

GE VERNOVA

GAS POWER

CUSTOMER TRAINING *

Flexible training solutions to meet your total plant needs



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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 of employees, our 25-plus self-paced English language courses let you train your personnel anytime, anywhere, and at their own pace. Each course ranges in duration from one to several hours, and can be started and stopped at the student's discretion.

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.

GE Vernova offers a variety of training simulator solutions to help meet your needs—whether you require an onsite simulator tailored to your equipment or remote access to a technologyspecific simulator.

These simulators are effective, convenient, and comprehensive, while posing no operational risk to GE Vernova's OEM equipment.



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...

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SITE SPECIFIC AT CUSTOMER SITE⁺ OR GAS POWER SERVICES LEARNING

OPEN ENROLLMENT AT LEARNING CENTER AND INSTRUCTOR LED DISTANCE LEARNING





SELF-PACED LEARNING

WEB BASED TRAINING WITH SIMULATIONS

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ONLINE - TECHNOLOGY COURSES

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ONLINE - PRO-ACTIVE TRIP AVOIDANCE TRAINING

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

Course ID# & Title		Pla	nt P	erso	nnel			elive lethc					
(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-CCP10201 Combined Cycle - Power Plant Familiarization	_ ✓	√	✓	✓	<u> </u>	-			0)	5	20	*	 Introduces participants to a typical combined cycle power plant through a blended lear Familiarize with architecture and construction of major components e.g. gas turbine, si Describes the operation and the maintenance considerations of a combine cycle plant Basic knowledge on Mechanical and Electrical theories/equipment
E-CCP10203 Combined Cycle - Operation (GE Integrated Systems)∻		~	~				~		~	5	12	*	 Familiarize with theory and fundamentals of combined cycle power plant as a foundati Maintenance Courses. Includes introduction to thermodynamics, basics of major components (GT, ST, HRSG 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 system. Provides the information necessary to safely operate their specific combined cycle power lncludes prestart system walk-downs, detail startup of the plant, monitoring equipment 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 various manufation includes practical exercises on fittings, and requirements for cleanliness of fittings. 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
E-GRL10503 General - Bearing Inspection		~		✓			~	✓		4	12	СН	 Covers the bearing casings: function, structure, quality. Addresses pocket bearings, insulated pocket bearings: function, structure, installation resistance, quality documents. Describes the combined axial- and radial bearings: function, structure, installation and 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

arning solution of classroom lectures, videos, and factory and plant tours (WHEN AVAILABLE). steam turbine, HRSG, generator and balance of plant equipment. nt.

ation for the Gas Turbine (GT), Steam Turbine (ST) and Combined Cycle Operations and

G, Generator), processes & systems, Combined Cycle controls and operation overview

ower plant for peak availability and reliability. Int during normal operation, actions during contingent operations, and shutdown and safety

ufacturers.

n and removal, checks and measurements on the bearing, measurement of insulation

nd removal, quality documents.



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E-GRL10504 General - Leveling Work		~		~			~	~		2	12	СН	 Introduces the use of the levelling instrument, apply functional check of the levelling in Covers the use of the levelling tool for new erection and revisions, measure, check and 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, shear bush co Includes how to perform coupling measurements: shaft alignment measurements, test 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 turbine parts t Gives an insight on the condition of turbine parts, what needs to be checked during an Executes hands-on training on tightening the various bolts correctly. Mechanical background. Familiar with the erection of power plants.
E-CCP20601 Combined Cycle - Simulator based Process Training		~	~			✓	~			5	6	*	 Introduces the basics about the HMI and working environment using simulator equipm Includes refresher on GT/ST/HRSG/WSC systems. Emphasizes Closed Loop Control of the HRSG/WSC and teaches operation and contr Performs Combined Cycle Power Plant start-up given the plant's different conditions, or and Key Performance Indicators and includes Combined Cycle Power Plant shutdown Teaches students how to handle various plant transient conditions like loss of feedwate 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 have the plant

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 \diamond Recommended course for new equipment

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

coupling, expansion sleeve coupling. sting and checking of: coupling nuts, friction parts, coupling flanges and teaches safety

s taking various measurements before, during and after an overhaul. an overhaul.

ment.

ntrol concept of the Combined Cycle Power Plant.

, covers CC Load Controller and AGC controller, covers Combined Cycle Power Plant efficiency vn options and the shutdown procedure.

rater, loss of condensate system, operation with one main cooling water.



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Course ID# & Title		Plai	nt Pe	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				Maintenance	itenance	n & Controls			Ľ	ays	Students	nS⁺	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Ma	Electrical Maint	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	0 # U	Location Options	• Prerequisites
E-BOP10202 Balance of Plant- Operation (GE Integrated Systems)∻		~	~				~		~	5	12	*	 Designed for installations in which General Electric has engineered the site Balance of Provides the information necessary to safely operate their specific balance of plant sys Includes BOP systems design principles, operating principles, startup, and normal and
													 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 have the provident of the statement of the

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 \diamond Recommended course for new equipment

of Plant. systems at peak availability and reliability. nd shut-down operations.



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(Click on Course Title to download detailed course outline)				aintenance	tenance	n & Controls			c	ys	Students	ns⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Options	• Prerequisites
E-CON23401 Control System - Mark VIe (Aero) Operation, Maintenance & Troubleshooting ∻		~	~		~	~	~	~	~	5	12	*	 Introduces routine preventative maintenance procedures of the gas turbine support system and reliability. Covers functional sensor and actuator description, troubleshooting, and a summary of maintenance. Operating and maintenance personnel should attend this course together to develop a 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 systems and o availability, and reliability Covers functional sensor and actuator description, troubleshooting, and a summary of maintenance. Operating and maintenance personnel should attend this course together to develop a operation may affect these requirements. 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 \diamond		~	~		~	~	~	~		5	12	*	 Introduces plant maintenance personnel to the Woodward MicroNet[™] and MicroNet P. Designed for platforms that have CPUs with an Ethernet port(s) and do not have a 2-lir cards to field termination modules. Provides training on Graphical Application Programmer (GAP) software navigation, Wo alarms. Overview of control actuator and other I/O calibration procedures will be discussed, ad Basic understanding of gas turbine equipment and its operation Familiarity with control system basics Reasonable computer skills
E-CON13603 Control System - RX3i Operation, Maintenance & Troubleshooting ∻		~	~		~	~	~	~		5	12	*	 Introduces plant maintenance personnel to the RX3i turbine control systems and operal Includes the hardware layout of typical systems; from chassis to I/O cards to field term Covers Proficy Machine Edition (PME) software tools to navigate through the ladder lo Basic understanding of gas turbine equipment and its operation Familiarity with control system basics Reasonable computer skills

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♦ Recommended course for new equipment

systems and of the major electrical and control system required to attain high levels of availability of calibration and inspections required for Gas Turbine package electrical and control system o a working relationship regarding the maintenance requirements of the unit, and how unit

I of the major electrical and control system maintenance required to attain high levels of of calibration and inspections required for Gas Turbine package electrical and control system a working relationship regarding the maintenance requirements of the unit, and how unit

Plus[™] turbine control systems. -line display, course content includes the hardware layout of typical systems; from chassis to I/O Noodward software tools will be used to evaluate fuel control, sequence logic, and turbine-based additional class work includes general information on the operator interface (HMI)

erator interface (HMI screens) mination modules. logic, sequence logic, and turbine-based alarms



★ = Customer Site | ◆ = Any Gas Power Learning Center Gas Power Learning Center Locations: CH = Birr | KW = Safat | US = Houston

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(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			ц	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
E-CON23601 Control System - Aero DLE Familiarization & Mapping Overview		~	~							3	12	*	 This course offers an insight into the design philosophy and software of the DLE control. Provides an overview of the "mapping" of the gas turbine control schedules, cause and Includes a "lessons learned" section and practice solving actual field problems. This course is a familiarization only and is not intended to teach mapping procedures for Basic understanding of gas turbine equipment and its operation Familiarity with control systems Reasonable computer skills

♦ Recommended course for new equipment

trol system. and effect information, interpretation of alarm data and troubleshooting of alarms.

s for aeroderivative DLE gas turbines.



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Course ID# & Title		Pla	nt P	erso	nnel			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
E-CON10501 Control System - AC800M with IIT800xA	Le.	 ✓ Su 	dO	Me	▲ Ele	✓	CE	→	Sit	nD 5	6	► Fo	 Provides an overview on control system architecture and functional description of com Covers structures of the IIT800xA engineering workplace, gives an overview of the cor 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 syst Includes practical exercises on real life experiences, group works and interactive works Fundamental skills regarding combined cycle power plants and considerable instrumer
E-CON10201 Control System - ADVANT with IIT800xA		~			~	~	~	~		5	6	*	 Provides an overview on control system architecture and functional description of complexity covers structures of the IIT800xA engineering workplace, gives an overview of the corplexity 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 syst Includes practical exercises on real life experiences, group works and interactive works Basic knowledge of power plant equipment and systems Have attended an ADVANT course or possesses experience with ADVANT and IIT800x
E-CON10202 Control System - ADVANT with OS520		~			~	~	~	~		5	6	*	 Provides an overview on control system architecture and functional description of com Covers configuration of ADVANT controllers using the engineering tool, Application Bui 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 proces 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
E-CON11401 Control System - DLN 1.0 Standard Combustor	✓	~	✓			~	~	~		2	12	*	 Technical background (Instrumentation and Control) Familiarizes with the hardware and system changes included with upgrading to a DLN Includes, operational changes of the gas turbine and review of gas fuel valve calibratio Enhances learning experience by application of a generic cloud-based Simulator approx Familiarity with operation of heavy-duty gas turbine
E-CON11402 Control System - DLN 1.0+ Standard Combustor	✓	✓	✓			✓	~	~		2	12	*	 Familiarizes the students with the hardware and system changes included with upgrad Includes, operational changes with the upgrade and turbine operation, gas fuel valve c Familiarity with operation of heavy-duty gas turbine

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♦ Recommended course for new equipment

mponents on figuration of the IIT800xA system

/stem

rkshops

entation & control experience with AC800M and IIT800xA systems

mponents configuration of the IIT800xA system

/stem rkshops

0xA systems

omponents Builder, Function Chart Builder, Online Builder Commands, applies communication protocols

es ess

N 1.0 combustion system tion propriate for this course

ading the current fuel gas system to a DLN 1.0+ combustion system e calibration will be reviewed



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			LN	Days	f Students	ons⁺	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-CON11901 Control System - DLN 2.6+ Standard Combustor	~	~	✓			~	~	~		2	12	*	 Familiarizes the participants with the hardware and system changes associated with u Includes, operational changes due to upgrade including turbine start up, loading and s Enhances learning experience by application of a generic cloud-based Simulator, appr Familiarity with operation of heavy-duty gas turbine
E-CON11902 Control System - DLN 2.6+ Flex Combustor	~	~	~			~	~	~		1	12	*	 Familiarizes the participants with the hardware and system changes associated with u Includes, operational changes due to upgrade including turbine start up, loading and s Enhances learning experience by application of a generic cloud-based Simulator, appr
													 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 do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content is a specificant to the course content is a specificant to the course content to
E-CON10404 Control System - ALSPA Control System Fundamentals		~	~		~	~	~	~		5	6	СН	 This course familiarizes participants with the architecture of ALSPA control system and monitor the plant process. This course provides an overview of the ALSPA control syste. This course will also enable the participant to do basic application programming and base ALSPA Maintenance Server. This will also enable participants to read and understands. At the end of the course there will a site visit, where a brief demonstration of the comp. 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 ALSPA CON This course will enable them to set up ALSPA HMI for first time use. They will learn how disturbing plant operation. They will learn about MFC3000 firmware. At the end of the course there will a site visit, where a brief demonstration of the comp 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 Fundame

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♦ Recommended course for new equipment

upgrading to a DLN 2.6+ combustion system I shutdown. Review the calibration process of gas fuel valves propriate for this course

upgrading to a DLN 2.6+ combustion system I shutdown. Review the calibration process of gas fuel valves propriate for this course

e prerequisite listed above.

nd components & supervisory functions of ALSPA HMI, which enables them to control and stem hardware and CONTROCAD engineering tool.

basic HMI modification and, do basic diagnostic of ALSPA control system using various tools e.g. ds basic project documentations.

ponents/topics discussed in the classroom will be provided.

