALOG Online - Technical Courses - Heavy Duty Gas Turbines



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Course ID# & Title		Plar	nt Pe	erso	nne	I			
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls	JULS	suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration	Location Options	• Prerequisites
W-GAS10703 Gas Turbine Fundamentals (7F)	~	~	~	~			4	4	 Focuses on the functions and locations of a Gas Turbine's major components Introduces the basic components of a Gas Turbine, physics of Gas Turbine operations, and tu Covers the methods and procedures required to diagnose possible performance issues from None
W-GAS10906 Gas Turbine Systems - Basics of Gas Turbine Combustion				~			2	A	 Introduces the basics of Gas Turbine combustion, including how emissions are produced, the None
W-GAS10908 Gas Turbine Systems - Compressor Water Wash				~			2	A	 Explains the purpose of the compressor water wash system and covers system components Describes the function of each component Covers various operating modes
		* * * * *		-	-				• None
W-GAS10909 Gas Turbine Systems - Cooling and Sealing Air		***		~	***		2	4	 Explains the purpose of the cooling and sealing air system Covers system components, including function, operation and maintenance Describes various operating modes
									• None
W-GAS10910 Gas Turbine Systems - Cooling Water		· · · · · · · · · · · · · · · · · · ·		~			2	4	 Explains the purpose of the cooling water system Covers key system components, including function, operation and maintenance Describes various operating modes
			-						• None
W-GAS10912 Gas Turbine Systems - Fire Protection,				~	✓	~	2	4	• Provides an overview of the fire protection system and the heating and ventilation system, ir
Heating and Ventilation		- - - - - - - - - - - -							• None
W-GAS10913 Gas Turbine Systems - Fuel and Atomizing Air Systems				~			2	4	 Explains the purpose of the gas fuel, liquid fuel, dual fuel and atomizing air systems Describes the components, including function, operation and maintenance Describes the various operating modes of each system
		-							• None
W-GAS10915 Gas Turbine Systems - Hydraulic Oil, Trip Oil, and VIGV Systems				~			2	A	 Explains the purpose of the hydraulic oil, trip oil and VIGV systems Covers the components of each system, including function, operation and maintenance Describes the various operating modes of each system
									• None

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u>

turbine performance enhancements om specific situational data

heir effect on the environment and how they are controlled

its, operation and maintenance

, including function, components, operation and maintenance

CUSTOMER COURSE CATALOG Online - Technical Courses - Heavy Duty Gas Turbines - Continued



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Course ID# & Title		Plar	nt Pe	erso	nne	I			
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls	ours	ons	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenanc	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-GAS10917 Gas Turbine Systems - Lube Oil Systems				~			2	4	 Describes the components, operation and maintenance of lube oil system Using schematic piping diagrams, explores the functions of the system components Includes maintenance procedures applicable to the lube oil system Covers routine and required maintenance, and examines specific safety precautions and insp
					-			d	None
W-GAS10918 Gas Turbine Systems - Steam and Water		-		~			2	4	Describes the components of the steam and water injection systems, including function, ope
Injection									• None
W-GAS10903 Gas Turbine - Inlet and Exhaust			-	~	-	✓	2	4	 Provides an overview of the inlet and exhaust systems, including the purpose of the systems, Includes various operating modes of the air inlet system and describes appropriate inspectio
W-GAS12002					-		4 5	A	None In this course, you will learn shout the elements of the hydrogen gas control system
Gas Turbine - Generator Hydrogen		*	~	~	6 6 7 8 7 9 9 9 9 9 9 9 9 9		1.5	4	 In this course, you will learn about the elements of the hydrogen gas control system. None
Control System									* None

spection requirements

peration and maintenance

ns, key components and their functions tion and maintenance procedures

CUSTOMER COURSE CATALOG Online - Technical Courses - Steam Turbines



∽ी = Online

Course ID# & Title		Plar	nt Pe	erso	nne				
(Click on Course Title to download detailed course outline)				laintenance	aintenance	on & Controls	ours	ons	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical M	Electrical Main	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-STM10703 Steam Turbine Fundamentals	~	~	~	~	~	~	4	4	 Addresses Steam Turbine components, including nozzles, bearings, rotor, steam-sealing devi Covers the location and assembly of each component Introduces the basics of the Steam Turbine cycle, including physics, components, types of ture Covers the basics of efficiency and applications
									• None

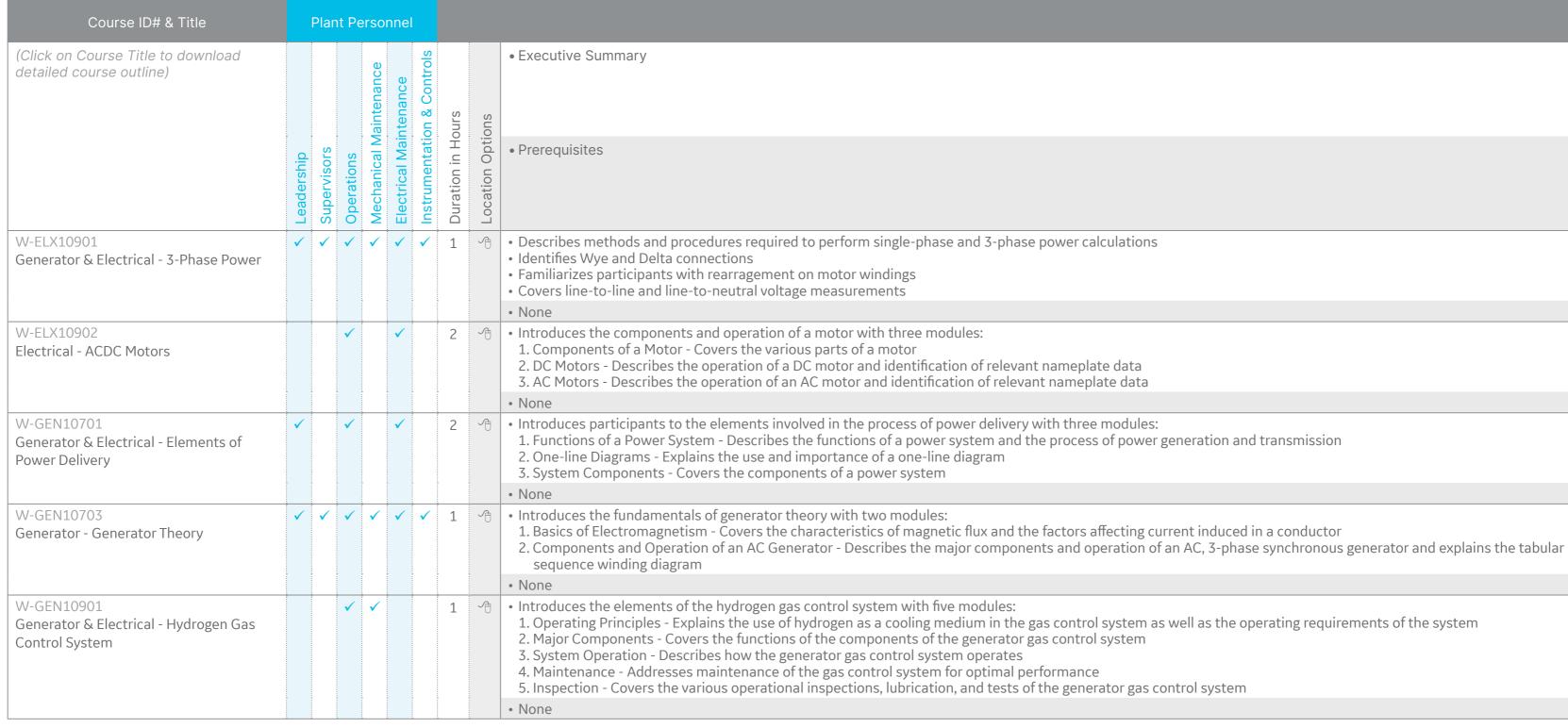
evices and valves

turbines, turbine classes and subclasses of Steam Turbines

CUSTOMER COURSE CATALOG

Online - Technical Courses - Generators

A = Online



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CUSTOMER COURSE CATALOG Online - Technical Courses - Generators - Continued



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Course ID# & Title		Pla	nt P	erso	nne	I			
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls	ours	ons	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-GEN10801 Generator & Electrical - Stator Winding Cooling System			~	~			1	1	 Introduces participants to the stator winding cooling system of a generator with four module Major Components - Covers the locations and functions of the various components that co Operating Systems - Provides in-depth coverage of the operation process of a stator wind Testing of Components - Explains the tests and inspections for stator winding cooling syst Removal of Stator Cooling Water and Unit Operation Without Cooling Water - Addresses t generator functions without the flow of cooling water
					-				• None
W-ELX11701 Excitation - Circuit and MCC Basics	~	~	~		~	~	1	4	 Familiarization of electrical circuits, forms of circuit protection, and motor control centers, or Reading circuit symbols and ladder diagrams and, demonstrate basic circuit troubleshooting None
W-ELX11702 Excitation - Generator Operation and Synchronization	~	~	~		~	~	2	A	• Understanding of the operation of a generator and the various types of power generated at a shut-down operations of a generator and the various parameters required for the safe synch
W-GEN11401							4 5	A	• None
Generator - Generator Fundamentals -	V	 ✓ 			✓	•	1.5	4	• Provide a basic understanding of the design and construction of a generator, including the fu
Design and Construction					- 				• None
W-GEN11402 Generator - Introduction to Generator Product Line	~	~	✓		~	✓	1.5	4	 Provides product summary and specifications of key/common generator models from both le Models covered include: 6A6, 6FA, 7A6, 9A5, SPL-MA, 7FH2, 7FH2B, 324, 330H, SPL-MH, 390 T-190-240, T-214-234, T-240-370, WX/WY23Z, WT21H, WT23E/D, TA1400-78.
									• None
W-GEN11403 Generator - Generator Inspection	✓	~	~		~		1	4	 The course will show differences in designs of these various components and specific inspec It will also guide the field engineer in assessing damage that will require the specific interver
				-	-	-			• None
W-GEN10501	\checkmark	✓	✓	✓	- - - - - - - - - - - - - - - - - - -		1.5	A	• In this module, learners will come to know about the importance, components, operation, ar
Generator - Shaft Sealing System							-		• None
W-GEN10704	\checkmark	✓	\checkmark		\checkmark		1	A	• This course focuses on the design and construction of the major components of the rotor, he
Generator - Generator Fundamentals - Field Design and Construction									• A reasonable ability to read and understand English is required.

♦ Recommended course for new equipment Customer self-registration capability at: www.gevernovatechtraining.com lles:

- comprise the stator winding cooling system
- nding cooling system
- stem components
- s the procedure to remove cooling water from the generator and describes how a

or MCCs ng techniques

t power plants, various generator curves, regulators & limiters, typical start-up & chronization of a generator

function of different parts of the generator

legacy GE and legacy Alstom ЮН, 450HE, SPL-LH, LSTG-675-60-2, SPL-LW, LSTG-710-50-2, LSTG-900-60-2,

ection points and evaluation criteria. ention of a qualified generator specialist.

and detecting alarm signals of the Shaft Sealing System

how the rotor is cooled, and the various types of cooling systems available.

CUSTOMER COURSE CATALOG Online - Technical Courses - Generators - Continued



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Course ID# & Title		Pla	nt F	Perso	onne	el			
(Click on Course Title to download detailed course outline)				aintenance	otenance	& Cor	S	suo	• Executive Summary
	Leadership	Supervisors	Onerations	Mechanical Maintenanc	Flectrical Maintenanc	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-GEN10706	\checkmark	~	~		~		1	4	• This course focuses on the design and construction of the major components of the stator, h
Generator - Generator Fundamentals - Stator Design and Construction									• A reasonable ability to read and understand English is required.
W-ELX11502 Excitation - Generator Digital Systems	~	~	~	·	~		4	4	• This will introduce you to the major components and terminology used in the EX2100 Warm individual circuit boards are described in terms of: function, operation and location in the EX2
									A reasonable ability to read and understand English is required.
W-ELX11001 Excitation - LCI Static Starter System	~	~	~		~		1	4	 The LCI Static Starter System Fundamentals course is designed to provide basic knowledge This course is not intended to provide technical training on testing, evaluating, or repairing elementation
Fundamentals									• A reasonable ability to read and understand English is required.
W-ELX10903	✓	✓	~		✓		1	1	Motor Control and Elementary basic theory.
Electrical - Electrical Troubleshooting		* * * * * *							A reasonable ability to read and understand English is required.

, how the stator is cooled, and the various types of cooling systems available.

m Backup System. Using color graphics and text, the major components and EX2100 Warm Backup Panel.

ge of GE static starters for gas turbine applications. gelectrical equipment.

CUSTOMER COURSE CATALOG Online - Pro-Active Trip Avoidance Training (PATAT)



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Course ID# & Title		Plar	nt Pe	erso	onne				
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls		suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenanc	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-GAS10928 PATAT 2 - Plant Trip Reduction		~	✓	~			1.05	4	 Increases awareness about the various approaches and procedures to trip reduction, includit Explains to use the Trip Cost Calculator
		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2							 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-GAS10929 PATAT 3 - GT Exhaust Gas Thermocouple Installation		✓		~		~	1.25	A	 Familiarizes with the thermocouples installed in the Gas Turbine exhaust system Explains the recommended practices for proper inspection, testing, removal, and installation Turbine Trip
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-GEN10710 PATAT 4 - Generator Brush Inspection & Maintenance		✓		~	~		1	Ą	 Introduces the basic components of a generator brush assembly Helps to understand the causes of trips related to the generator brush assembly Explains the recommend practices to avoid trips related to the generator brush and collecto
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-GAS10930 PATAT 5 - High Exhaust Temperature Spread		✓	~			~	1.25	A	 Introduces to the combustion process and high exhaust temperature spreads (HETS) in gas to Helps to understand how high exhaust temperature spreads occur in gas turbines and how to Familiarizes with the common causes of HETS trips and the various trip response techniques
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-GAS10931 PATAT 6 - Lean Blowout		✓	~			~	1	4	 Explains the conditions that could lead to Lean Blow Out (LBO) events, including the most vu Helps to identify the trips caused by a Lean Blow Out event Familiarizes with the solutions recommended by GE to minimize LBO occurrences
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines

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iding the best practices, supporting plant reliability

on to prevent exhaust gas thermocouple failure, thus reducing the number of Gas

tor ring

s turbines w to recognize a high exhaust temperature spread ues for issues related to the HETS trips and alarms

vulnerable operating ranges

CUSTOMER COURSE CATALOG

Online - Pro-Active Trip Avoidance Training (PATAT) - Continued



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Course ID# & Title		Plar	nt Pe	ersc	onne				
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls	ours	suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenan	Electrical Maintenance	Instrumentation	Instrumentation 8 Duration in Hours	Location Options	• Prerequisites
W-BOI10401 PATAT 7 - HRSG Operation and Maintenance		~	~	✓			1.2	4	 Introduces the role of a Heat Recovery Steam Generator (HRSG) and its subsystems in a co Helps identify the tasks performed by HRSG system during its operation Familiarizes with the regular and preventive maintenance procedures that are essential to k
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-BOI10402 PATAT 8 - Drum Level 1: Overview - Introduction		~	✓	✓		2 - - - - - - - - - - - - -	1.2	A	 Introduces to the major components and basic operation of a Combined Cycle Power Plant Focuses on the basic operation of Heat Recovery Steam Generator (HRSG) and the importation Familiarizes with principles and components that may impact the proper control of the HRSG
									 A reasonable ability to read and understand English is required Recommended to complete the 'HRSG Operations and Maintenance' course Basic understanding of the operational fundamentals of gas turbines, steam turbines, and C
W-BOI10403 PATAT 9 - Drum Level 2: Level Controls -		~	✓	~			1.2	4	 Introduces the Heat Recovery Steam Generator (HRSG) drum level controls, the valves that Familiarizes with the common troubleshooting techniques for potential problems associated
Control Systems									 A reasonable ability to read and understand English is required Recommended to complete the 'HRSG Operations and Maintenance' as well as the 'HRSG D Basic understanding of the operational fundamentals of gas turbines, steam turbines, and C
W-BOI10404 PATAT 10 - Drum Level 3: Condensate and Feedwater Pump Systems		~	✓	~			1	4	 Introduces the components, functions, and potential problems associated with the Condens Helps to identify common problems associated with the condensate Pumps, including Cond Helps to identify common problems with the Feedwater Pumps, including electrical supply, I Familiarizes with the design, operation, and potential problems associated with the Feedwa
		•							 A reasonable ability to read and understand English is required Recommended to complete the 'HRSG Operations and Maintenance' Basic understanding of the operational fundamentals of a combined cycle power plant, and
W-BOI10405 PATAT 11 - Drum Level 4: Bypass Systems		~	~	~			1.2	4	 Familiarizes with the Steam Turbine Bypass Systems that play an important role in the effici Introduces the standard types of bypass systems, the valves that form part of the bypass sy Explains the control logic for the bypass valves, the types of problems that may occur in the problems
									 A reasonable ability to read and understand English is required Recommended to complete the 'HRSG Operations and Maintenance' as well as the 'HRSG D Basic understanding of the operational fundamentals of a steam turbine and combined cycle

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combined cycle power plant

keep the HRSG and its components operational

tance of proper water level control in the HRSG steam drums SG drum water level

Combined Cycle Power Plants

at may have an impact on steam drum level control ed with steam drum level controls

Drum Level 1: Control Overview – Introduction" courses Combined Cycle Power Plants

nsate System, the Feedwater System, and the Feedwater Control System idensate flow problems, instrumentation failures, and common system mis-operation y, Feedwater flow, instrumentation failures and common system mis-operation yater Control System

d familiarity with all relevant safety regulations and guideline

cient operation of a Heat Recovery Steam Generator (HRSG) systems

e software of the control systems, and the techniques for troubleshooting these

Drum Level 1: Control Overview – Introduction" courses cle power plant, and be familiar with all safety regulations and guidelines

CUSTOMER COURSE CATALOG Online - Pro-Active Trip Avoidance Training (PATAT) - Continued



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Course ID# & Title		Plar	nt Pe	erso	nne	I			
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls	ours	ons	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours		• Prerequisites
W-GAS10932 PATAT 12 - Bearing Lube Oil & Hydraulics		✓	~	✓			2	4	 Introduces the Bearing Lube Oil and Hydraulics System (BLOH) and the functions of the majo Focuses on the conditions that can lead to system trips and recommended best practices in p Familiarizes about the relevant safety precautions while working on or around the Bearing Lube
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-GAS10933 PATAT 13 - Compressor Bleed Valve System		~	~	✓			1	1	 Introduces the function of the Compressor Bleed Valve (CBV) System Explains the problems associated with compressor bleed valves, and provide recommendation Familiarizes with the safety considerations that the participant should follow when working a
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a gas turbine An intimate familiarity with all relevant safety regulations and guidelines
W-STM10705 PATAT 14 - Steam Turbine Startup and		~	✓				1.15	A	 Familiarizes with the problems that can occur during startup and shutdown of a Steam turbin Introduces to basic startup and shutdown procedures for a steam turbine and the safety guid
Shutdown Procedures									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a steam turbine An intimate familiarity with all relevant safety regulations and guidelines
W-GAS10934 PATAT 15 - Winterization		~	✓	~	~	~	1.5	4	 Helps identify the components of a power plant that are vulnerable to freezing and the freeze Familiarizes with the purpose of a Winterization Checklist as well as introduce the participan them from freezing
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a steam turbine and other equipmer
W-GAS10935 PATAT 16 - Troubleshooting Liquid Fuel System Problems		~	✓	~			1	4	 Introduces the various components of the Liquid Fuel System and the functionality of each construction of the Liquid Fuel System, and the strategies and guide Familiarizes with the advantages and disadvantages of switching between fuels, and the safe and the Liquid Fuel System
									 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a steam turbine and other equipmer An intimate familiarity with all relevant safety regulations and guidelines