NTROCAD engineering tool and, provides an overview of ALSPA HMI configuration. Now to perform online forcing and setting update to make small modification in logic, without

ponents/topics discussed in the classroom will be provided.

nentals



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho	-				
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls			Ę	ys	Students	ns⁺	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Options⁺	• Prerequisites
E-CON30401 Control System - ALSPA Control System Advanced						~	~	~		5	6	СН	 This course familiarizes participants with redundant operation of MFC3000 controllers. CONTROCAD tools. Acronis backup image procedure will also be discussed. They will learn how to do online modification in application code of a running MFC3000 will learn about MFC3000 firmware. Participants will learn basic concept of Profibus. Profibus system configuration and Prof. 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 the comp Fundamental skills regarding control systems Able to read technical documents Attended the course: E-CON20406 Control System – ALSPA Control System Intermed
E-CON13302 Control System - Mark VI Maintenance (HMI on 1st Day)	~	~	~			~	~	~		5	12	*	 Familiarizes participants with the hardware and software components, provides detaile equipment Instruction for the operator interface is covered on the first day and the remaining four Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simulator, throu intermediate skills including alarm and system troubleshooting Basic knowledge and experience of Control System
E-CON23301 Control System - Mark VI Troubleshooting (Advanced)		~				~	~	~		5	12	*	 Understanding of basic Windows file structure Designed to test and sharpen troubleshooting and operations skills for the purpose of Gain the fundamental skills of a competent Control Room Operator and those skills of Exposure to diverse operating conditions with extensive practical training during hands Fundamental operational and controls skills, are recommended Attended Mark™VI Control System –Advanced level course, or possess equivalent kn
E-CON13306 Control System - Mark VI to Mark VIe Platform Upgrade Maintenance		~		-		~	~	✓		5	12	*	 Attended Mark Wir Control System – Advanced level course, or possess equivalent kinds 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 fulfill the p Intended for personnel whose site has a Mark VIe control migration from Mark VI cont Familiarizes with the hardware and software components, provides detailed knowledg Includes training material derived from actual Mark VIe control migration from Mark VI Enhances learning experience by application of a generic cloud-based Simulator, thro intermediate skills including alarm and system troubleshooting
											6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		GE Mark VI Control system knowledge and experience Basic computer skill

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♦ Recommended course for new equipment

s. Participants will learn about installation of new MFC3000 controller, ASLPA HMI and

00 controller. Limitation of online modification and its consequences will also be discussed. They

Profibus advanced troubleshooting using ProfiTrace tool will also be discussed.

ponents/topics discussed in the classroom will be provided.

ediate

iled knowledge to maintain and troubleshoot the Mark VI control system and associated

ur days focus on the maintenance of the control system

ough progressively challenging labs assisting the participants to learn the basics and build up to

of trip reduction and recovery, maintaining optimum performance and availability.

of an experienced Mark VI TA.

ds-on sessions on a cloud-based technology-specific Simulator

knowledge, including experience with Toolbox software

e prerequisite listed above.

ntrol system

lge to troubleshoot and maintain the control system and associated equipment

VI control installed systems

rough progressively challenging labs assisting the participants to learn the basics and build up to



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(Click on Course Title to download detailed course outline)				aintenance	tenance	n & Controls			Ę	ys	Students	nS⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Options ⁴	• Prerequisites
E-CON13401 Control System - Mark VIe Maintenance (Extended)∻		~				~	~	~		10	12	*	 Familiarizes participants with the hardware and software components, provides detailed equipment Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simulator for Ma basics and build up to intermediate skills including alarm and system troubleshooting, h Several labs contain optional exercises where participants are given the opportunity to Basic knowledge and experience of Control System Understanding of basic Windows file structure
E-CON13402 Control System - Mark VIe Maintenance		~				~	~			5	12	*	 Familiarizes with the hardware and software components, provides detailed knowledge Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simulator for Ma basics and build up to intermediate skills for alarm troubleshooting 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 knowledge Instruction for the operator interface is covered on the first day and the remaining four Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simulator for M basics and build up to intermediate skills including alarm and system troubleshooting 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 detailed kr Includes training material derived from actual Mark VIe installed systems Enhances learning experience by application of a generic cloud-based Simulator for Ma basics and build up to intermediate skills including alarm and system troubleshooting, h 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 Mark V control Familiarizes with the hardware and software components, provides detailed knowledge Includes training material derived from actual Mark VIe control migration from Mark V or Enhances learning experience by application of a generic cloud-based Simulator, througintermediate skills including alarm and system troubleshooting Basic knowledge and experience of Mark V Controls System Reasonable computer skills

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♦ Recommended course for new equipment

iled knowledge to maintain and troubleshoot the Mark VIe control system and associated

Mark VIe hardware, through progressively challenging labs assisting the participants to learn the , hardware replacement and software modifications to examine their own software in relation to the learning objective

ge to maintain and troubleshoot the Mark VIe control system and associated equipment

Mark VIe hardware, through progressively challenging labs assisting the participants to learn the

lge to maintain and troubleshoot the Mark VIe control system and associated equipment ur days focus on the maintenance of the control system

Mark VIe hardware, through progressively challenging labs assisting the participants to learn the

knowledge to troubleshoot and maintain the Mark VIe control system and associated equipment

Mark VIe hardware, through progressively challenging labs assisting the participants to learn the , hardware replacement, and software modifications

trol system

- ge to troubleshoot and maintain the control system and associated equipment
- control installed systems
- ough progressively challenging labs assisting the participants to learn the basics and build up to



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Course ID# & Title		Pla	nt P	erso	nnel			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
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 Simulator, throubuild 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 purpose of t Will gain the fundamental skills of a competent Control Room Operator and an experie Learn to follow an alarm through using the ToolboxST[™] software to identify the field de Enhances learning experience by application of a generic cloud-based Simulator, givin Note: This course is instructed with a generic Gas Turbine HMI and 7FA control simulatio Fundamental operational and controls skills are recommended Attended Mark[™] VIe Control System Maintenance course, or possesses equivalent kr Moderate hands-on field experience with Mark[™] VIe Control Reasonable computer skills
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 Control System customers responsibility for the maintenance of the control system compone. Conducted based on a typical Mark VIe Distributed Control System installation, custom Have attended a GE Delivered Mark™ VIe Control training course, or possess equivale. 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 fulfill the provided the statement of the statement.
E-CON13412 Control System - Mark VIe Distributed Control System Operation		~	~			~	~	~	~	5	12	*	 Intended for customers using the GE Mark VIe Control System as their Distributed Control Covers the responsibility of the plant operation using GE components as well as field in Enhances learning experience by application of a generic cloud-based DCS Simulator, up to intermediate operation skills. Integration of site-specific material is based on avail Familiar with an HMI-based Operator Interface
											- - - - - - - - - - - - - - - - - - -		 Hands-on field experience with Outside Operation Duties is highly recommended Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the p

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

♦ Recommended course for new equipment

ough progressively challenging labs assisting the participants to learn the basic operation and

f trip reduction and recovery, maintaining optimum performance and availability ienced Mark VIe Control TA including efficient resolution of alarms device that caused the alarm and much more ving exposure to diverse operating conditions tion.

knowledge, including experience with ToolboxST™ software

Control System onents as well as field instrumentation and communication networks omer specific material is subject to availability at time of training and is not guaranteed alent knowledge of Mark[™] VIe Control

prerequisites listed above.

ontrol System

I instrumentation and communication networks

or, through progressively challenging labs assisting the participants to learn the basics and build ailability at time of training and is not guaranteed



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho	-				
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls			Ę	Days	Students	ns⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options ⁴	• Prerequisites
E-CON23405 Control System - OpFlex Enhanced Transient Stability Operation		~	~			~	~	~		1	12	*	 Designed to provide the skills required to start-up and operate units installed or upgrade Designed to test and sharpen troubleshooting and operational skills for the purpose of Will gain knowledge of the advanced controls terminologies, concepts and practices and Enhances learning experience by application of a generic cloud-based Simulator (ETS) Fundamental operational skills Mark™ VI or VIe Control System experience or possesses equivalent knowledge Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the provident of the start of the star
E-CON23406 ControlSystem- OpFlex Enhanced Transient Stability with AutoTune DX & Cold Day Performance Operation		~	~			~	~	~	9 	1	12	*	 Designed to provide the skills required to start-up and operate units installed or upgrade Performance technology Designed to test and sharpen troubleshooting and operational skills for the purpose of Will gain knowledge of the advanced controls terminologies, concepts and practices at Enhances learning experience by application of a generic cloud-based Simulator (ETS Fundamental operational skills Mark™ VI or VIe Control System experience or possesses equivalent knowledge Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the procession.
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 or upgrade Designed to test and sharpen troubleshooting and operational skills for the purpose of tr Will gain knowledge of the advanced controls terminologies, concepts and practices and Enhances learning experience by application of a generic cloud-based Simulator (ETS of Fundamental operational skills Mark™ VI or VIe Control System experience or possesses equivalent knowledge Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the processing of the start of the star
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 or upgrade Designed to test and sharpen troubleshooting and operational skills for the purpose of tr Will gain knowledge of the advanced controls terminologies, concepts and practices and Enhances learning experience by application of a generic cloud-based Simulator (ETS of Fundamental operational skills Mark[™] VI or VIe Control System experience or possesses equivalent knowledge Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the processing of the start of the st

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

♦ Recommended course for new equipment

aded with advanced OpFlex Enhanced Transient Stability (ETS) technology of trip reduction and recovery, maintaining optimum performance and availability and the skills required to perform tuning, identify and respond to sensor faults S only), appropriate for the course content

prerequisites listed above. aded with advanced OpFlex Enhanced Transient Stability with AutoTune DX & Cold Day

of trip reduction and recovery, maintaining optimum performance and availability and the skills required to perform tuning, identify and respond to sensor faults S only), appropriate for the course content

prerequisites listed above.

ded with advanced OpFlex Enhanced Transient Stability with Autotune DX technology trip reduction and recovery, maintaining optimum performance and availability nd the skills required to perform tuning, identify and respond to sensor faults S only), appropriate for the course content

e prerequisites listed above.

led with advanced OpFlex Enhanced Transient Stability with Autotune LT technology trip reduction and recovery, maintaining optimum performance and availability nd the skills required to perform tuning, identify and respond to sensor faults only), appropriate for the course content



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Course ID# & Title		Pla	nt P	erso	nnel			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
E-CON23409 Control System - OpFlex Enhanced Transient Stability with AutoTune MX & Variable Load Path Operation		✓	d 0 ✓	Me	E	Ins	CE	► Ha	Sit		12	* *	 Designed to provide the skills required to start-up and operate units installed or upgrade technology Designed to test and sharpen troubleshooting and operational skills for the purpose of tr Will gain knowledge of the advanced controls terminologies, concepts and practices and Enhances learning experience by application of a generic cloud-based Simulator (ETS of Fundamental operational skills Mark™ VI or VIe Control System experience or possesses equivalent knowledge Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the procession.
E-CON10801 Control System - ActivePoint™ HMI Operation Familiarization	~	~	~			~	~	~		3	12	*	 Familiarizes with ActivePoint[™] HMI to improve usability, accessibility, and ease of use of t Learn the advanced features and intuitive visual coding, contextual data and the ability to Develops skills to manage the enhanced Alarm System, which provides features such as; Enhances learning experience by application of a generic cloud-based Simulator, guiding Definition in Logic. ActivePoint[™] Alarm Filtering and Viewing enhances usability, and prov Power plant operations experience or training Computer literacy Note: Participants will have difficulty to follow this course content if they do not fulfill the provides and the provide
E-CON33402 Control System - Proficy CIMPLICITY™ for Turbine Controls (Advanced)		~	~			~	~	~		5	12	*	 Focuses on the development, maintenance and troubleshooting of a CIMPLICITY™ pr Offered as the final course in the progressive series on Mark Controls Will develop the skills necessary to import points into the project point database, create Enhances learning experience by application of a generic cloud-based Simulator, appr Advanced knowledge or experience with control system of GE Industrial equipment Practical to high level of computer literacy including Windows OS fundamentals Note: Participants will have difficulty to follow this course content if they do not fulfill the prosterior.
E-CON13414 Control System - Mark VIe Foundation Fieldbus		~	~			~	~	~		2	4	*	 Designed to familiarize with the Foundation Fieldbus technology using with the Mark V Learn how FFB devices are field wired with a Mark VIe control panel and how the devi Be introduced to hardware configurations, linking hardware to software, and basic trouwithin ToolboxST™ Participants will have the opportunity to work on the FFB training hardware to enhance Fundamental operational and control skills Attended Mark™ VIe Control System Maintenance course, or possesses equivalent kr Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the participants will have difficulty to follow this course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if they do not fulfill the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have difficulty to follow the course content if the participants will have the pa

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

♦ Recommended course for new equipment

led with advanced OpFlex Enhanced Transient Stability with AutoTune MX & Variable Load Path

trip reduction and recovery, maintaining optimum performance and availability nd the skills required to perform tuning, identify and respond to sensor faults only), appropriate for the course content

prerequisites listed above.

f the control system

o determine the root cause of a critical event 'at a glance'

s; Go to Display Screen, Alarm Help and Go to Definition in Logic etc.

g the participants through scenarios related to each topic.Display Screen, Alarm Help and Go to ovides the user with a better understanding of the alarms

prerequisites listed above.

project, as applied to GE Control System for Gas and Steam Turbines

ate new or modify existing screens and graphics propriate for the course content

prerequisites listed above.

Vie control system vices communicate their data to application code within ToolboxST™ publeshooting from within ToolboxST™. Virtual HMI's will be used to navigate FFB configurations

ce their learning experience

knowledge, including experience with ToolboxST™ and ControlST software



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls			L,	ys	Students	'nS⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of	Location Options⁺	• Prerequisites
E-CON13701 Control System - Control Server and Thin Client Familiarization	✓	~	✓			~	~			2	6	*	 This training course will explain the structure and use of the Control Server system It will provide explanation of the virtual environment and the physical hardware used to Control system experience Computer literacy
E-ELX10902 Electrical - Electrical Control System (ECS) Training		✓	~		~	~	~			3	12	*	 Course covers the Electrical Control System (ECS) functionality, and is designed to enl This course utilizes site specific drawings and software 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 is designe troubleshooting. This course utilizes site specific drawings and software. The participants will conduct he 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

to host the vHMIs

enhance participant competence in ECS's functionality and troubleshooting

ned to enhance participant competence in IED's protection & Control functionality and

t hands-on lab work using the applicable software.



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				Mechanical Maintenance	aintenance	ion & Controls			nwc	Days	of Students	Options⁺	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mechanical I	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # (Location Opt	
E-CCP20604 Combined Cycle - Simulator based Steam Cycle Operation		~	~				~	~		5	6	*	 Introduces the basics about the HMI and working environment using simulator equipme Overview of steam turbine systems, operation and control concept of the steam turbine Discusses starting and operating instructions for the steam turbine, startup prerequisite Combined Cycle Power Plant startup and shutdown procedures Have fundamental skills regarding combined cycle power plants and considerable field
E-CCP20605 Combined Cycle - Simulator Based Steam Turbine Operation		~	✓				~			2	6	*	 Introduces the basics about the HMI and working environment using simulator equipme Reviews preparation steps for Steam turbine startup and steam quality requirement for operation Covers the startup of the steam turbine using the automatic controller, handling the Cor alarms, events and trend displays to analyze the process Includes Operator actions under transient conditions (ST operation concept during GT Fundamental skills regarding control systems

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

♦ Recommended course for new equipment

ment

ine and steam bypass system, limiters for the steam turbine, thermal stress evaluation sites, fixed pressure and sliding pressure concept, online testing capabilities of the ST and

eld experience

ment

for the startup, understanding of concept of GT hold points in context with the steam turbine

Combined Cycle Power Plant load conditions, observing the key plant parameters, using the

T fuel switch over etc.)



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Course ID# & Title		Pla	nt P	erso	nnel			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
E-ELX10301 Excitation - EX2100e Maintenance		~			~	~	~	~	~	4	12	*	 Designed to enhance the skills of maintenance and operations personnel to operate, r Includes classroom theory, exercises, and site visits to enhance learning experience Uses a EX2100e simulator for "hands-on" training along with Site-Specific software an 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, and troubles This training utilizes a classroom simulator to provide attendees the ability to safely op Training consists of classroom theory, classroom exercises, and a site walk down. Participants will perform classroom hands-on lab exercises using an EX2100e simulate Reasonable computer skills
E-ELX10303 Excitation - EX2100e Generator Operation		~	~		~	~	~	~	~	1	12	*	 Focuses on generator fundamentals and safe operation through the application of "har Focus on excitation theory, control hardware and software and utilization of operator in Familiarizes with Exciter faults and alarm messages, limiter values. Site-specific software Prior generator operation experience and knowledge of excitation systems is recommended Reasonable computer skills
E-ELX10304 Excitation - EX2100e Platform Upgrade Maintenance		~			~	~	✓	~	✓	1	12	*	 Designed for turbine-generator maintenance personnel whose site has migrated to an Focuses on excitation hardware, software, and GE supplied documentation to help pa Conducted with lectures and demonstrations using an EX2100e simulator and Toolbox 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 configura Conducted with a classroom simulator to provide attendees the ability to safely operator Reasonable computer skills
E-ELX11501 Excitation - Generator Excitation, Protection and Static Starter Introduction \diamond		~	~		~	~	~		~	5	12	*	 Designed to support safe operation of the generator and develop competence in maint Utilize site specific drawings and system settings Includes hands-on practice on the excitation training module Reasonable computer skills Knowledge of excitation and static start operation

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

♦ Recommended course for new equipment

, maintain, and troubleshoot an EX2100e Exciter or Regulator system

and documentation

eshooting an EX2100e static exciter or regulator system. operate and maintain the generator excitation system.

ator for classroom training.

ands-on" training with a simulator

interfaces

ware will be used for discussion, if available

nended

in EX2100e generator excitation control system participants diagnose faults and efficient troubleshooting oxST™ interface

ration, operation, maintenance, and troubleshooting, as well as the IGPS. ate and maintain the generator excitation and protection system.

ntenance and troubleshooting skills



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			Ľ	Days	of Students	Options⁺	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # o	Location Opti	• 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, limit control Includes synchronous turbo generator (design and function, characteristics, steady-state operating limits, protection) Includes converters and its subsystems (power parts, auxiliaries, control, monitoring, a records), how to use the software tools for the common control equipment, cross-start Basic knowledge of power plant and its control system is recommended Have attended Electrical Operation & Maintenance course for legacy Alstom Generator Technical background – Electrical Note: Participants will have difficulty to follow this course content if they do not fulfill the process.
E-ELX10901 Electrical - Operation & Maintenance (GE Integrated Systems)∻		~	~		~	~	~		~	5	12	*	 Covers Single Line Diagram and overview of electrical main components, Electrical Op Overview of generator monitoring and maintenance, MV and LV Switchgear design, fu Discussion on Generator Circuit Breaker and Transformer: Function and design operate Discussion on UPS-System, Batteries, stand-by DG set: Function and design, operation Review of Fault tracing in electrical and electronic systems, interfaces to Distributed Co 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		✓			~	~	~	~	~	4	6	*	 Overview of electrical safety rules and measures Includes protection functions: Basic theory and applications Includes numerical generator protection system: System layout, hardware components Includes documentation: Protection, measuring and metering single line diagrams, trip manual Includes user interface program S1: Configuration and parameterization of the system Includes monitoring functions: Event and data recording, display of measured quantitie Includes functional checks and maintenance: Test functions, checklists, error handling, interfaces to Distributed Control System Basic knowledge of power plant equipment and systems Technical background or relevant experience (Electrical) Ability to read technical documents
E-ELX30501 Excitation - LS2100e LCI for Turbine Static Start	~				~	~	~	~	~	2	12	*	 Ability to read technical documents Designed for operations and maintenance personnel: configuration, maintenance and Includes hardware identification, Control System ToolboxST™ communications, UCSE Utilizes simulators, and walk down (if available) of the site LCI™ starter to enhance leater the technical (Electrical) experience/education Reasonable computer skills

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

 \diamond Recommended course for new equipment

rollers, superimposed controllers, reference signal sources) state and transient behavior, dynamic response of the excitation system on sudden variations,

, and protection), front panel handling (set points, actual values, fault messages, events and rt manipulations (if applicable), O&M handbook, hardware diagrams

tor control system or possesses equivalent knowledge or relevant experience

prerequisites listed above

Operation Concept, operation ranges and capabilities and safety measures function, operation, control modes and safety features rating modes, monitoring, checks and inspections tion, control, protection, routine maintenance, safe working practices Control System

nts, software and firmware, signal data flow ipping logic diagram, schematic diagrams, setting lists, training manual, operation & maintenance

m

ties, recording of disturbances

g, diagnostics, service information, and technical support, Fault-tracing in electrical systems,

d troubleshooting of the LCI™ static starter SB programming, Alarm Viewer configuration and diagnostic testing learning experience



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Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				aintenance	Itenance	n & Controls			Ľ	ys	Students	nS⁺	• Executive Summary
	Leadership	Supervisors	Operations	Σ	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	#	Location Options ⁴	• Prerequisites
E-ELX30202 Protection - REG216 Protection System Maintenance		~			~	~	~	~		4	6	СН	 This course explains the systems basic configuration and its main features. Includes, system software and hardware concepts, explainsthe purpose of the various different protection functions and to change their settings (limit values, response times). Also, Troubleshoot the system, carry out periodic functional checks, regular maintenan. Have experience in electrical operation and maintenance of GE power plants. Be able to interpret technical documents: Single Line Diagrams (SLD) and drawings. 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

us protection functions and state respective standard settings, configure and parameterize the es), using the user interface program CAP216, interpret signals and messages of the system. ance and state electrical safety rules for working on the equipment.



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Course ID# & Title		Pla	nt P	erso	nnel			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
E-AER10101	Lea	sup Sup	ope ∧	✓	∠ Ele	Inst	 ✓ 	Har	< Site	-	Way May 12	× Loc	 Introduces the basic skills and knowledge required to ensure proper operation of the L
Gas Turbine - LM2500 Aero Package Operation/Familiarization∻												•	 Focuses on operator responsibilities such as startup, loading and monitoring during op 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 operation of the L Focuses on operator responsibilities such as startup, loading and monitoring during op None
E-AER10102 Gas Turbine - LM2500+ Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventative mainten Covers basic troubleshooting, and a summary of the inspections required for minor Ga Operation and maintenance personnel should attend together to develop a working re Also includes detail Level 1 maintenance work packages and familiarization of the O& Does not include repair procedures for Gas Turbine components Attend Aero Package Operation/Familiarization Course or having equivalent knowledg 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 preventative maintenate. Covers basic troubleshooting, and a summary of the inspections required for minor Ga Operation and maintenance personnel should attend together to develop a working rel Also includes detail Level 1 maintenance work packages and familiarization of the O&I Does not include repair procedures for Gas Turbine components Attend Aero Package Operation/Familiarization Course or having equivalent knowledg 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
E-AER10104 Gas Turbine - LM2500 Level 1 Maintenance		✓		✓			~	~		5	8	KW US	 Provides the skills necessary to perform Level 1 Maintenance on the LM2500 Gas Tur Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM2500 training engine, enhancing the practical exp 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 procession.