♦ Recommended course for new equipment Customer self-registration capability at: www.gevernovatechtraining.com jor components and the sub-systems n preventive maintenance to avoid trips Lube Oil and Hydraulics System

tions to improve CBV system operation g around the Compressor Bleed Valve System

bine and the methods that can be employed to minimize such problems uidelines that need to be followed while operating or working on a steam turbine

eze protection procedures that should be followed ant to the best practices to be followed for heat tracing site components to prevent

ent

component

- delines for reducing the number of such trips
- fety guidelines to be followed while working in and around the turbine compartment,

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CUSTOMER COURSE CATALOG Online - Pro-Active Trip Avoidance Training (PATAT) - Continued



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Course ID# & Title		Plar	nt Pe	erso	nne				
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls	ours	suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical M	Electrical Maintenance	Instrumentation	Duration in Hour	Location Options	• Prerequisites
W-GAS10936 PATAT 17 - Troubleshooting Gaseous Fuel System Problems		~	~	~			1	4	 Introduces the various components of the Gaseous Fuel System and the functionality of eac Helps identify the chief causes of trips in the Gaseous Fuel System, and the strategies and ge Familiarizes with the advantages and disadvantages of switching between fuels, and the safe and the Gaseous Fuel System
			0 0 0 0 0 0 0 0 0 0 0 0 0 0						 A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a steam turbine and other equipme An intimate familiarity with all relevant safety regulations and guidelines

ach component guidelines for reducing the number of such trips afety guidelines to be followed while working in and around the turbine compartment,

nent

Please select a course category.

SITE SPECIFIC AT CUSTOMER SITE⁺ OR GAS POWER SERVICES LEARNING

OPEN ENROLLMENT AT LEARNING CENTER AND INSTRUCTOR LED DISTANCE LEARNING





ONLINE SELF-PACED LEARNING TECHNICAL COURSES

(<u>page 103</u>)

(<u>page 104</u>)

(<u>page 105</u>)

(<u>page 107</u>)

(<u>page 108</u>)

ONLINE SELF-PACED LEARNING PRO-ACTIVE TRIP AVOIDANCE TRAINING

(<u>page 110</u>)

CUSTOMER APPLICABILITY MATRIX Site-Specific: Total Plant Solutions / Balance Of Plant



Please select a course

									F	PLAT	FORM	Л																UPG	RADE										
Course ID# & Title		erivat urbin									Duty bines						C	Other	r Maj me		luip-				ļ				eavy ograd		ty					Con 8 Excit			ilator cess
(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000	LMS100	ZН	H6	7F	9F	6F 75 / 5 A	/E/EA 9E	6B	Fr5 / 3	GT24	GT26	13E 13D	11N		Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)		HRSG	>	Generator (legacy Alstom) PA / PC Librate (Aero)	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6 DI N2 6+	DLN2.6+ Flex Combustor	 Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	VI /MVI /MVI 2 Increde	13E2 Efficiency Optimizer		Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
TOTAL PLANT SOLUTIONS										-																		 				-		-					
E-CCP10201 (<u>page 5</u>) Combined Cycle - Power Plant Familiarization] ■																														
E-CCP10203 (<u>page 5</u>) Combined Cycle - Operation (GE Integrated Systems)∻]	1																						✓	
E-CCP10204 (<u>page 5</u>) Combined Cycle - Fundamentals∻								• •]]																								
E-GRL10502 (<u>page 5</u>) General - Pipe Fitting & Handling																																							
E-GRL10503 (<u>page 6</u>) General - Bearing Inspection															•																								
E-GRL10504 (<u>page 6</u>) General - Leveling Work															•																								
E-GRL10505 (<u>page 6</u>) General - Shaft Alignment																																							
E-GRL10506 (<u>page 6</u>) General - Practical Steam Turbine Maintenance (Brown Boveri Design)																																							
E-CCP20601 (<u>page 7</u>) Combined Cycle - Simulator based Process Training																																							
BALANCE OF PLANT																																			- 1				i
E-BOP10202 (<u>page 7</u>) Balance of Plant- Operation (GE Integrated Systems)																																						✓	

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



Please select a course

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Course ID# & Title		oderiva 5 Turbii						Heav Gas T							Oth		ajor E ent	quip-							ve & I ine L			ıty					ontrol & citation		ulato cess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	_	LM9000 LMS100	7H ou	ЪГ	9F	6F 7E / EA	9E	6B T-T / O	Fr5/3 GT24	GT26	13E	13D 11N	8C	am Turbine (lega	steam lurbine (legacy Alstom) Boiler	HRSG	Generator (legacy GE) Generator (legacy Alstom)	orate (Ae	ed Gas	DLN1.0	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	rası ətarı Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Pertormance Package XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Repower Projects Turbine Control System	Generator Protection System	During Course	Evtancion Aftar Courca
CONTROLS AND EXCITATION - AERODERIVATIV	E GAS	5 TUR	BINE	S																															
E-CON23401 (<u>page 8</u>) Control System - Mark Vle (Aero) Operation, Maintenance & Troubleshooting∻																																			
E-CON13601 (<u>page 8</u>) Control System - Millenium Operation, Maintenance & Troubleshooting																																			
E-CON13602 (<u>page 8</u>) Control System - Woodward Operation, Maintenance & Troubleshooting ∻																									•			•							
E-CON13603 (<u>page 9</u>) Control System - RX3i Operation, Maintenance & Troubleshooting ∻																																			
CONTROLS AND EXCITATION - HEAVY DUTY GA	S TUR	BINE	S																																
E-CON10501 (<u>page 10</u>) Control System - AC800M with IIT800xA																																			
E-CON10201 (<u>page 10</u>) Control System - ADVANT with IIT800xA												•												 										~	
E-CON10202 (<u>page 10</u>) Control System - ADVANT with OS520																																			
-CON11401 (<u>page 10</u>) Control System - DLN 1.0 Standard Combustor																																		✓	•
E-CON11402 (<u>page 11</u>) Control System - DLN 1.0+ Standard Combustor																																			
E-CON11901 (<u>page 11</u>) Control System - DLN 2.6+ Standard Combustor																																		~	~

 \blacksquare Applicable to majority of fleet | \Box Applicable to limited fleet | \diamondsuit Recommended course for new equipment

please contact your GE Vernova representative to discuss your particular needs.



Please select a course

				PLA	TFORM																UPG	GRADE						
Course ID# & Title	Aeroderivative Gas Turbines			Heavy Gas Tu						Oth		lajor E nent	quip-									leavy ograd		/			Control & Excitation	Acce
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LM3100	7H 9H 7F	9F 6F 7E / EA	-	Er5/3	GT26	13E	13D	11N 8C	Turbine (lega	Steam Turbine (legacy Alstom)	Boller HRSG	Generator (legacy GE) Generator (legacy Alstom)	rate (Aer	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	t t	Opflex	Advanced Compressor	Flex Suite	Adv. Performance Package	13E2 Efficiency Optimizer Flange to Flange	Repower Projects	Turbine Control System Generator Protection System	
CONTROLS AND EXCITATION - HEAVY DUTY G	AS TURBINES - CO	DNTINUED														,					,	-			 -		÷	
E-CON11902 (<u>page 11</u>) Control System - DLN 2.6+ Flex Combustor		• • •	•																									✓
E-CON10404 (<u>page 11</u>) Control System - ALSPA Control System Fundamentals																												~
E-CON20406 (<u>page 11</u>) Control System - ALSPA Control System Intermediate																												✓
E-CON30401 (<u>page 12</u>) Control System - ALSPA Control System Advanced																												~
E-CON13302 (<u>page 12</u>) Control System - Mark VI Maintenance (HMI on 1st Day)		• • •	• • •			ם																						~
E-CON23301 (<u>page 12</u>) Control System - Mark VI Troubleshooting (Advanced)		• • •	• • •		I 🔳 C																							~
E-CON13304 (<u>page 13</u>) Control System - Mark VI with Integrated Turbine & Compressor Controls HMI																												~
E-CON13305 (<u>page 13</u>) Control System - Mark VI with Integrated Turbine & Compressor Controls Maintenance			• • •																									~
E-CON13306 (<u>page 13</u>) Control System - Mark VI to Mark VIe Platform Upgrade Maintenance		• • •																										~
E-CON13401 (<i>page 13</i>) Control System - Mark VIe Maintenance (Extended)∻		• • •	• • •																									~
E-CON13402 (<u>page 14</u>) Control System - Mark VIe Maintenance∻																												~

Applicable to majority of fleet $|\Box$ Applicable to limited fleet $|\diamond$ Recommended course for new equipment

please contact your GE Vernova representative to discuss your particular needs.