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

♦ Recommended course for new equipment

LM2500 gas turbine and their associated systems operation and interpretation of fault annunciation for suitable remedy

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

nance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance elationship regarding the maintenance requirements &M Manual

ge

nance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance relationship regarding the maintenance requirements &M Manual

ge

urbine t of external components xperience of the participants



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Course ID# & Title		Pla	nt Po	erso	nnel			elive lethc					
(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-AER10105 Gas Turbine - LM2500 Level 2 Cold Maintenance		~		~			~	✓		5	8	KW US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LM2500 Gas Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM2500 training engine, enhancing the practical expe 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 p
E-AER10106 Gas Turbine - LM2500 Level 2 Hot Maintenance		~		~			✓	~		5	8	KW US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM2500 Gas Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM2500 training engine, enhancing the practical experiments 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 p
E-AER10107 Gas Turbine - LM2500+ Level 2 Hot Maintenance		~		~			✓	✓		5	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM2500+ Gate Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM2500+ training engine, enhancing the practical exp 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 p
E-AER10203 Gas Turbine - LM2500+ Borescope Inspection		✓		 Image: A start of the start of		2	 ✓ 	✓		2	8	US	 Familiarizes the procedures required to assess the physical condition of a LM2500+ ga Includes hands-on sessions on a LM2500+ training engine, enhancing the practical ex 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 p
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

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

♦ Recommended course for new equipment

Gas Turbine of internal components perience of the participants

prerequisites listed above. as Turbine

of internal components

perience of the participants

prerequisites listed above.

Gas Turbine

of internal components

experience of the participants

prerequisites listed above.

gas turbine internal components using borescope equipment experience of the participants



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

Course ID# & Title		Pla	int P	erso	nne			elive Ietho					
(Click on Course Title to download detailed course outline)	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation & Controls		Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	_ocation Options⁺	Executive Summary Prerequisites
E-AER10205 Gas Turbine - LM2500+ Level 1 Maintenance	Lea	 Sup 	do O	▲	Ele	Inst	▲ Cla	▲ Har	Site	IND 5	∞ Ma	US	 Provides the skills necessary to perform Level 1 Maintenance on the LM2500+ Gas Tu Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM2500+ training engine, enhancing the practical ex 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 procession.
E-AER10206 Gas Turbine - LM2500+ Level 2 Cold Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LM2500+ G Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM2500+ training engine, enhancing the practical ex 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 procession.
E-AER10108 Gas Turbine - LM2500 Borescope Inspection		~		~			~	~		2	8	KW US	 Familiarizes the procedures required to assess the physical condition of a LM2500 gas Includes hands-on sessions on a LM2500 training engine, enhancing the practical exp 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 proceeding.
E-AER10301 Gas Turbine - LM6000 Aero Package Operation/Familiarization∻		~	~	~	✓		~		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation of the L Focuses on operator responsibilities such as startup, loading and monitoring during operator None
E-AER10302 Gas Turbine - LM6000 Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventative maintenation. Covers basic troubleshooting, and a summary of the inspections required for minor Gate. Operation and maintenance personnel should attend together to develop a working relevance of the inspection. Also includes detail Level 1 maintenance work packages and familiarization of the O&Ie Does not include repair procedures for Gas Turbine components This course is applicable for all models of the LM6000 aeroderivative Gas Turbine Attend Aero Package Operation/Familiarization Course or having equivalent knowledg 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

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

♦ Recommended course for new equipment

Turbine of external components experience of the participants

prerequisites listed above. Gas Turbine of internal components experience of the participants ae

e prerequisites listed above. as turbine internal components using borescope equipment perience of the participants

prerequisites listed above.

LM6000 gas turbine and their associated systems operation and interpretation of fault annunciation for suitable remedy

enance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance relationship regarding the maintenance requirements &M Manual

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Courses can be conducted in various languages with translated material and/or intrepreter, upon request 24



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

Course ID# & Title		Plai	nt Pe	ersoi	nnel			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
E-AER10304 Gas Turbine - LM6000 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LM6000 Gas Turl Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM6000 training engine, enhancing the practical experiments This course is applicable for all models of the LM6000 aeroderivative Gas Turbine Attended LM6000 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 procession.
E-AER10305 Gas Turbine - LM6000 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LM6000 Gat Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LM6000 training engine, enhancing the practical expe This course is applicable for all models of the LM6000 aeroderivative Gas Turbine Attended LM6000 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 procession.
E-AER10306 Gas Turbine - LM6000 Level 2 Hot Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LM6000 Gas Cover detail maintenance procedures such as removal, inspection, and replacement o Includes hands-on sessions on a LM6000 training engine, enhancing the practical exp This course is applicable for all models of the LM6000 aeroderivative Gas Turbine Attended LM6000 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 procession.
E-AER10307 Gas Turbine - LM6000 Borescope Inspection		✓		~			~	~		2	8	US	 Familiarizes the procedures required to assess the physical condition of a LM6000 gas Includes hands-on sessions on a LM6000 training engine, enhancing the practical expo This course is applicable for all models of the LM6000 aeroderivative Gas Turbine Attended LM6000 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 proceeding.
E-AER11201 Gas Turbine - LM9000 Aero Package Operation / Familiarization∻		✓	~	~	✓		~		✓	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation of the Li Focuses on operator responsibilities such as startup, loading and monitoring during op None

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

♦ Recommended course for new equipment

urbine of external components perience of the participants

prerequisites listed above. Gas Turbine of internal components perience of the participants

prerequisites listed above.

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prerequisites listed above. ELM6000 gas turbine and their associated systems

operation and interpretation of fault annunciation for suitable remedy



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

Course ID# & Title		Pla	nt P	erso	nnel			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
E-AER11202 Gas Turbine - LM9000 Package Maintenance∻	Lead	 Sup 	Ope	 Mec 	Elec	Instr	✓ Clas	Han	✓ Site	und 5	Xev 12	◆	 Introduces operations and maintenance personnel to the routine preventative maintenate. Covers basic troubleshooting, and a summary of the inspections required for minor Gate. Operation and maintenance personnel should attend together to develop a working relevalue of the operation of the level 1 maintenance work packages and familiarization of the O&I Does not include repair procedures for Gas Turbine components
E-AER10401 Gas Turbine - LMS100 Aero Package Operation/Familiarization∻		~	~	~	~		~		~	5	12	*	 Attended Aero Package Operation/Familiarization Course or having equivalent knowled Prior general knowledge of power plant systems and operation Introduces the basic skills and knowledge required to ensure proper operation of the LI Focuses on operator responsibilities such as startup, loading and monitoring during op None
E-AER10402 Gas Turbine - LMS100 Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventative mainten Covers basic troubleshooting, and a summary of the inspections required for minor Ga Operation and maintenance personnel should attend together to develop a working re Also includes detail Level 1 maintenance work packages and familiarization of the O& Does not include repair procedures for Gas Turbine components Attend Aero Package Operation/Familiarization Course or having equivalent knowledg 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 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-AER10404 Gas Turbine - LMS100 Level 1 Maintenance		✓		~			~	✓		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LMS100 Gas Tur Cover detail maintenance procedures such as removal, inspection, and replacement of Includes hands-on sessions on a LMS100 training engine, enhancing the practical exp Attended LMS100 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 procession.

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

♦ Recommended course for new equipment

nance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance relationship regarding the maintenance requirements &M Manual

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LMS100 gas turbine and their associated systems operation and interpretation of fault annunciation for suitable remedy

enance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance relationship regarding the maintenance requirements &M Manual

urbine of external components xperience of the participants



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

Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			L	Days	f Students	ns⁺	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-AER10405 Gas Turbine - LMS100 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LMS100 Ga Cover detail maintenance procedures such as removal, inspection, and replacement o Includes hands-on sessions on a LMS100 training engine, enhancing the practical exp Attended LMS100 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 procession.
E-AER10406 Gas Turbine - LMS100 Level 2 Hot Maintenance		~		~			 ✓ 	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LMS100 Gas Cover detail maintenance procedures such as removal, inspection, and replacement o Includes hands-on sessions on a LMS100 training engine, enhancing the practical exp Attended LMS100 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 procession.
E-AER10501 Gas Turbine - TM2500 Aero Package Operation/Familiarization∻		~	✓		~	2 2 2 3 4 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	~		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation of the T Focuses on operator responsibilities such as startup, loading and monitoring during op None
E-AER10601 Gas Turbine - TM2500+ Aero Package Operation/Familiarization ∻		~	~		~		✓		~	5	12	*	 Introduces the basic skills and knowledge required to ensure proper operation of the T Focuses on operator responsibilities such as startup, loading and monitoring during op None
E-AER10502 Gas Turbine - TM2500 Aero Package Maintenance∻		~		 Image: A start of the start of			✓		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventative maintenate. Covers basic troubleshooting, and a summary of the inspections required for minor Gate. Operation and maintenance personnel should attend together to develop a working relevalues detail Level 1 maintenance work packages and familiarization of the O&I Does not include repair procedures for Gas Turbine components Attended Aero Package Operation/Familiarization Course or having equivalent knowled. 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

Gas Turbine of internal components xperience of the participants

e prerequisites listed above.

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of internal components

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e prerequisites listed above.

TM2500 gas turbines and their associated systems operation

TM2500+ gas turbines and their associated systems operation

nance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance relationship regarding the maintenance requirements &M Manual

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

Course ID# & Title		Pla	nt P	erso	nnel			elive leth					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			uv	Days	f Students	ons⁺	• 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-AER10602 Gas Turbine - TM2500+ Aero Package Maintenance∻		~		~			~		~	5	12	*	 Introduces operations and maintenance personnel to the routine preventative maintenative covers basic troubleshooting, and a summary of the inspections required for minor Ga Operation and maintenance personnel should attend together to develop a working rel Also includes detail Level 1 maintenance work packages and familiarization of the O&I Does not include repair procedures for Gas Turbine components
													 Attended Aero Package Operation/Familiarization Course or having equivalent knowled Prior general knowledge of power plant systems and operation
E-AER10701 Gas Turbine - Aero MKVIe Operations∻		✓	~	~		~	~					*	 This course is intended for control Operators whose site has a Mark[™] VIe control syst handling of alarms. Modular and robust, the course includes training material derived from actual Mark[™] V on labs are performed on HMI simulator, configured for Mark[™] VIe control system and terminology and basic operation from the operator interface then build skills to confider 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

nance procedures and minor mechanical maintenance Gas Turbine generator mechanical maintenance relationship regarding the maintenance requirements &M Manual

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stem. The participants will be familiarized with the HMI to monitor the turbine including the

¹ VIe installed systems. Training is performed with short lessons followed by labs. The handsnd a turbine. The labs are progressively challenging and assist the participants to learn the lently operate the unit and help find solutions to diagnose alarms.