Please select a course

								Pl	LATF	ORM																	UP	GRAD	E								
Course ID# & Title		derivat Turbin						Hea [.] Gas ⁻							Ot	her N: ا	/lajor ment		ip-									Heavy pgrad		ty					ontrol & citatio	Ac	nulator cess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LMS100	7H 9H	7F	9F Cr	6F 7E / EA	9E		Fr5 / 3 GT24	GT26	13E	13D	11N BC	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler HDSG	Generator (legacy GE)	Generator (legacy Alstom)	PA / PC Uprate (Aero)	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	ī	DLNZ.0+ FIEX COMDUSTOR Fast Start	Opflex	Advanced Compressor	Flex Suite	(XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Repower Projects Turbing Control System	Generator Protection System	urse	Extension After Course
CONTROLS AND EXCITATION - HEAVY DUTY GA	S TUR	BINES	5 - COI	NTIN	IUED																																
E-CON13403 (<u>page 14</u>) Control System - Mark VIe Maintenance (HMI on 1st Day)				•																																✓	~
E-CON13404 (<u>page 14</u>) Control System - Mark VIe Maintenance Nuclear																							_														-
E-CON13413 (<u>page 14</u>) Control System - Mark VIe Migration from Mark V (HMI on 1st day)						•																														~	~
E-CON13406 (<u>page 15</u>) Control System - Mark VIe HMI																																				~	~
E-CON23404 (<u>page 15</u>) Control System - Mark VIe Troubleshooting (Advanced)				•	•					•																										~	~
E-CON13408 (<u>page 15</u>) Control System - Mark VIe with Integrated Turbine & Compressor Controls Maintenance				•		•	•			•																										~	
E-CON13409 (<u>page 15</u>) Control System - Mark VIe with Integrated Turbine & Compressor Controls Maintenance (HMI on 1st day)						•																														~	
E-CON13410 (<u>page 16</u>) Control System - Mark VIe Distributed Control System Maintenance∻				•		•	•																													~	
E-CON13411 (<u>page 16</u>) Control System - Mark VIe Distributed Control System Maintenance (Extended)				• •		•																														~	
E-CON13412 (<u>page 16</u>) Control System - Mark VIe Distributed Control System Operation						•																														~	

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



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Course ID# & Title		oderiva Turbii								Duty bines						Othe	er Maj me	quip-						rivati Turb				uty					Cont & Excita		Simula Acce	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LM90000 LMS100	ZН	9H 7E	9F	6F 77 / 7 ^	/E / EA 9F	6B	Fr5 / 3	GT24	GI 20 13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		Generator (legacy GE)	Iprate (Ae	DLN1.0	DLN1.0+ DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	rast start Onflex	Oprice Advanced Compressor	Flex Suite	ding	XI /MXI /MXI 2 Hodrade	⊇.σ	lange	Repower Projects	Turbine Control System	Generator Protection System	Irse	Extension After Course
CONTROLS AND EXCITATION - HEAVY DUTY GA	S TUR	BINE	S - C	ONT	INUE	D																														
E-CON23405 (<u>page 17</u>) Control System - OpFlex Enhanced Transient Stability Operation																																			✓	~
E-CON23406 (<u>page 17</u>) ControlSystem- OpFlex Enhanced Transient Stability with AutoTune DX & Cold Day Performance Operation					•																														✓	✓
E-CON23407 (<u>page 17</u>) ControlSystem- OpFlex Enhanced Transient Stability with AutoTune DX Operation																																			✓	~
E-CON23408 (<u>page 18</u>) ControlSystem- OpFlex Enhanced Transient Stability with AutoTune LT Operation					•																														✓	✓
E-CON23409 (<u>page 18</u>) Control System - OpFlex Enhanced Transient Stability with AutoTune MX & Variable Load Path Operation																																			✓	✓
E-CON10801 (<u>page 18</u>) Control System - ActivePoint™ HMI Operation Familiarization					•																														✓	✓
E-CON33402 (<u>page 19</u>) Control System - Proficy CIMPLICITY™ for Turbine Controls (Advanced)																																			✓	✓
E-CON13414 (<u>page 19</u>) Control System - Mark VIe Foundation Fieldbus																																			✓	
E-CON13701 (<u>page 19</u>) Control System - Control Server and Thin Client Familiarization																																				

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



Please select a course

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Course ID# & Title		derivat Turbin						Heav Gas T								Othe	r Maj me		quip-					A			tive 8 rbine									ntrol & tation	Simulator Access
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LMS100	7H	ЧН 7F	9F	GF 7E / EA	-		Fr5/3 GT24	GT26	13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		HRSG	Generator (legacy GE) Generator (legacy Alstom)	Jprate (Ae	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	DLN2.0 DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Advanced Compressor Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Projects	contro	Generator Protection System	During Course Extension After Course
CONTROLS AND EXCITATION - HEAVY DUTY GA	S TUR	BINES	- CO	NTI	NUEI	D																															
E-ELX10902 (<u>page 19</u>) Electrical - Electrical Control System (ECS) Training ∻																																					~
E-ELX10903 (<u>page 19</u>) Electrical - Intelligent Electronic Device (IED) IED's – Protection & Control ∻																																					~
CONTROLS AND EXCITATION - STEAM TURBINE	S																																				
E-CCP20604 (<u>page 20</u>) Combined Cycle - Simulator based Steam Cycle Operation																																					~
E-CCP20605 (<u>page 20</u>) Combined Cycle - Simulator Based Steam Turbine Operation																																					~
CONTROLS AND EXCITATION - GENERATORS																																					
E-ELX10301 (<u>page 21</u>) Excitation - EX2100e Maintenance																																					~
E-ELX10302 (<u>page 21</u>) Excitation - EX2100e Operation & Maintenance																																					~
E-ELX10303 (<u>page 21</u>) Excitation - EX2100e Generator Operation																																					~
E-ELX10304 (<u>page 21</u>) Excitation - EX2100e Platform Upgrade Maintenance																																					~
E-ELX10305 (<u>page 21</u>) Excitation - Aero EX2100e and Integrated Generator Protection System (IGPS)																																					~

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	_	LM9000	LMS100	H6	7F of	gr 6F	7E / EA	9E	oB Fr5/3	GT24	GT26	13E	13D	11N 8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler HRSG	Generator (legacy GE)	Generator (legacy Alstom)	orate (Aer	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	ī	DLN2.6+ FIEX Combustor Fast Start	rast Start Opflex	Advanced Compressor	Flex Suite	uel Blanding	ance P	XL/MXL/MXL2 Upgrade	13EZ ETIICIEncy Uptimizer Flande to Flande	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
CONTROLS AND EXCITATION - GENERATORS -	CONT	NUE	D																																			^	
E-ELX11501 (<u>page 21</u>) Excitation - Generator Excitation, Protection and Static Starter Introduction ∻																				•																			
E-ELX11101 (<i>page 22</i>) Excitation - Combisystem Excitation & Static Starting Device Maintenance∻																																						~	
E-ELX10901 (<u>page 22</u>) Electrical - Operation & Maintenance (GE Integrated Systems)∻		🗆]						•																												•	
E-ELX30101 (<i>page 22</i>) Protection - MiCOM Generator & Transformer Protection																																							
E-ELX30501 (<u>page 23</u>) Excitation - LS2100e LCI for Turbine Static Start																																						~	
E-ELX30202 (<u>page 23</u>) Protection - REG216 Protection System Maintenance																																							



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Course ID# & Title		oderiva Turbi								Duty bines						Other	Majo mei		uip-						oderi Gas					uty					ontro & citatic	A	nulato ccess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	_	LM9000 I MS100	7H	H6	/F 9F	6F	7E / EA	ЧЕ 6B	Fr5 / 3	GT24	6120 13E	13D	NI	0 	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	Boiler	HRSG	Generator (legacy GE) Generator (legacy Alstom)	Iprate (Ae	ed Gas	DLN1.0 DI N1.0+	DLN2.0	DLN2.6	ī	DLN2.6+ Flex Combustor	rası sıarı Opflex	Advanced Compressor	Flex Suite	anding	Adv. Performance Package XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Turking Control Stortom	Ganarator Drotaction System	Se	Extension After Course
AERODERIVATIVE GAS TURBINES																																					
E-AER10101 (<u>page 24</u>) Gas Turbine - LM2500 Aero Package Operation/ Familiarization∻																																					
E-AER10201 (<i>page 24</i>) Gas Turbine - LM2500+ Aero and LM2500+ Xpress Package Operation/Familiarization∻																																					
E-AER10102 (<u>page 24</u>) Gas Turbine - LM2500+ Package Maintenance∻																																					
E-AER10202 (<u>page 24</u>) Gas Turbine - LM2500+ and LM2500+ Xpress Package Maintenance∻																																					
E-AER10103 (<u>page 24</u>) Gas Turbine - LM2500 Engine Familiarization																																					
E-AER10104 (<u>page 25</u>) Gas Turbine - LM2500 Level 1 Maintenance																																					
E-AER10105 (<u>page 25</u>) Gas Turbine - LM2500 Level 2 Cold Maintenance																																					
E-AER10106 (<u>page 25</u>) Gas Turbine - LM2500 Level 2 Hot Maintenance																																					
E-AER10107 (<u>page 25</u>) Gas Turbine - LM2500+ Level 2 Hot Maintenance																																					
E-AER10203 (<u>page 26</u>) Gas Turbine - LM2500+ Borescope Inspection																																					
E-AER10204 (<u>page 26</u>) Gas Turbine - LM2500+/G4 Engine Familiarization																																					

Applicable to majority of fleet $|\Box$ Applicable to limited fleet $|\diamond$ Recommended course for new equipment



Please select a course

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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LMS100	7H ou	ль 7F	9F	6F 7E / EA	9E	6B	Fr5 / 3 GT24	GT26	13E	13D 111	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG Generator (legacy GE)	Generator (legacy Alstom)	orate (Ae	ed Gas	DLN1.0	DLN2.0	DLN2.6	Ŧ	DLN2.6+ Flex Combustor	rast start Onflex	Advanced Compressor	Flex Suite	D	Adv. Performance Package	XL/M/XL/M/XLZ Upgrade 13E2 Efficiency Ontimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINUED)																												_					_				
E-AER10205 (<u>page 26</u>) Gas Turbine - LM2500+ Level 1 Maintenance																																						
E-AER10206 (<u>page 26</u>) Gas Turbine - LM2500+ Level 2 Cold Maintenance																																						
E-AER10108 (<u>page 26</u>) Gas Turbine - LM2500 Borescope Inspection																																						
E-AER10301 (<u>page 27</u>) Gas Turbine - LM6000 Aero Package Operation/ Familiarization∻																																						
E-AER10302 (<u>page 27</u>) Gas Turbine - LM6000 Package Maintenance																																						
E-AER10303 (<u>page 27</u>) Gas Turbine - LM6000 Engine Familiarization																																						
E-AER10304 (<u>page 27</u>) Gas Turbine - LM6000 Level 1 Maintenance																																						
E-AER10305 (<u>page 27</u>) Gas Turbine - LM6000 Level 2 Cold Maintenance																																						
E-AER10306 (<u>page 28</u>) Gas Turbine - LM6000 Level 2 Hot Maintenance																																						
E-AER10307 (<u>page 28</u>) Gas Turbine - LM6000 Borescope Inspection																																						
E-AER11201 (<i>page 28</i>) Gas Turbine - LM9000 Aero Package Operation / Familiarization∻																																						