Course ID# & Title		Plai	nt Pe	erso	nnel			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
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 Diag Gives an insight on Gas Turbine Operation with simulator support and maintenanc This course is for Legacy Alstom products only (GT13E2, GT24, GT26) Technical background Familiar with managing aspects of Power Plants
E-GAS12001 Gas Turbine - Operation∻		~	~				~	~	~	10	12	*	 Develops a background in Gas Turbine-generator design, construction and operati Provides detailed description and function of the Gas Turbine-generator major com Include the operator's responsibilities regarding systems operations, operational desitespecific process alarms and HMI control screens are explained Learn to interpret fault annunciation and determine if it can be remedied by operator Focuses on the starting, loading, and specific operator checks of the various syste operation has on major mechanical maintenance May include site visits to familiarize personnel with the physical layout of the Gas T 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 kr Provides a detailed overview of Gas Turbine operating sequences and control and Expands upon background in Gas Turbine-generator operation that improves the p Focuses on the Gas Turbine and generator control and protection, the operational Minimal discussion on turbine auxiliary support systems Prior Gas Turbine experience as control room or outside operator, I&C or Mechania Have attended a GE Gas Turbine Operation course, or possesses equivalent know Technical background (Mechanical or Controls) Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill to

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

 \diamond Recommended course for new equipment

gram (P&ID) ce overview

tions of the unit installed at their plant mponents, the auxiliary systems data acquisition, evaluation of anomalies through the use of classroom instruction and exercises,

tor action or with the assistance of instrumentation and/or maintenance personnel em parameters to ensure reliable operation of the Gas Turbine-generator unit, and the affect that

Turbine generator, its auxiliaries and piping systems

knowledge and skills d protection functions

participant's ability to properly analyze operating problems and take the necessary corrective action I relationships of the compressor, combustion and turbine sections and generator systems

nical Technician wledge



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

Course ID# & Title		Pla	nt Po	erso	nnel			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	
E-GAS22201 Gas Turbine - Operation F-Class (Advanced)		~	~				~			5	12	*	 Designed to enhance GE F-class Gas Turbine-generator operator knowledge and skill Provides a detailed overview of Gas Turbine operating sequences and control and pro Expands upon background in Gas Turbine-generator operation that improves the partie Focuses on the Gas Turbine and generator control and protection, the operational rela Minimal discussion on turbine auxiliary support systems Prior Gas Turbine experience as control room or outside operator, I&C or Mechanical T Have attended a GE Gas Turbine Operation course, or possesses equivalent knowledge Technical background (Mechanical or Controls) Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the participants 	
E-GAS22501 Gas Turbine- Operation H-Class (Advanced)		~	~				~			5	12	*	 Designed to enhance GE H-class Gas Turbine-generator operator knowledge and skill Provides a detailed overview of Gas Turbine operating sequences and control and provides a detailed overview of Gas Turbine-generator operation that improves the particle Expands upon background in Gas Turbine-generator operation that improves the particle Focuses on the Gas Turbine and generator control and protection, the operational relation on turbine auxiliary support systems Prior Gas Turbine experience as control room or outside operator, I&C or Mechanical Tele Have attended a GE Gas Turbine Operation course, or possesses equivalent knowledge Technical background (Mechanical or Controls) Reasonable computer skills Note: Participants will have difficulty to follow this course content if they do not fulfill the participants 	
E-GAS20203 Gas Turbine - Operation Training on GT26 Simulator		~	~				~		~	2	6	*	 Introduces the basics about the HMI and working environment using simulator equipm Reviews preparation steps for GT startup, checking the release criteria for startup Covers Startup of the gas turbine (run-up, idle and load operation), handling different p Addresses observing the key plant parameters, using the alarms, events and trend dis Includes Operator actions under transient conditions (handling GT PLS, TRIP etc.) Gas Turbine Operation experience or equivalent knowledge Control System ALSPA or Advant IIT800xA (whichever applicable) operation training, e Note: Participants will have difficulty to follow this course content if they do not have the p 	
E-GAS12002 Gas Turbine - Maintenance∻		✓		~			✓		✓	5	12	*	 Offers a firm understanding of the basic maintenance requirements of GE heavy duty Provides participants a basic understanding of Gas Turbine construction, how it works Basic knowledge of power plant equipment, systems and operation Prior hands-on plant maintenance experience is recommended Reasonable computer skills 	

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

♦ Recommended course for new equipment

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rticipant's ability to properly analyze operating problems and take the necessary corrective action lationships of the compressor, combustion and turbine sections and generator systems

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prerequisites listed above.

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rotection functions

ticipant's ability to properly analyze operating problems and take the necessary corrective action lationships of the compressor, combustion and turbine sections and generator systems

Technician dge

prerequisites listed above. ment

t plant load conditions, understanding the concept of "hold points" lisplays to analyze the process

experience or equivalent knowledge e pre-requisites listed above.

Gas Turbines and their auxiliary support systems installed at site ks and the maintenance requirements, troubleshooting and inspection procedures



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

Course ID# & Title		Pla	nt Pe	erso	nnel		Delivery Method								
(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-GAS20101 Gas Turbine - GT13E2 Inspection		~		~			~		~	10	12	*	 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, applying step covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor position), could includes preparation work for start-up of the Gas Turbine and cleaning of systems, "mode the cover start with the service or erection of power plants 		
E-GAS10102 Gas Turbine - GT13E2 Mechanical Systems & Components		~		~			~		~	7	12	*	 This course familiarizes personnel with detailed knowledge and operation of the GT13I The training includes, handling of site documentation, description of all components an Able to interpret technical documents, such as Piping & Instrumentation Diagrams (P& 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, applying step covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor position), coul Includes preparation work for start-up of the Gas Turbine and cleaning of systems, "mo Mechanical background Familiar with the service or erection of power plants 		
E-GAS10204 Gas Turbine - GT26 Mechanical Systems & Components (retractable EV Burner)		 Image: A start of the start of		~			✓		✓	10	12	*	 Covers GT26 Thermal Block: main components and parts dimensions, weight and function of the Gas Turbine systems - purpose, design and function of the following s NOx water system, air intake system, variable inlet guide vanes, blow off valves Includes purpose, design and function of the Gas Turbine main components: compress thermal block, sealing and cooling air Includes discussion on the use of operation and maintenance manuals: assembly and finding the required documents in the maintenance manual Able to interpret technical documents such as the Piping & Instrumentation Diagram (Feedback and 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

ep by step sequences for disassembly, inspections, and reassembly of all turbine components,

oupling alignment motor roll" and for first ignition after the inspection

3E2 and their function, description of all systems and their function v&ID) and drawings

ep by step sequences for disassembly, inspections, and reassembly of all turbine components,

oupling alignment motor roll" and for first ignition after the inspection

Inction

systems: lube oil system, jacking oil system, power oil system, fuel gas system, fuel oil system,

essor, combustion chamber, turbine, rotor, blades and vanes, bearings, instrumentation to the

nd disassembly procedures, working with quality documentation and test certificates, exercises

(P&ID) and drawings



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Course ID# & Title		Pla	nt Po	erso	nnel			elive letho	-				
(Click on Course Title to download detailed course outline)				Maintenance	ntenance	n & Controls			u/	Days	Students	ns⁺	• Executive Summary
	Leadership	Supervisors	Operations		Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # of	Location Options	• Prerequisites
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 GT 26 Overview of the purpose and the duration of the three types of inspection on the Gas T an A, B or C-inspection overview Describe the correct use of the relevant documentation such as Test Certificates, Proc the tasks required for an inspection, the function of the installed Instrumentation Perform in-situ Radial Rotor Position measurements, calculations and possible adjustr Lances, Flame Monitors, Pulsation Probes EV and SEV, Ignition Probes, in-situ Borose 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

Turbine (A, B, C) - Describe and carry out the required measurements before, during and after

ocedures and O&M Manuals, select and correctly use of the relevant special tools, for performing

stments, describe and apply the disassembly and re-assembly of, EV Burners, EV Lances, SEV scope preparations and inspections

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



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Course ID# & Title		Pla	nt Pe	erso	nnel			elive lethc					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			LV	Days	f Students	ons⁺	• 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-STM10702 Steam Turbine - Conversion/Modification/ Upgrade Operation with Controls Upgrade		~	~	~		~	~			5	12	*	 Prepares both Operations and Maintenance personnel of a GE Steam Turbine which have Discuss major components: site specific turbine-generator including auxiliaries Review the HMIs, monitoring capabilities, process alarms, start-up and shutdown proce Prepare to handle complex process situations by learning to detect the early warning signations are discussed
								2 2 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					 Basic knowledge of power plant equipment, systems and operation Ability to read technical documents Reasonable computer skills
E-STM10801 Steam Turbine - Maintenance∻		✓		~		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	 ✓ 			5	12	*	 Provides a thorough understanding of the maintenance requirements for GE Steam Tur and regular maintenance activities Discussion on scheduling and preparation for the minor and major inspections Covers impact of operation on maintenance, routine maintenance, and inspections 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	12	*	 Designed to enable operators, engineers, supervisors, and maintenance personnel to s Develops a background in Steam Turbine - generator process design specifics which will enabl Provides recommended design, starting and loading specifics, Operator's daily and week Emphasis on the operator's understanding of design functionality and operation of the v 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)		✓	~				✓		✓	5	12	*	 Designed to enable plant personnel to safely operate a GE manufactured steam turbine Develops a background in steam turbine-generator operation which will enable participate Provides recommended starting and loading specifics, Operator's daily and weekly test Develops operator's basic understanding of the various auxiliary systems, control system
													 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.

♦ Recommended course for new equipment

has just completed a major upgrade to help achieve peak availability, reliability and production

cesses & permissive, P&ID's and devices summaries signs, root causes of the most common operational problems are examined, and corrective

urbines and their support systems to facilitate planning and safe execution of daily inspections

safely operate a GE manufactured Steam Turbine-generator unit ble participants to properly analyze and effectively troubleshoot operating issues ekly tests along with all site-specific process alarms and control HMI screens various auxiliary systems, control systems and operating parameters

ne-generator unit ipants to analyze operating problems and take the corrective actions sts along with all Site-Specific process alarms and control HMI screens stems and operating parameters



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

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Course ID# & Title		Pla	nt Pe	ersoi	nnel			elive ethc							
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls			u/	Days	Students	nS⁺	• Executive Summary		
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenanc	Instrumentation	Classroom	Hands-On	Site Walk-Dowr	Duration in Da	Maximum # of	Location Options⁺	• Prerequisites		
E-STM20701 Steam Turbine - Operation (Advanced)		~	✓				~			5	12	*	 Help to develop the skills needed to operate GE Steam Turbine for peak availability, rel Discussion on major components and students explore: turbine-generator auxiliaries, F Review of auxiliary systems in detail by discussing unit specific process alarms, HMI m Steam Turbine support systems Operators are prepared to handle complex process situations by learning to detect the The root causes of the common operational problems are reviewed and potential corre 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 have the process of the proces of the process of the proces of the process of the		

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

♦ Recommended course for new equipment

reliability and production , HMIs, process alarms, and start-up and shutdown processes I monitoring capability, P&IDs and devices summaries, learn the full potential and limits of all

ne early warning signs of trouble rrective actions are discussed



★ = Customer Site | ◆ = Any Gas Power Learning Center Gas Power Learning Center Locations: CH = Birr | KW = Safat | US = Houston

Course ID# & Title		Pla	nt Po	erso	nne			elive 1eth	_							
 (Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			own	Davs	f Students		ons⁺	• Executive Summary		
	Leadership	Supervisors	Operations	Mechanical N	Electrical Maintenanc	Instrumentation	Classroom	Hands-On		Duration in D	# 		Location Options⁺	• Prerequisites		
E-BOI10302 Heat Recovery Steam Generator (HRSG) - Operation & Maintenance (GE Engineered)∻		~	~	~		~	✓		✓	3	12	2	*	 Designed for GE engineered HRSG equipment only Familiarize with HRSG architecture and its auxiliary systems Covers operator's daily responsibilities, tracking and troubleshooting of typical issues i Reviews inspection and maintenance requirements of HRSG 		
														 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

es including water chemistry

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



Course ID# & Title		Pla	nt Pe	erso	nne			elive lethc							
(Click on Course Title to download detailed course outline)				Mechanical Maintenance	aintenance	tion & Controls			uwo	Days	of Students	Options⁺	Executive Summary Prerequisites		
	Leadership	Supervisors	Operations	Mechanical	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in [Maximum #	Location Op			
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-cooling system sealing and gas extracting from the seal oil by means of the P&ID and the O&M manual Carry out maintenance-related procedures such as; purging the generator and the auxiliar List from memory the operating parameters of the cooling system and its auxiliary systems permissible ranges List the H2-specific safety rules and measures for operation of and maintenance on H2-co 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 turbo gener Includes design features of air-cooled and hydrogen-cooled turbo generators, design of protection, wedging, winding supports, rotor retaining rings, connections) Overview of the cooling systems of stator and rotor (air-water, water, hydrogen), and the Overview of instrumentation and monitoring, excitation system, winding and rewinding or replacement, practical training of phase separation replacement Knowledge of power plants Able to read technical documents 		
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, components, and fur Overview of the seal oil system with its seal oil unit: configuration, components, and fur Includes Instrumentation and Monitoring, interpretation of process value readings such a Covers Maintenance procedures: purging of the generator, replacement of oil filter cartri Discussion on cooling and humidification of the brush-gear cooling air Explains periodic checks of levels, pressures, flow rates, temperatures, gas purity, gas loperation, change-over functions) Experience in operation and maintenance of large power plants 		
E-GEN10102 Generator - Air or Hydrogen Cooled for Gas Turbine Operation & Maintenance		✓	~	✓	~		✓		✓	5	8	*	 Ability to read technical documents Covers the components, architecture, operation and maintenance of the air- or hydroger Functional description of the excitation System, including operation, settings and trouble Functional description of the protection System, including operation, maintenance and tree Technical background (Electrical) Experience with electromechanical systems and components is recommended Basic knowledge of excitation regulation and electrical protection Note: Participants will have difficulty to follow this course content if they do not fulfill the protection 		

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

♦ Recommended course for new equipment

m triple circuit seal oil system, water cooling system, describe from memory the processes of gas

liary systems, regenerating the H2-gas dryer, change-over filter cartridges ems (differential-pressure control, core monitoring, gas and water purity meter) and state their

-cooled generators

erators, generator type designations of stator and rotor functional units (magnetic cores, windings, insulation systems, corona

the associated sealing systems of stator and rotor, theoretical education of DVV, theoretical education of phase separation

function

unction

ch as pressure, flow rates, gas purity, humidity, alarms and fault handling scenarios rtridges, regeneration of the gas dryer

as leakage, gas reserves and periodic functional checks of the various pump units (readiness for

gen Cooled generator (as applicable) bleshooting I troubleshooting



(Course ID# & Title		Pla	nt Pe	erso	nnel			elive Ietho					
(Click on Cour detailed cours	se Title to download e outline)				aintenance	itenance	n & Controls			Ę	ys	Students	ns⁺	• 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-CCP10205 Combined Cyd	cle - Operation Familiarization		~	~	~			~			5	15	KW US	 Offers a firm understanding of the basic operations of GE Combine Cycle Plants and is Gives participants an understanding of basic Combine Cycle Power Plants operations abnormal operations Emphasis upon safe, efficient power plant operations
														• None

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



Course ID# & Title		Pla	nt P	erso	nnel			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	_ocation Options⁺	Executive Summary Prerequisites
O-ELX10101 Excitation - EX2000 Generator Excitation Maintenance		✓	<u> </u>	~	~	-	_	+		5	12	US	 Offers training in the skills needed to do basic operation, maintenance and troublesho Learn how to operate the EX2000 Exciter, how to use the Diagnostic Keypad and GE Consists of classroom instruction, practical lab exercises using EX2000 simulators and 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 troublesho Learn how to operate the EX2100 Exciter, how to use the Diagnostic Keypad and GE Consists of classroom instruction, practical lab exercises using EX2100 simulators and Ability to work with excitation systems The student should have reasonable computer skills.
O-ELX20201 Excitation - EX2100 Generator Excitation Maintenance (Advanced)	~	~	~		~	~	~	~		5	12	٠	 Provides background in advanced EX2100 Digital Excitation System maintenance and The training is divided equally between classroom theory and practical lab exercises Consists of classroom presentations, discussions and using EX2100 hardware to com The student should have reasonable computer skills Participants should bring a copy of their EX2100 system elementary drawing with ther Recommended prior cours(s): • Excitation - EX2100 Generator Excitation Maintenance
O-ELX10301 Excitation - EX2100e Generator Excitation Maintenance∻		~			~	~	~	~		5	12	•	 Offers training in the skills needed to do basic operation, maintenance and troubleshoe Learn how to operate the EX2100e Exciter from HMI and local keypad and how to use Consists of a classroom instruction and lab exercises using EX2100e simulators and a Reasonable computer skills
D-ELX10301 Excitation - EX2100e Generator Excitation Maintenance - Distance Learning	~	~	✓		✓	~				5	10		 Enhance skills necessary to operate, maintain, and troubleshoot an EX2100e Static E Consists of remote lecture, classroom exercises, operation overview, basic troublesho Reasonable computer skills Desktop/laptop with high speed internet connection
O-ELX20301 Excitation - EX2100e Generator Excitation Maintenance (Advanced)∻		~			~	~	~			5	12	US KW	 Provides background in EX2100e Digital Excitation System operation, maintenance and Consists of classroom theory and practical lab exercises Includes EX2100e hardware for lab exercises which are designed to teach EX2100e of Previous experience with EX2000 or EX2100 or EX2100e Reasonable computer skills

ooting on an EX2000 excitation system E Control System Toolbox to troubleshoot problems nd actual EX2000 Exciters

ooting on an EX2100 excitation system E Control System Toolbox to troubleshoot problems nd actual EX2100 Exciters

nd troubleshooting using the Control System Toolbox

mplete lab exercises troubleshooting and maintenance techniques

em to class ice (O-ELX10201)

nooting on an EX2100e excitation system se the GE Control System ToolboxST™ to troubleshoot problems d actual EX2100e Exciters

Exciter and Regulator system and the related communication networks nooting, and maintenance procedures

and troubleshooting using the ToolboxST™ application program

operation, troubleshooting and maintenance techniques



Course ID# & Title		Plai	nt Pe	erso	nnel			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-ELX11002 Excitation - LS2100 LCI for Turbine Static Start	Fe ✓	✓	▲O	Me	Ele	Ins	Classification	▲ Ha	Sit	ng 4	≥ 12	◆ Flo	 Designed for engineering and maintenance personnel who configure and maintain the Includes hardware identification and Control System Toolbox™ communications, unde Utilizes a simulator, lectures and hands-on exercises are used to maximize student ma Electrical experience / education Reasonable computer skills Participants should bring a copy of their Innovation Series LCI™ static starter system
O-ELX11003 Excitation - LS2100e LCI for Turbine Static Start		√			~	~	~	~		4	12	•	 Designed for engineering and maintenance personnel who configure, and maintain the Includes hardware identification, Control System ToolboxST™ communications, UCSE Utilizes simulators, and a walk through (if available) of your full functioning LCI™ start Electrical experience / education Reasonable computer skills Participants should bring a copy of their Innovation Series LCI™ static starter system
O-CON13301 Control System - Mark VI Operation		~			~	~	~	~		10	12	US	 Provides training on the essential elements of the Mark VI turbine control system Includes instruction on the hardware and software components of the Mark VI control system 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)		~			~	~	~	~		5	10	US	 Provides the knowledge required to properly maintain your Mark VI Control keeping your Addresses the following questions: a. What if your unit is in a critical condition? It's shutting down, running back, or worse those gained from the Advanced Mark VI Troubleshooting course, you have isolated b. How is it to be properly calibrated or replaced? Should you, or how do you, force its received an alarm indicating a valve failure. c. What are the differences between pneumatic and hydraulic? You have determined the d. How is it to be repaired? Not for customers with aeroderivative applications GE Mark*VI Control Owners Recommended prior course(s): Control System - Mark VI Troubleshooting (Advanced)
O-CON23302 Control System - Mark VI Troubleshooting (Advanced)		✓			~	✓	~	~		5	12	US	 Or those who possess a high degree of troubleshooting skills Designed to test and sharpen troubleshooting and operations skills for the purpose of Gain the fundamental skills of a competent Control Room Operator and those skills of Covers operating conditions from typical to extreme situations and is 100% hands-on f Fundamental operational and controls skills, with a moderate level of computer literacy Recommended prior course(s): Control System - Mark VI Operation (O-CON13301) Or possess equivalent knowledge, including experience with Toolbox

♦ Recommended course for new equipment

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ne LCI™ static starter derstanding the monitor commands material retention

n elementary drawing with them to class

the LCI™ static starter SB programming, and Alarm Viewer configuration arter along with lectures and hands-on exercises are used to reinforce retention of the subject

n elementary drawing with them to class

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

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

se it has tripped or you cannot obtain a ready to start. Using your existing troubleshooting skills or ted the cause to a singular device.

its variable into a safe state so it can be replaced and what are the consequences? You have

the probable cause of a diagnostic alarm; open or shorted circuit, blown fuse, voter mismatch.

ed) (O-CON23302)

of trip reduction and recovery, maintaining optimum performance and availability of an experienced Mark VI TA on training that is realistic and practical acy are recommended



Course ID# & Title		Pla	nt P	erso	nnel			elive lethe					
(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-CON13405 Control System - Mark VIe Familiarization (Advanced Viewer)	 ✓	<u>√</u>	U	~	✓	-	-	✓ ✓	0)	5	2 18	•	 Familiarizes students with the hardware and software components, provides detailed I Includes training material derived from actual Mark VIe installed systems, lessons follo simulate a turbine, labs are progressively challenging and assist the students in learni
D-CON13405 Control System - Mark VIe Familiarization (Advanced Viewer) - Distance Learning	~	~			~	~		✓		5	6		 Basic control system knowledge Familiarizes students with the hardware and software components, provides detailed I Includes training material derived from actual Mark VIe installed systems, lessons follo simulate a turbine, labs are progressively challenging and assist the students in learni Basic control system knowledge
O-CON13406 Control System - Mark VIe Familiarization (ActivePoint™)	~	~			~	~	~	~		5	18	٠	 Familiarizes students with the hardware and software components, provides detailed in the includes training material derived from actual Mark VIe installed systems, lessons follows simulate a turbine, labs are progressively challenging and assist the students in learning. Basic control system knowledge
D-CON13406 Control System - Mark VIe Familiarization (ActivePoint™) - Distance Learning	~	~			~	~		~		5	6		 Familiarizes students with the hardware and software components, provides detailed includes training material derived from actual Mark VIe installed systems, lessons following simulate a turbine, labs are progressively challenging and assist the students in learnine. Basic control system knowledge
O-CON13407 Control System - Mark VIe Intermediate (Advanced Viewer)		~			~	~	~	~		5	18	•	 Familiarizes students with the hardware and software components, provides detailed includes training material derived from actual Mark VIe control migration from Mark V HMI computer specially programmed to simulate a turbine, labs are progressively chait troubleshooting CIMPLICITY™ Software, editing and valve calibration Control system experience Recommended prior course(s): Control System - Mark VIe Familiarization (Advanced value)
D-CON13407 Control System - Mark VIe Intermediate (Advanced Viewer) - Distance Learning		~			~	~		~		5	8		 Familiarizes students with the hardware and software components, provides detailed F Includes training material derived from actual Mark VIe control migration from Mark V HMI computer specially programmed to simulate a turbine, labs are progressively chaltroubleshooting CIMPLICITY™ Software, editing and valve calibration Control system experience Recommended prior course(s): Control System - Mark VIe Familiarization (Advanced VI)

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

I knowledge to troubleshoot and maintain the control system and associated equipment llowed by hands-on labs that are performed on an HMI computer specially programmed to ning the basics and building to intermediate skills including alarm and system troubleshooting