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



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(Click on Course Title to download detailed course outline)	\sim	TM2500 / TM2500+	LM6000	LMS100	ZН	ЭН	7F of	ЧТ БГ	JE / EA	9E	6B	Fr5 / 3	GT24	GT26 125	13E 13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG	Generator (legacy GE) Generator (legacy Alstom)	rate (Ae	ed Gas	DLN1.0	DLN1.0+	DLN2.0	DLIN2.0 DI N7 6+	DLN2.6+ Flex Combustor	t	Opflex	Advanced Compressor	Φ 📒	H2 Fuel Blanding	VI MAYL MAYL 2 Hocrado	AL/IMIAL/IMIALZ Upglade 13F2 Ffficiency Ontimizer		Repower Projects	Turbine Control System	Generator Protection System	se	Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINUED)		į																																		_					
E-AER11202 (<u>page 28</u>) Gas Turbine - LM9000 Package Maintenance∻																																										
E-AER10401 (<u>page 28</u>) Gas Turbine - LMS100 Aero Package Operation/ Familiarization∻																																										
E-AER10402 (<u>page 29</u>) Gas Turbine - LMS100 Package Maintenance∻																																										
E-AER10403 (<u>page 29</u>) Gas Turbine - LMS100 Engine Familiarization																		- - - -																								
E-AER10404 (<u>page 29</u>) Gas Turbine - LMS100 Level 1 Maintenance																		- - - -																								
E-AER10405 (<u>page 29</u>) Gas Turbine - LMS100 Level 2 Cold Maintenance																		4 3 7 6 7 7 8 7 8 7 8 7 9 7 10 7 11 7 12 7 13 7 14 7 15 7 16 8 17 7 18 7 19 7 10 7 10 8 11 10 12 10 13 10 14 10 15 10 16 10 17 10 18 10 19 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 <																								
E-AER10406 (<u>page 29</u>) Gas Turbine - LMS100 Level 2 Hot Maintenance																																										
E-AER10501 (<u>page 30</u>) Gas Turbine - TM2500 Aero Package Operation/ Familiarization∻																																										
E-AER10601 (<u>page 30</u>) Gas Turbine - TM2500+ Aero Package Operation/ Familiarization∻																																										
E-AER10502 (<u>page 30</u>) Gas Turbine - TM2500 Aero Package Maintenance�																																										
E-AER10602 (<u>page 30</u>) Gas Turbine - TM2500+ Aero Package Maintenance∻																																										

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



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Course ID# & Title		oderiv s Turb								Heavy as Tu								Oth		lajor nent		p-					Ae					avy E Irade							ontrol & citatior		ulator cess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LM9000	LMS100	H6	JF	9F	бF	7E / EA	9E	0B Frf / 2	GT24	GT26	13E	13D	11N	8C	rbine (lega	Steam Turbine (legacy Alstom)	Boller HRSG	Generator (legacy GE)	Generator (legacy Alstom)	rate (Aer	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Projects		or Protection	0	Extension After Course
HEAVY DUTY GAS TURBINES	, ,											-	-						-		-			-														÷		*	,
E-GAS10401 (<u>page 31</u>) Gas Turbine - Familiarization for Power Plant Management																																								✓	
E-GAS12001 (<u>page 31</u>) Gas Turbine - Operation∻										•	ב																													✓	✓
E-GAS22101 (<u>page 31</u>) Gas Turbine - Operation E-Class (Advanced)																																								~	~
E-GAS22201 (<u>page 32</u>) Gas Turbine - Operation F-Class (Advanced)																								•																✓	~
E-GAS22501 (<u>page 32</u>) Gas Turbine- Operation H-Class (Advanced)																								•																✓	~
E-GAS20203 (<u>page 32</u>) Gas Turbine - Operation Training on GT26 Simulator																																									
E-GAS12002 (<u>page 33</u>) Gas Turbine - Maintenance∻						•				•																										1					
E-GAS20101 (<u>page 33</u>) Gas Turbine - GT13E2 Inspection																																									
E-GAS10102 (<u>page 33</u>) Gas Turbine - GT13E2 Mechanical Systems & Components																																									
E-GAS20201 (<u>page 33</u>) Gas Turbine - GT26 Inspection (retractable EV Burner)																																									
E-GAS10204 (<u>page 34</u>) Gas Turbine - GT26 Mechanical Systems & Components (retractable EV Burner)																																									

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access Excitation
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000	H 2H 9H 7F 9F 6F 6B 6B 6B 6124 6T26 6T26 13D 13D 11N 8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy Alstom)	PA / PC Uprate (Aero) Advanced Gas Path (AGP) DLN1.0 DLN1.0+ DLN1.0+ DLN2.6 DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor Advanced Compressor Fast Start Opflex Advanced Compressor Flex Suite Advance Package Adv. Performance Package XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade T3E2 Efficiency Optimizer Flange to Flange	Turbine Control System Generator Protection System During Course Extension After Course
HEAVY DUTY GAS TURBINES - CONTINUED					
E-GAS10205 (<u>page 34</u>) Gas Turbine - GT24/GT26 Routine Maintenance					



Please select a course

		PLATFORM		UPGRADE		
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control Simu & Acc Excitation	ulator cess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000	Fr5/3 GF GF GF GB Fr5/3 GT24 GT24 GT26 13D 11N	8C Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy GE)	prate (Aero) I Gas Path (AG Flex Combust Compressor I Compressor anding ormance Pack AXL2 Upgrade AXL2 Upgrade iency Optimiz Flange Flange		Extension After Course
STEAM TURBINES						
E-STM10702 (<u>page 35</u>) Steam Turbine - Conversion/Modification/Upgrade Operation with Controls Upgrade						
E-STM10801 (<u>page 35</u>) Steam Turbine - Maintenance∻						
E-STM10802 (<u>page 35</u>) Steam Turbine - Operation ∻					✓	
E-STM10803 (<u>page 35</u>) Steam Turbine - Operation (Basic)					✓	
E-STM20701 (<u>page 36</u>) Steam Turbine - Operation (Advanced)					✓	



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Course ID# & Title		oderiva s Turbi						Heav Gas 1							Ot		Major men	r Equi t	p-					Aeroo G		vative Turbin				/				8	trol ation	Simul Acce	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+	00 / 100	LM9000 LMS100	7H	9H 7F	9F	6F 75 / 54	9E	6B	Fr5 / 3 GT24	GT26	13E	13D	11N 8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG Generator (legacy GE)	Generator (legacy Alstom)	PC Uprate (Aero)	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6 DI NJ 6+	DLN2.6+ Flex Combustor	Start	Opflex	Advanced Compressor	Flex Suite	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Repower Proiects	Turbine Control System	Generator Protection System	During Course	Extension After Course
HEAT RECOVERY STEAM GENERATORS																																					
E-BOI10302 (<u>page 37</u>) Heat Recovery Steam Generator (HRSG) - Operation & Maintenance (GE Engineered)∻																																					



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(Click on Course Title to download detailed course outline)		LM9000	LMS100	н/ Н6	7F	9F	6F 7E / EA	9E	GB	Fr5 / 3	GT24 CT26	01.20 13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	Boiler	HRSG	Generator (legacy GE) Generator (legacy Alstom)	orate (Ae	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+ DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opriex Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer Elanda to Elanda	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
GENERATORS	 ÷	· · ·															· · ·																		•			
E-GEN10504 (<u>page 38</u>) Generator - Hydrogen Cooled Operation & Auxiliary Systems																																						
E-GEN10403 (<u>page 38</u>) Generator - Water & Hydrogen Cooled Operation & Maintenance of Auxiliary Systems																																						
E-GEN10301 (<u>page 38</u>) Generator - Mechanical Systems & Components	- - - - - - - - - - - - - - - - - - -																																					
E-GEN10903 (<u>page 38</u>) Generator - Hydrogen Cooled Auxiliaries Maintenance																																						
E-GEN10901 (<u>page 39</u>) Generator - Hydrogen Cooling System Operation & Maintenance																																						
E-GEN10102 (<u>page 39</u>) Generator - Air or Hydrogen Cooled for Gas Turbine Operation & Maintenance																																						



		PLATFORM	_	UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access Excitation
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000	TH Th BH 7F BF CF CF CF CF CF CF CF CF CF C	8C Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy Alstom)	PA / PC Uprate (Aero) Advanced Gas Path (AGP) DLN1.0 DLN1.0 DLN1.0+ DLN2.6 DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor Fast Start Opflex Fast Start Opflex Advanced Compressor Flex Suite Advanced Compressor Flex Suite Advance Package Adv. Performance Package XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade T3E2 Efficiency Optimizer Flange to Flange	Turbine Control System Generator Protection System During Course Extension After Course
TOTAL PLANT SOLUTIONS					
O-CCP10205 (<u>page 40</u>) Combined Cycle - Operation Familiarization					✓