I knowledge to troubleshoot and maintain the control system and associated equipment llowed by hands-on labs that are performed on an HMI computer specially programmed to ning the basics and building to intermediate skills including alarm and system troubleshooting

I knowledge to troubleshoot and maintain the control system and associated equipment llowed by hands-on labs that are performed on an HMI computer specially programmed to ning the basics and building to intermediate skills including alarm and system troubleshooting

I knowledge to troubleshoot and maintain the control system and associated equipment lowed by hands-on labs that are performed on an HMI computer specially programmed to ning the basics and building to intermediate skills including alarm and system troubleshooting

I knowledge to troubleshoot and maintain the control system and associated equipment / control installed systems, lessons followed by hands-on labs that are performed on an allenging and assist the students to learn intermediate skills including alarm and system

viewer) (O-CON13405 or D-CON13405)

I knowledge to troubleshoot and maintain the control system and associated equipment / control installed systems, lessons followed by hands-on labs that are performed on an allenging and assist the students to learn intermediate skills including alarm and system

viewer) (O-CON13405 or D-CON13405)



Course ID# & Title		Pla	nt P	erso	nnel			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-CON13408 Control System - Mark VIe Intermediate (ActivePoint™)		~			~	~	~	~		5	18	٠	 Familiarizes students with the hardware and software components, provides detailed is Includes training material derived from actual Mark VIe control migration from Mark VIE HMI computer specially programmed to simulate a turbine, labs are progressively chall troubleshooting, CIMPLICITY™ Software, editing and valve calibration Control system experience Recommended prior course(s): Control System - Mark VIe Familiarization (ActivePoint)
D-CON13408 Control System - Mark VIe Intermediate (ActivePoint™) - Distance Learning		~			~	~		~		5	8		 Familiarizes students with the hardware and software components, provides detailed k Includes training material derived from actual Mark VIe control migration from Mark V e HMI computer specially programmed to simulate a turbine, labs are progressively chal troubleshooting, CIMPLICITY™ Software, editing and valve calibration Control system experience
O-CON23401 Control System - Mark VIe Maintenance (Advanced)		✓			~	~	~	✓		5	12	CH KW US	 Recommended prior course(s): Control System - Mark Vle Familiarization (ActivePoint) Provides the knowledge required to properly maintain your Mark Vle Control keeping y Addresses the following questions: a. What if your unit is in a critical condition? It's shutting down, running back, or worse those gained from the Advanced Mark VI Troubleshooting course, you have isolated b. How is it to be properly calibrated or replaced? Should you, or how do you, force its received an alarm indicating a valve failure. c. What are the differences between pneumatic and hydraulic? You have determined the d. How can it be stroked, tested, calibrated? Not for customers with aeroderivative applications. Recommended prior course(s): • Control System - Mark Vle Familiarization (O-CON13) • 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 / Vle Troubleshooting (Advanced)		~			~	~	~	~		5	12	•	 Designed to test and sharpen troubleshooting and operations skills for the purpose of trip. Will gain the fundamental skills of a competent Control Room Operator and an experience to different levels of alarms throughout operation, follow an alarm through using the Toolk documentation will be taught and used throughout the course, the same way your unit is Fundamental operational and controls skills recommended Recommended prior course(s): • Control System - Mark* VIe Familiarization (O-CON1 Or possesses equivalent knowledge, including experience with ToolboxST™

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> I knowledge to troubleshoot and maintain the control system and associated equipment / control installed systems, lessons followed by hands-on labs that are performed on an allenging and assist the students to learn intermediate skills including alarm and system

nt[™]) (O-CON13406 or D-CON13406)

I knowledge to troubleshoot and maintain the control system and associated equipment / control installed systems, lessons followed by hands-on labs that are performed on an allenging and assist the students to learn intermediate skills including alarm and system

nt[™]) (O-CON13406 or D-CON13406)

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

e it has tripped or you cannot obtain a ready to start. Using your existing troubleshooting skills or ed the cause to a singular device.

ts variable into a safe state so it can be replaced and what are the consequences? You have

the probable cause of a diagnostic alarm; open or shorted circuit, blown fuse, voter mismatch.

13405, D-CON13405, O-CON13406, or D-CON13406)

rip reduction and recovery, maintaining optimum performance and availability need Mark VIe Control TA, including how to properly start and stop a unit and how to respond obboxST[™] software to find the singular field device that caused the alarm and much more, GE is designed to be operated and maintained

13405, D-CON13405, O-CON13406, or D-CON13406)



Course ID# & Title		Pla	nt P	erso	nnel			elive 1etho					
(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-CON13401 Control System - Mark VIe Migration from Mark V, Familiarization		~			<u>→</u>	~	-	~		5	18	US	 Familiarizes students with the hardware and software components, provide detailed kr Includes training material derived from actual Mark VIe control migration from Mark V computer specially programmed to simulate a turbine, labs are progressively challengiand system troubleshooting Control system experience
O-CON13501 Control System - Introduction to Mark VIeS Functional Safety System		~			~	~	~	~		5	12	US	 Introduces the fundamentals of the Mark VIeS Functional Safety System Familiarity with Safety applications, PLC, and HMI communication experience
O-CON20701 Control System - Mark VIe (Aero) Operation, Maintenance & Troubleshooting		~	~		~	~	~	~		10	8	US	 Introduces routine preventative maintenance procedures of the support systems and to availability, and reliability from the Aeroderivative Gas Turbine Covers functional sensor and actuator description, troubleshooting, and a summary of maintenance Operating and maintenance personnel should attend this course together to develop a operation may affect these requirements Does not include repair procedures for Gas Turbine components 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 MicroNet P Designed for platforms that have CPUs with an Ethernet port(s) and do not have a 2-li cards to field termination modules Provides training on Graphical Application Programmer (GAP) software navigation, We alarms Overview of Control actuator and other I/O calibration procedures will be discussed, ad 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 systems Includes the hardware layout of typical systems; from chassis to I/O cards to field term Software tools will be used to evaluate fuel control Calibration procedures will be discussed Includes general information on the operator interface (HMI) Basic understanding of Gas Turbine equipment and its operation Familiarity with control system basics

 \diamond Recommended course for new equipment

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knowledge to troubleshoot and maintain the control system and associated equipment / control installed systems, lessons followed by hands-on labs that are performed on an HMI ging and assist the students to learn the basics and build up to intermediate skills including alarm

to the major electrical and control system maintenance required to attain high levels of

of calibration and inspections required for Gas Turbine package electrical and control system

a working relationship regarding the maintenance requirements of the unit, and how unit

Plus[™] turbine control systems -line display, course content includes the hardware layout of typical systems; from chassis to I/O Noodward software tools will be used to evaluate fuel control, sequence logic, and turbine-based

additional class work includes general information on the operator interface (HMI)

rmination modules



Course ID# & Title		Pla	int P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)	0	ő		Mechanical Maintenance	Electrical Maintenance	tation & Controls			Down	ם Days	# of Students	Options ⁺	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mechanica	Electrical N	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in	Maximum # of	Location C	
O-CON11401 Control System - Aero DLE Familiarization and Mapping Overview		~	~				~			3	12	•	 Offers an insight into the design philosophy and software of the DLE control system Includes overview of the "mapping" of the gas turbine control schedules, cause and effe In addition, the course includes a "lessons learned" section and practice solving actual Basic understanding of gas turbine equipment and its operation Familiarity with control systems Ability to speak and understand English Reasonable computer skills
O-CON13409 Control System - Control Server & Thin Client Familiarization	~	~	~			✓	✓			2	6	US	This training course will explain the structure and use of the Control Server system. It vHMIs Control system experience Computer literacy
D-CON13409 Control System - Control Server & Thin Client Familiarization - Distance Learning	~	~	~			~				2	6		Computer literacy This training course will explain the structure and use of the Control Server system. It vHMIs Control system experience Computer literacy
O-CON10402 Control System - ALSPA Control System Fundamentals		~	~		~	✓	~	~		5	12	•	 This course familiarizes participants with the architecture of ALSPA control system and monitor the plant process This course provides an overview of the ALSPA control system hardware and CONTRe This course will also enable the participant to do basic application programming and basic ALSPA Maintenance Server. This will also enable participants to read and understands At the end of the course there will a site visit, where a brief demonstration of the comp Knowledge of power plants Fundamental skills regarding control systems Able to read technical documents
O-CON20401 Control System - ALSPA Control System Intermediate		~	~		~	✓	✓	~		5	12	•	 This course familiarizes participants with advanced level programming of ALSPA CONTRO. This course will enable them to set up ALSPA HMI for first time use. They will learn how disturbing plant operation. They will learn about MFC3000 firmware At the end of the course there will a site visit, where a brief demonstration of the comp Attended course: O-CON10402 Control System – ALSPA Control System Fundamenta

effect information, interpretation of alarm data and troubleshooting of alarms ual field problems

It will provide explanation of the virtual environment and the physical hardware used to host the

It will provide explanation of the virtual environment and the physical hardware used to host the

nd components & supervisory functions of ALSPA HMI, which enables them to control and

ROCAD engineering tool

basic HMI modification and, do basic diagnostic of ALSPA control system using various tools e.g. ds basic project documentations

ponents/topics discussed in the classroom will be provided

ROCAD engineering tool and, provides an overview of ALSPA HMI configuration now to perform online forcing and setting update to make small modification in logic, without

ponents/topics discussed in the classroom will be provided tals



Course ID# & Title		Pla	nt P	erso	nnel			elive 1etho					
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls			u/	ys	Students	ns⁺	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-CON30401 Control System - ALSPA Control System Advanced		✓	~		~	~	~	~		5	12	•	 This course familiarizes participants with redundant operation of MFC3000 controllers. CONTROCAD tools. Acronis backup image procedure will also be discussed They will learn how to do online modification in application code of a running MFC3000 will learn about MFC3000 firmware Participants will learn basic concept of Profibus. Profibus system configuration and Profi 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 the comp Attended course: O-CON20401 Control System – ALSPA Control System Intermediate
O-CON33404 Control System - Foundation Fieldbus∻		~	✓			~		~		5	4	US	 Foundation Fieldbus (FFB) is an open source digital standard for field devices that use This course will introduce you to FFB as it pertains to a Mark VIe control system. You we communicate their data to application code within ToolboxST. Examples using some of throughout the course, you will be introduced to hardware configurations, linking hardware linking trainees to navigate FFB configurations within ToolboxST.
													 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 training management

rs. Participants will learn about installation of new MFC3000 controller, ASLPA HMI and

000 controller. Limitation of online modification and its consequences will also be discussed. They

ofibus advanced troubleshooting using ProfiTrace tool will also be discussed

ponents/topics discussed in the classroom will be provided ite

ses digital communication in place of traditional analog communication.

u will learn how FFB devices are field wired back to a Mark VIe control panel and how the devices of the most commonly used FFB devices on a GE turbine will be reviewed.

rdware to software, and basic troubleshooting from within ToolboxST. Virtual HMI's will be used

module as part of a Mark Vie training program



Course ID# & Title		Pla	nt P	erso	nne			elive 1etho					
(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-AER10101 Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization		~	~	✓	✓		~			5	15	KW US	 Covers topics from basic Gas Turbine theory to detailed turbine operation to ensure consis Develops a background in Gas Turbine operation that enables participants to analyze Emphasizes the operator's responsibilities with regard to auxiliary systems, operationa Interprets fault annunciation and how to determine if the annunciated fault can be rem personnel, focuses on package familiarization, starting, loading, and specific operator 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 ensure consis Develops a background in Gas Turbine operation that enables participants to analyze Emphasizes the operator's responsibilities with regard to auxiliary systems, operationa Interprets fault annunciation and how to determine if the annunciated fault can be rem personnel, focuses on package familiarization, starting, loading, and specific operator operation of the Gas Turbine None
O-AER10105 Gas Turbine - LM2500 Engine Familiarization	~	~	~	~			~			3	15	KW US	 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation Technical background or relevant experience
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 Turbine Includes hands-on maintenance procedures such as removal, adjustment, and replace 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-AEF
O-AER10104 Gas Turbine - LM2500 Level 2 Cold Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, inspection, and replaced 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-AEI)