Please select a course

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Course ID# & Title			rivati Irbine								/y Du Turbii							Otl	her M r	lajor nent		ip-					A	eroc Ga	leriva as Tu	ative Irbine	& He e Up	eavy grad	Duty e	/					ontro & citatic	A	nulator ccess
(Click on Course Title to download detailed course outline)	/ LM2	TM2500 / TM2500+		LMS100	ZН	9H	/F QF	gr 6F	7E / EA	9E		Fr5/3 CT04	G126 GT26	0120 13E	13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boller	Generator (legacy GE)	tor (legacy	PA / PC Uprate (Aero)	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	DLN2.0 DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	t	Opflex	Advanced Compressor	Hex Sulle H2 Fuel Rlanding	Adv. Performance Package	2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Terbino Control Stotom	Generator Protection System	During Course	Extension After Course
CONTROLS AND EXCITATION															_														_												
O-ELX10101 (<u>page 41</u>) Excitation - EX2000 Generator Excitation Maintenance		- - - - - - - - - - - - - - - - - - -																																							
O-ELX10201 (<u>page 41</u>) Excitation - EX2100 Generator Excitation Maintenance] 🗆]																									Ľ]]	
O-ELX20201 (<u>page 41</u>) Excitation - EX2100 Generator Excitation Maintenance (Advanced)] [] 🗆] [] 🗆																									C] []	
O-ELX10301 (<u>page 41</u>) Excitation - EX2100e Generator Excitation Maintenance∻] 🗆] []																									C]]	
D-ELX10301 (<u>page 41</u>) Excitation - EX2100e Generator Excitation Maintenance - Distance Learning																																									
O-ELX20301 (<u>page 41</u>) Excitation - EX2100e Generator Excitation Maintenance (Advanced)∻] 🗆]																									C]]	
O-ELX11002 (<u>page 42</u>) Excitation - LS2100 LCI for Turbine Static Start]																														C]]	
O-ELX11003 (<u>page 42</u>) Excitation - LS2100e LCI for Turbine Static Start] 🗆]																									L] []	
O-CON13301 (<u>page 42</u>) Control System - Mark VI Operation													ם נ																											~	
O-CON23301 (<u>page 42</u>) Control System - Mark VI Maintenance (Advanced)												• [ם נ																											~	
O-CON23302 (<u>page 43</u>) Control System - Mark VI Troubleshooting (Advanced)												• [ם נ																											~	

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LM9000 LMS100	ZH	H6	/F 9F	6F	7E / EA	9E	6B T_T / O	Fr5/3	G1 24 GT 26	13E	13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler HRSG	Generator (legacy GE)	Generator (legacy Alstom)	PA / PC Uprate (Aero)	ed Gas	DLN1.0	DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Advanced compressor Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer Flande to Flande	Repower Projects	Turbine Control System	Generator Protection System	urse	Extension After Course
CONTROLS AND EXCITATION - CONTINUED																										_														
O-CON13405 (<u>page 43</u>) Control System - Mark VIe Familiarization (Advanced Viewer)												ם																											~	
D-CON13405 (<u>page 43</u>) Control System - Mark VIe Familiarization (Advanced Viewer) - Distance Learning												ם נ																											~	
O-CON13406 (<u>page 43</u>) Control System - Mark VIe Familiarization (ActivePoint™)												ם נ																											✓	
D-CON13406 (<u>page 43</u>) Control System - Mark VIe Familiarization (ActivePoint™) - Distance Learning																																							~	
O-CON13407 (<u>page 44</u>) Control System - Mark VIe Intermediate (Advanced Viewer)												ם																											✓	
D-CON13407 (<u>page 44</u>) Control System - Mark VIe Intermediate (Advanced Viewer) - Distance Learning																																							~	_
O-CON13408 (<u>page 44</u>) Control System - Mark VIe Intermediate (ActivePoint™)												ם נ																											✓	
D-CON13408 (<u>page 44</u>) Control System - Mark VIe Intermediate (ActivePoint™) - Distance Learning] 🗆																											~	
O-CON23401 (<u>page 45</u>) Control System - Mark VIe Maintenance (Advanced)																																							~	
O-CON33401 (<u>page 45</u>) Control System - Mark Ve / VIe Troubleshooting (Advanced)																																							~	

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
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(Click on Course Title to download detailed course outline)	LM6000	LM9000	LMS100 7H	H6	7F	9F 2.1	or 7E / EA	96	бВ	Fr5/3	G124 GT26	0120 13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		HRSG	(legacy	PA / PC Uprate (Aero) Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ DLN2.6+ Flax Combinistor	Opflex	Advanced Compressor	Flex Suite	σ	tormance Pa	XL/MXL/MXLZ Upgrade 13E2 Efficiency Optimizer	ange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
CONTROLS AND EXCITATION - CONTINUED	 																				 				 											
O-CON13401 (<u>page 45</u>) Control System - Mark VIe Migration from Mark V, Familiarization]																			✓	
O-CON13501 (<u>page 45</u>) Control System - Introduction to Mark VIeS Functional Safety System										•					Ι																				✓	
O-CON20701 (<u>page 46</u>) Control System - Mark VIe (Aero) Operation, Maintenance & Troubleshooting																																				
O-CON10801 (<u>page 46</u>) Control System - Woodward (Aero) Operation, Maintenance & Troubleshooting																																				
O-CON13602 (<u>page 46</u>) Control System - RX3i Operation, Maintenance & Troubleshooting																																				
O-CON11401 (<u>page 46</u>) Control System - Aero DLE Familiarization and Mapping Overview																																				
O-CON13409 (<u>page 47</u>) Control System - Control Server & Thin Client Familiarization]																									
D-CON13409 (<u>page 47</u>) Control System - Control Server & Thin Client Familiarization - Distance Learning]																									

Legend: Applicable to majority of fleet $|\Box$ Applicable to limited fleet | \diamond Recommended course for new equipment



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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+	TM2500 / TM2500+	LM6000	LM9000	LMS100	л. Н	7F	9F	бF	7E / EA	9E GB	55 / 3	GT24	GT26	13E	13D	11N	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	Boiler	Generator (legacy GE) Generator (legacy Alstom)	Uprate (Ae	ed Gas Pa	DLN1.0	DLN1.0+	DLN2.0	DLN2.6	DI N2 6+ Flex Combilistor	Opflex	Advanced Compressor	Ð	Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	Flande	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
CONTROLS AND EXCITATION - CONTINUED														<u> </u>												-		 										,	
O-CON10402 (<u>page 47</u>) Control System - ALSPA Control System Fundamentals																																						~	
O-CON20401 (<u>page 47</u>) Control System - ALSPA Control System Intermediate																																						~	
O-CON30401 (<u>page 47</u>) Control System - ALSPA Control System Advanced																																						~	
O-CON33404 (<u>page 48</u>) Control System - Foundation Fieldbus∻																																							



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Course ID# & Title		vative bines							Duty rbines						Othe	ajor E ent	quip-				Ae		erivat s Turl									ontrol & citatior	Simulato Access	
(Click on Course Title to download detailed course outline)	LM6000	LM9000	LMS100 7H	H6	7F 9F	GF	7E / EA	9E 6B	55/3	GT24	GT26 12F	13E 13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	HRSG	r (legacy	Generator (legacy Alstom) PA / PC Unrate (Aero)	Advanced Gas Path (AGP)	DLN1.0+	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Optiex Advanced Compressor	Flex Suite	D	Adv. Performance Package	AL/WAL/WALZ UP91ade 13E2 Efficiency Optimizer	Flange to Flange	Repower Projects Turbine Control System	Generator Protection System	Urse After	
AERODERIVATIVE GAS TURBINES								_												 														_
O-AER10101 (<u>page 49</u>) Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization																																		
D-AER10101 (<u>page 49</u>) Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization - Distance Learning																																		
O-AER10105 (<u>page 49</u>) Gas Turbine - LM2500 Engine Familiarization																																		
D-AER10105 (<u>page 49</u>) Gas Turbine - LM2500 Engine Familiarization - Distance Learning																																		
O-AER10106 (<u>page 49</u>) Gas Turbine - LM2500 Level 1 Maintenance	•																																	
O-AER10104 (<u>page 49</u>) Gas Turbine - LM2500 Level 2 Cold Maintenance																																		
O-AER10103 (<u>page 50</u>) Gas Turbine - LM2500 Level 2 Hot Maintenance																																		
O-AER10102 (<u>page 50</u>) Gas Turbine - LM2500 Borescope Inspection																																		
O-AER10203 (<u>page 50</u>) Gas Turbine - LM2500+/G4 Engine Familiarization																																		
D-AER10203 (<u>page 50</u>) Gas Turbine - LM2500+/G4 Engine Familiarization - Distance Learning																																		

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



Please select a course

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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LMS100	7H	9H 7E	, г 9F	GF	7E / EA af	gt 6B	Fr5 / 3	GT24	GT26	13E 13D	150 11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	Generator (legacy GE)	Generator (legacy Alstom)	PA / PC Uprate (Aero)	ed Gas	DI N10+	DLN2.0	DLN2.6	ī	DLNZ.0+ FIEX COMPUSION Fast Start	Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding Adv Performance Packade	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Turbine Control System	Generator Protection System	During Course	Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINUED)	, ,																				-													÷		, ,	,
O-AER10204 (<u>page 50</u>) Gas Turbine - LM2500+ Level 1 Maintenance																																		•				
O-AER10205 (<u>page 50</u>) Gas Turbine - LM2500+ Level 2 Cold Maintenance																																		•				
O-AER10202 (<u>page 50</u>) Gas Turbine - LM2500+ Level 2 Hot Maintenance																																		•				
O-AER10201 (<u>page 51</u>) Gas Turbine - LM2500+ Borescope Inspection														<u>.</u>												-												
O-AER10301 (<u>page 51</u>) Gas Turbine - LM6000 Aero Package Operation/ Familiarization																																						
D-AER10301 (<u>page 51</u>) Gas Turbine - LM6000 Aero Package Operation/ Familiarization - Distance Learning																																		•				
O-AER10306 (<u>page 51</u>) Gas Turbine - LM6000 Engine Familiarization																																						
D-AER10306 (<u>page 51</u>) Gas Turbine - LM6000 Engine Familiarization - Distance Learning																																						
O-AER10303 (<u>page 52</u>) Gas Turbine - LM6000 Level 1 Maintenance																																						
O-AER10304 (<u>page 52</u>) Gas Turbine - LM6000 Level 2 Cold Maintenance																																						

Legend: Applicable to majority of fleet $|\Box$ Applicable to limited fleet | \diamond Recommended course for new equipment



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(Click on Course Title to download detailed course outline)			LM9000 LMS100	ZH	9H 7F	 9F	6F	7E / EA 9E	6B	Fr5 / 3	G124 GT26	01 20 13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom))	HRSG	<u>e</u>	gacy te (Ae	ed Gas	DLN1.0	DLN1.0+ DI N2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Advanced Compressor Flex Suite	H2 Fuel Blanding	formance P	AL/MAL/MAL2 Upgrade 13E2 Efficiency Optimizer	Repower Projects	Generator Protection System	Course	Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINU	JED																																			
O-AER10302 (<u>page 52</u>) Gas Turbine - LM6000 Borescope Inspection																																				
O-AER10401 (<u>page 52</u>) Gas Turbine - LMS100 Aero Package Operation/ Familiarization																																				
D-AER10401 (<u>page 52</u>) Gas Turbine - LMS100 Aero Package Operation/ Familiarization - Distance Learning																																				
O-AER10405 (<u>page 52</u>) Gas Turbine - LMS100 Engine Familiarization																																				
O-AER10402 (<u>page 53</u>) Gas Turbine - LMS100 Level 1 Maintenance																																				
O-AER10403 (<u>page 53</u>) Gas Turbine - LMS100 Level 2 Cold Maintenance																																				
O-AER10404 (<u>page 53</u>) Gas Turbine - LMS100 Level 2 Hot Maintenance																																				
O-AER10406 (<u>page 53</u>) Gas Turbine - LMS100 Borescope Inspection																																				
O-AER10501 (<u>page 53</u>) Gas Turbine - TM2500 & TM2500+ Aero Package Operation/Familiarization																																				
D-AER10501 (<u>page 53</u>) Gas Turbine - TM2500 & TM2500+ Aero Package Operation/Familiarization - Distance Learning																																				

Legend: ■ Applicable to majority of fleet | □ Applicable to limited fleet | ∻ Recommended course for new equipment



		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access Excitation
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LMS100	7H 9H 7F 9F 6F 7E / EA 9E 6B 6B 6T26 6T26 13D 13D 11N 8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy Alstom)	PA / PC Uprate (Aero) Advanced Gas Path (AGP) DLN1.0 DLN1.0+ DLN2.0 DLN2.6 DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor East Start DLN2.6+ Flex Combustor Copflex DLN2.6+ Flex Combustor Fast Start DLN2.6+ Flex Combustor Flange to Flange Flange to Flange	Turbine Control System Generator Protection System During Course Extension After Course
AERODERIVATIVE GAS TURBINES - CONTIN	UED				
O-AER10305 (<u>page 52</u>) Gas Turbine - LM6000 Level 2 Hot Maintenance					



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(Click on Course Title to download detailed course outline)		LM9000	LMS100	7H 9H	7F	9F	GF	7E / EA	ЧЕ 6В	Fr5 / 3	GT24	GT26 13F	13E 13D	11N	8C	Turbine (le	Steam Turbine (legacy Alstom)	Boller HRSG	Generator (legacy GE)	Generator (legacy Alstom)	rate (Aer	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	Doflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	С.	XL/MXL/MXL2 Upgrade	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
HEAVY DUTY GAS TURBINES																																				· · · · · ·	
O-GAS12002 (<u>page 54</u>) Gas Turbine - 6, 7, 9, B, E, F Class Introduction to Maintenance Theory																																					
D-GAS12002 (<u>page 54</u>) Gas Turbine - 6, 7, 9, B, E, F Class Maintenance Familiarization - Distance Learning					•																																
O-GAS22101 (<u>page 54</u>) Gas Turbine - Operation E-Class (Advanced)																																					
O-GAS22201 (<u>page 54</u>) Gas Turbine - Operation F-Class (Advanced)																																					
O-GAS12003 (<u>page 55</u>) Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization																																					
D-GAS12003 (<u>page 55</u>) Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization - Distance Learning					•			•																													
O-GAS20401 (<u>page 56</u>) Gas Turbine - GT11, GT13E2, GT24/GT26 Routine Maintenance																																					
O-GAS10102 (<u>page 56</u>) Gas Turbine - GT13E2 Mechanical Systems & Components																																					
O-GAS20101 (<u>page 56</u>) Gas Turbine - GT13E2 Inspection																																					
O-GAS10201 (<u>page 57</u>) Gas Turbine - GT26/GT24 Mechanical Systems & Components (Retractable EV Burner)																																					

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment



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HEAVY DUTY GAS TURBINES - CONTINUED																																			
O-GAS20201 (<u>page 57</u>) Gas Turbine - GT26 Inspection (retractable EV Burner)																																			
O-GAS32501 (<u>page 57</u>) Gas Turbine – Operation HA-Class (Advanced) ∻																																			



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(Click on Course Title to download detailed course outline)		LM9000	LMS100	ZН	9H 7F	9F	6F	7E / EA	9E 6B	Fr5 / 3	GT24	GT26 135	13E 13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		HRSG	Generator (legacy GE)	Generator (regacy Alstorn) PA / PC Ubrate (Aero)	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	DLN2.6	1	DLN2.6+ Flex Combustor	Fast Start	Opnex Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
STEAM TURBINES	 -																																					;
O-GRL10501 (<u>page 58</u>) General - Practical Steam Turbine Maintenance (Brown Boveri Design)																																						
O-STM10703 (<u>page 58</u>) Steam Turbine - Maintenance Familiarization (GE design)																																				-		
D-STM10703 (<u>page 58</u>) Steam Turbine - Maintenance Familiarization (GE design) - Distace Learning																																						
O-STM20701 (<u>page 58</u>) Steam Turbine - D11 Operation (Advanced)																																						
O-STM10702 (<u>page 58</u>) Steam Turbine - D11, A10 Operation																																						
D-STM10702 (<u>page 58</u>) Steam Turbine - D11 Operation - Distance Learning																																				-		



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Course ID# & Title		oderiva s Turbi						Hea Gas ⁻							Ot		/lajor ment	Equip) -				A	Aerod Ga	eriva as Tu	tive & rbine	& Hea Upg	avy D rade)uty					Cont & Excita		Simul Acce	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+		LM9000 LMS100	7H 	9H 7F	9F	6F 75 / 54	9E	6B	Fr5 / 3 GT24	GT26	13E	13D	11N BC	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler HRSG	Generator (legacy GE)	Generator (legacy Alstom)	PA / PC Uprate (Aero) Advanced Gas Path (AGP)	1.0	DLN1.0+	DLN2.0	DLN2.6 DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 ETTICIENCY Uptimizer Flande to Flande	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
HEAT RECOVERY STEAM GENERATORS																																					
O-BOI10301 (<u>page 59</u>) Heat Recovery Steam Generator (HRSG) - Operation & Inspection]																			



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(Click on Course Title to download detailed course outline)	/ LM2		LM9000	LMS100	/H 9H	7F	9F	6F 7r / r A	/E/EA 9E	6B	Fr5/3	G124 CT26	01.20 13E	13D	11N	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	Boiler	HRSG	Generator (legacy GE)	Generator (legacy Alstom) PA / PC Ubrate (Aero)	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+		DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	X	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
GENERATORS																																						
O-GEN10701 (<u>page 60</u>) Generator - Generator Fundamentals																																						
D-GEN10701 (<u>page 60</u>) Generator - Generator Fundamentals - Distance Learning																																						

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(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000	LMS100	7H	9H	ZF	9F	6F 	7E / EA or	ЧЕ 6В	Fr5 / 3	GT24	GT26	13E	13D	11N	000 0400m Hurbino (100000 OE)	Steam Turbine (legacy Alstom)	Boiler	HRSG	· (legacy GE)	Generator (legacy Alstom) PA / PC LIbrate (Aero)	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	DLN2.0	DLN2.6		Fast Start	Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	ance P	XL/MXL/MXL2 Upgrade	13EZ ETTICIENCY Uptimizer	Flange to Flange Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
CONTROLS AND EXCITATION W-CON13402 (page 61)									-																	-								_	-						
Control System - Mark [™] VIe CIMPLICITY [™] ActivePoint [™] - Online Series with Simulation							-		_] L	J LJ								J]			LJ					-	-		L		J L	J L	J LJ			v	
W-CON13403 (<u>page 61</u>) Control System - Mark [™] VIe CIMPLICITY [™] Projects - Online Series with Simulation								•] [L]]																		~	
W-CON13404 (<u>page 61</u>) Control System – Mark [™] VIe CIMPLICITY [™] Advanced Viewer - Online Series with Simulation																	C]] [] [] [~	
W-CON13405 (<u>page 61</u>) Control System - Mark™ VIe Foundation – Online Series with Simulation																																								~	

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		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access Excitation
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LM3100 ZH	лл 9Н 7F 6F 6F 7E / EA 9E 6B 6B 6F5 / 3 6T26 6T26 6T26 13E 13D 11N 8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy Alstom)	PA / PC Uprate (Aero) Advanced Gas Path (AGP) Advanced Gas Path (AGP) DLN1.0 DLN1.0 DLN1.0+ DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor Fast Start DLN2.6+ Flex Combustor Flex Suite DLN2.6+ Flex Combustor Flast Start Opflex Advanced Compressor Flex Suite Advance Package XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade Start Flange to Flange Flange to Flange	Turbine Control System Generator Protection System During Course Extension After Course
AERODERIVATIVE GAS TURBINES					
W-AER10101 (<u>page 62</u>) Aeroderivative Engine - LM2500 Familiarization					
W-AER10301 (<u>page 62</u>) Aeroderivative Engine - LM6000 Familiarization					

Please select a course



									PLA	TFOR	M																	UPG	GRADE									
Course ID# & Title		erivati urbine								v Duty Irbine						Ot		/lajor ment	Equip)-									leavy ograd		ý					ntrol & tation		ulato cess
(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000 LM9000	LMS100	7H 2	9H 7E	/г 9F	6F	7E / EA	9E RD	05 Fr5 / 3	GT24	GT26	13E 12D	13D 11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler HRSG	Generator (legacy GE)	Generator (legacy Alstom)	Jprate	гап	DLN1.0+	DLN2.0	DLN2.6 DLN2.6-	DLN2.6+ Flex Combustor	t.	Opflex	Advanced Compressor	HeX Sulte	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Turbine Control System	Generator Protection System	During Course	Extension After Course
HEAVY DUTY GAS TURBINES																																						
W-GAS10703 (<u>page 63</u>) Gas Turbine Fundamentals (7F)																																						
W-GAS10906 (<u>page 63</u>) Gas Turbine Systems - Basics of Gas Turbine Combustion																																						8
W-GAS10908 (<u>page 63</u>) Gas Turbine Systems - Compressor Water Wash																																						
W-GAS10909 (<u>page 63</u>) Gas Turbine Systems - Cooling and Sealing Air																																						
W-GAS10910 (<u>page 63</u>) Gas Turbine Systems - Cooling Water																																						
W-GAS10912 (<u>page 63</u>) Gas Turbine Systems - Fire Protection, Heating and Ventilation						•				•																												
W-GAS10913 (<u>page 63</u>) Gas Turbine Systems - Fuel and Atomizing Air Systems																																						
W-GAS10915 (<u>page 63</u>) Gas Turbine Systems - Hydraulic Oil, Trip Oil, and VIGV Systems																																						
W-GAS10917 (<u>page 64</u>) Gas Turbine Systems - Lube Oil Systems																																						
W-GAS10918 (<u>page 64</u>) Gas Turbine Systems - Steam and Water Injection																																						
W-GAS10903 (<u>page 64</u>) Gas Turbine - Inlet and Exhaust																																						

Applicable to majority of fleet $|\Box$ Applicable to limited fleet $|\diamond$ Recommended course for new equipment

please contact your GE Vernova representative to discuss your particular needs.



		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access Excitation
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LMS100	TH 7H 7F 9F 6F 7E / EA 9E 6B 6B 6B 6B 6124 6T26 6T26 111 111 111 8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy Alstom)	PA / PC Uprate (Aero) Advanced Gas Path (AGP) DLN1.0 DLN1.0+ DLN2.0 DLN2.6 DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor East Start DLN2.6+ Flex Combustor Advanced Compressor Fast Start Opflex Advanced Compressor Flex Suite Advance Package Adv. Performance Package XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade Tange to Flange Renower Proiects	Turbine Control System Generator Protection System During Course Extension After Course
HEAVY DUTY GAS TURBINES - CONTINUED	CONTINUED				
W-GAS12002 (<u>page 64</u>) Gas Turbine - Generator Hydrogen Control System					



		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equip- ment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access Excitation
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LM3100	/H 9H 7F 6F 6F 7E / EA 9E 6B 6B 6F5 / 3 6T26 6T26 13E 13D 11N 8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom) Boiler HRSG Generator (legacy GE) Generator (legacy Alstom)	PA / PC Uprate (Aero) PA / PC Uprate (Aero) Advanced Gas Path (AGP) DLN1.0 DLN1.0 DLN1.0+ DLN2.6 Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor Fast Start DLN2.6+ Flex Combustor Cofflex DLN2.6+ Flex Combustor Flex Suite Advanced Compressor Flex Suite Advance Package Adv. Performance Package XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade T13E2 Efficiency Optimizer Flange to Flange Repower Proiects	Turbine Control System Generator Protection System During Course Extension After Course
STEAM TURBINES					
W-STM10703 (<u>page 65</u>) Steam Turbine Fundamentals					

Please select a course



								P	LATF	ORM																		U	PGRA	\DE									
Course ID# & Title	oderiv s Turb							Hea Gas								Oth		ajor l nent	Equip)-					Aer	odei Gas	rivati Turk	ve & bine l	Hea Upgr	vy Di ade	uty						ntrol & itatior	Ac	ulator cess
(Click on Course Title to download detailed course outline)	LM6000	LM9000	LMS100 7H	H6	7F	9F or	or 7E / EA	9E	GB	Fr5/3	GT 26 GT 26	13E	13D	11N	8C	bine (legad	steam Turpine (legacy Alstom) Roilar	HRSG	Generator (legacy GE)	Generator (legacy Alstom)	rate	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6		DLN2.6+ Flex Combustor	Fast Start Onfley	Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Droiects	Turbine Control System	or Protection		Extension After Course
GENERATORS																																							
W-ELX10901 (<u>page 66</u>) Generator & Electrical - 3-Phase Power																																							
W-ELX10902 (<u>page 66</u>) Electrical - ACDC Motors																																							
W-GEN10701 (<u>page 66</u>) Generator & Electrical - Elements of Power Delivery																																							
W-GEN10703 (<u>page 66</u>) Generator - Generator Theory																																							
W-GEN10901 (<u>page 66</u>) Generator & Electrical - Hydrogen Gas Control System																																							
W-GEN10801 (<u>page 67</u>) Generator & Electrical - Stator Winding Cooling System																																							
W-ELX11701 (<i>page 67</i>) Excitation - Circuit and MCC Basics																																							
W-ELX11702 (<i>page 67</i>) Excitation - Generator Operation and Synchronization																																							
W-GEN11401 (<u>page 67</u>) Generator - Generator Fundamentals - Design and Construction																																							
W-GEN11402 (<u>page 67</u>) Generator - Introduction to Generator Product Line																																							
W-GEN11403 (<u>page 67</u>) Generator - Generator Inspection																																							

Legend: Applicable to majority of fleet |
Applicable to limited fleet |
Recommended course for new equipment

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										PLAT	FORM																	ι	JPGR	ADE								
Course ID# & Title		oderi [.] s Turl								eavy l s Turl							Other	Majo men		uip-					Ae	erode Ga	eriva [:] Is Tur	tive (rbine	& Hea 9 Upg	avy D rade	Duty					ntrol & itation	Aco	ulator cess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LM9000	LMS100	/H 9H	ZF	9F	6F	7E / EA or	ee 6B	Fr5 / 3	GT24	GT26 13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	Boiler	HRSG Generator (leganov, GE)	Generator (legacy GE) Generator (legacy Alstom)	rate (A€	Advanced Gas Path (AGP)	DLN1.0	DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Projects	r Protec	During Course	Extension After Course
GENERATORS - CONTINUED																				_																		
W-GEN10501 (<u>page 67</u>) Generator - Shaft Sealing System																																						
W-GEN10704 (<u>page 67</u>) Generator - Generator Fundamentals - Field Design and Construction																																						
W-GEN10706 (<u>page 68</u>) Generator - Generator Fundamentals - Stator Design and Construction																			C]																		
W-ELX11502 (<u>page 68</u>) Excitation - Generator Digital Systems]			ב]									L]																		
W-ELX11001 (<u>page 68</u>) Excitation - LCI Static Starter System Fundamentals				C															L]																		
W-ELX10903 (<u>page 68</u>) Electrical - Electrical Troubleshooting																																						

CUSTOMER APPLICABILITY MATRIX Online Pro-Active Trip Avoidance Training

Please select a course

	PLATFORM														UPGRADE																												
Course ID# & Title	Aeroderivative Gas TurbinesHeavy Duty Gas Turbines											0	ther	Majo me		quip-	Aeroderivative & Heavy Duty Gas Turbine Upgrade															Cont & Excita		Simu Acc									
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	_	LM9000	LMS100		ыл 7F	9F	6F	7E / EA	9E	6B	Fr5 / 3	GT24 CT26	G1.20 1.3F	13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG	(legacy	Generator (legacy Alstom)	Jprate	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Optlex	Advanced Compressor Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
PRO-ACTIVE TRIP AVOIDANCE TRAINING (PATA	(T)		:	÷		;	-	;		-		-		-	-	:	-	2							-	-			:		-		-	-	;	1			:				,
W-GAS10928 (<u>page 69</u>) PATAT 2 - Plant Trip Reduction																																											
W-GAS10929 (<u>page 69</u>) PATAT 3 - GT Exhaust Gas Thermocouple Installation																																											
W-GEN10710 (<u>page 69</u>) PATAT 4 - Generator Brush Inspection & Maintenance				C] []]]																										
W-GAS10930 (<u>page 69</u>) PATAT 5 - High Exhaust Temperature Spread																																											
W-GAS10931 (<u>page 69</u>) PATAT 6 - Lean Blowout								•																																			
W-BOI10401 (<u>page 70</u>) PATAT 7 - HRSG Operation and Maintenance																																		_									
W-BOI10402 (<u>page 70</u>) PATAT 8 - Drum Level 1: Overview - Introduction																																											
W-BOI10403 (<u>page 70</u>) PATAT 9 - Drum Level 2: Level Controls - Control Systems																																											
W-BOI10404 (<u>page 70</u>) PATAT 10 - Drum Level 3: Condensate and Feedwater Pump Systems																																											
W-BOI10405 (<u>page 70</u>) PATAT 11 - Drum Level 4: Bypass Systems																																											
W-GAS10932 (<u>page 71</u>) PATAT 12 - Bearing Lube Oil & Hydraulics																																											

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CUSTOMER APPLICABILITY MATRIX Online Pro-Active Trip Avoidance Training

Please select a course

		PLATFORM														UPGRADE																										
Course ID# & Title		Aeroderivative Gas Turbines								Heavy Duty Gas Turbines									Other Major Equip- ment						Aeroderivative & Heavy Duty Gas Turbine Upgrade														Control & Excitation		Simulator Access	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	_	LM9000	LMS100	7H ou	ып 7F	9F	6F	7E / EA	9E	6B	Fr5/3	G124 Стое	01.20 13E	13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG Generator (legacy GF)	Generator (legacy Alstom)	rate (Ae	ed Gas	DLN1.0	DLN1.0+		DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Advanced Compressor	Hex Sulle H2 Fijel Rlanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	ts I	Turbine Control System	Generator Protection System	During Course	Extension After Course
PRO-ACTIVE TRIP AVOIDANCE TRAINING (PATA	PRO-ACTIVE TRIP AVOIDANCE TRAINING (PATAT) - CONTINUED																																									
W-GAS10933 (<u>page 71</u>) PATAT 13 - Compressor Bleed Valve System																																										
W-STM10705 (<u>page 71</u>) PATAT 14 - Steam Turbine Startup and Shutdown Procedures																																										
W-GAS10934 (<u>page 71</u>) PATAT 15 - Winterization								•																																		
W-GAS10935 (<u>page 71</u>) PATAT 16 - Troubleshooting Liquid Fuel System Problems																																										
W-GAS10936 (<u>page 72</u>) PATAT 17 - Troubleshooting Gaseous Fuel System Problems																																										

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