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> sistent, trouble-free performance from the engine and its associated equipment e operating problems properly and take the necessary corrective action nal data taking and evaluation

medied by operator action or by the assistance of instrumentation and/or maintenance or checks of the various turbine support and auxiliary systems to ensure safe and reliable

sistent, trouble-free performance from the engine and its associated equipment the operating problems properly and take the necessary corrective action nal data taking and evaluation

medied by operator action or by the assistance of instrumentation and/or maintenance or checks of the various turbine support and auxiliary systems to ensure safe and reliable

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Course ID# & Title		Pla	nt P	erso	nne	I		elive 1etho					
(Click on Course Title to download detailed course outline)	d	S	S	Mechanical Maintenance	Electrical Maintenance	itation & Controls	c	_	-Down	n Days	# of Students	Options⁺	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mechanic	Electrical	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in	Maximum #	Location (
O-AER10103 Gas Turbine - LM2500 Level 2 Hot		~		~	-		~	~		5	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, inspection, and replacer
Maintenance		-			*						2		 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-AEF)
O-AER10102		 ✓ 		~			✓	✓		2	8	US	Familiarizes the procedures required to assess the operational condition of internal Ga
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-AEF
O-AER10203 Gas Turbine - LM2500+/G4 Engine Familiarization	~	~	~	~			~			3	15	KW US	 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation Technical background or relevant experience
D-AER10203 Gas Turbine - LM2500+/G4 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-AER10204 Gas Turbine - LM2500+ Level 1 Maintenance		~		~			~	~	*	5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, adjustment, and replace 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-AE)
O-AER10205 Gas Turbine - LM2500+ Level 2 Cold Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, inspection, and replacer 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-AE)
O-AER10202 Gas Turbine - LM2500+ Level 2 Hot		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, inspection, and replacer
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-AE)

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Gas Turbine components using borescope equipment

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★ = Customer Site | ◆ = Any Gas Power Learning Center | 💻 = Distance Learning Gas Power Learning Center Locations: CH = Birr | KW = Safat | US = Houston

Course ID# & Title		Pla	nt Pe	erso	nnel			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-AER10201 Gas Turbine - LM2500+ Borescope Inspection	Le	< Su	ð	₩ V	Ē	<u>u</u>	Ö ✓	Ha ►	Sit	ם 2	8 M	US	 Familiarizes the procedures required to assess the operational condition of internal Ga 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-AE
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 ensure consiste Develops a background in Gas Turbine operation that enables participants to analyze of Emphasizes the operator's responsibilities with regard to auxiliary systems, operationa Interprets fault annunciation and how to determine if the annunciated fault can be reme focuses on package familiarization, starting, loading, and specific operator checks of th 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 ensure consiste. Develops a background in Gas Turbine operation that enables participants to analyze of Emphasizes the operator's responsibilities with regard to auxiliary systems, operational Interprets fault annunciation and how to determine if the annunciated fault can be remere focuses on package familiarization, starting, loading, and specific operator checks of the gas turbine This course is applicable for all models of the LM6000 aeroderivative Gas Turbine None
O-AER10306 Gas Turbine - LM6000 Engine Familiarization	~	~	~	~			~			3	15	KW US	 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
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

Gas Turbine components using borescope equipment

AER10203 or D-AER10203)

istent, trouble-free performance from the engine and its associated equipment e operating problems properly and take the necessary corrective action

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medied by operator action or by the assistance of instrumentation and/or maintenance personnel, the various turbine support and auxiliary systems to ensure safe and reliable operation of the

istent, trouble-free performance from the engine and its associated equipment

e operating problems properly and take the necessary corrective action

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nedied by operator action or by the assistance of instrumentation and/or maintenance personnel, the various turbine support and auxiliary systems to ensure safe and reliable operation of the



Course ID# & Title		Pla	nt Pe	erso	nnel			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-AER10303 Gas Turbine - LM6000 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, adjustment, and replace This course is applicable for all models of the LM6000 aeroderivative Gas Turbine 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 - LM6000 Engine Familiarization (O-AEI
O-AER10304 Gas Turbine - LM6000 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, inspection, and replace This course is applicable for all models of the LM6000 aeroderivative Gas Turbine 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 - LM6000 Engine Familiarization (O-AEI
O-AER10305 Gas Turbine - LM6000 Level 2 Hot Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the Gas Turbine Includes hands-on maintenance procedures such as removal, inspection, and replaced This course is applicable for all models of the LM6000 aeroderivative Gas Turbine 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 - LM6000 Engine Familiarization (O-AEI
O-AER10302 Gas Turbine - LM6000 Borescope Inspection	-	~		~			~	~		2	8	US	 Familiarizes the procedures required to assess the operational condition of internal Ga This course is applicable for all models of the LM6000 aeroderivative Gas Turbine 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 - LM6000 Engine Familiarization (O-AEI
O-AER10401 Gas Turbine - LMS100 Aero Package Operation/Familiarization		~	✓	~	✓		~			5	15	US	 Introduces the basic skills and knowledge required to ensure proper operation of the to Focuses on operator responsibilities such as startup, loading and monitoring during operator None
D-AER10401 Gas Turbine - LMS100 Aero Package Operation/Familiarization - Distance Learning		~	~	~	~					5	8		 Introduces the basic skills and knowledge required to ensure proper operation of the tu Focuses on operator responsibilities such as startup, loading and monitoring during op None
O-AER10405 Gas Turbine - LMS100 Engine Familiarization	~	~	~	~			~			3	15	KW US	 Covers basic Gas Turbine theory, construction, and operation Focuses is on basic turbine construction, major components, and operation Technical background or relevant experience

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Gas Turbine components using borescope equipment

ER10306)

turbine and their associated systems operation

turbine and their associated systems operation



Course ID# & Title		Pla	nt P	erso	nnel			elive 1etho						
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls			L,	ys	Students	ns⁺	Executive Summary	
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days	Maximum # of Students	Location Options⁺	• Prerequisites	
O-AER10402 Gas Turbine - LMS100 Level 1 Maintenance		~		~			~	~		5	8	US	 Provides the skills necessary to perform Level 1 Maintenance on the LMS100 Gas Tur Consists of classroom instruction, and also includes hands-on maintenance procedure 	
													 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 Familiarization (O-AE) 	
O-AER10403 Gas Turbine - LMS100 Level 2 Cold Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Cold Maintenance on the LMS100 Ga Consists of classroom instruction, and also includes hands-on maintenance procedure 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 Familiarization (O-AE 	
O-AER10404 Gas Turbine - LMS100 Level 2 Hot Maintenance		~		~			~	~		7	8	US	 Provides the skills necessary to perform Level 2 Hot Maintenance on the LMS100 Gas Consists of classroom instruction, and also includes hands-on maintenance procedure 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 Familiarization (O-AE 	
O-AER10406 Gas Turbine - LMS100 Borescope Inspection		~		✓			~	~		2	8	US	 Familiarizes the procedures required to assess the operational condition of internal Ga 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 Familiarization (O-AE 	
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 of the T Focuses on operator responsibilities such as startup, loading and monitoring during op 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 of the T Focuses on operator responsibilities such as startup, loading and monitoring during op None 	

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res such as removal, adjustment, and replacement of external parts

ER10405)

Gas Turbine res such as removal, inspection, and replacement of internal parts

ER10405)

as Turbine ires such as removal, inspection, and replacement of internal parts

ER10405)

Gas Turbine components using borescope equipment

ER10405)

TM2500 model turbines and their associated systems operation.

TM2500 model turbines and their associated systems operation.



Course ID# & Title		Pla	nt Po	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				laintenance	ntenance	on & Controls			цv	Days	of Students	ons ⁺	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in D	Maximum # o	Location Options⁺	• Prerequisites
O-GAS12002 Gas Turbine - 6, 7, 9, B, E, F Class Introduction to Maintenance Theory		~		~			~			5	12	•	 Offers a firm understanding of the basic maintenance requirements of all types of GE Provides participants a basic understanding of gas turbine construction, how it works a 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 types of GE Provides participants a basic understanding of gas turbine construction, how it works a None
O-GAS22101 Gas Turbine - Operation E-Class (Advanced)		✓	✓				~	~	~	5	12	•	 Designed to enhance GE E-class (7EA and 9E) Gas Turbine-generator operator know Provides a detailed overview of Gas Turbine operating sequences and control and pro Expands upon background in Gas Turbine-generator operation that improves the parti Focuses on the Gas Turbine and generator control and protection, the operational rela 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-GAS)
O-GAS22201 Gas Turbine - Operation F-Class (Advanced)		~	~				~	~		5	12	•	 Designed to enhance GE F-class Gas Turbine-generator operation skills and provides Builds upon student's operational skills and expands upon the student's background in operating problems and take the necessary corrective action Focuses on Gas Turbine and generator control and protection, operational relationship 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-GAS)
O-GAS12003 Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization		✓	~				~		~	5	15	KW US	

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heavy duty gas turbines and their auxiliary support systems and the maintenance requirements and inspection procedures

heavy duty gas turbines and their auxiliary support systems and the maintenance requirements and inspection procedures

wledge and skills

rotection functions

rticipant's ability to properly analyze operating problems and take the necessary corrective action elationships of the compressor, combustion and turbine sections and generator systems

AS12003 or D-GAS12003)

es a detailed overview of Gas Turbine operating sequences and control and protection functions I in Gas Turbine-generator operation, improving the participant's ability to properly analyze

nips of the compressor, combustion and turbine sections and generator cooling system

AS12003 or D-GAS12003)

eavy duty gas turbine-generators, Model Series (MS) / frame sizes covered are the 3, 5, 6, 7 and

rator and the functions of key accessory systems

nese relate to overall operation and performance, base design differences between frame sizes

re control and protection features, Operating parameters and control / protection features of inlet guide vanes, and starting means (Other auxiliary systems are covered as time permits) prations that affect maintenance intervals



Course ID# & Title		Pla	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
D-GAS12003 Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization - Distance Learning		~	~							5	8		 Offers a basic understanding of the construction and operations of all types of GE hear 9 B/E and F class unit types Discussions on starting, loading, control and protection features of the turbine, general Emphasis on basic gas turbine operating cycle Overview of gas turbine major components and equipment arrangements and how the Familiarity with GE Manuals and reference drawings Includes fundamentals of gas turbine start-up, speed, load, shutdown and temperature the key turbine support systems such as the lubricating oil, hydraulics, fuels, variable in Generator construction and Operating Fundamentals, Operating factors and considerations Entry- level course, no previous turbine experience required
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 Gas Turbin Describes and carry out the required measurements before, during and after an A, B of Describes the correct use of the relevant documentation such as Test Certificates, Prof. Selecting and correct use of the relevant special tools, for performing the tasks require Performing in-situ Radial Rotor Position measurements, calculations and possible adjue Describes and apply the disassembly and re-assembly of: EV Burners, EV Lances, SE 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 Have a mechanical background
O-GAS10102 Gas Turbine - GT13E2 Mechanical Systems & Components		✓		✓			~			7	15	*	 Be familiar with the service or erection of power plants Have general knowledge about Gas Turbine hardware Covers GT13E2 Thermal Block: Main components and Parts dimensions, weight and f Overview of the Gas Turbine Systems - Purpose, design and function of the following System, NOx Water System, Air intake System, Variable inlet guide vanes, Blow off va Includes discussion of using the operation and maintenance manuals: Assembly and disas Provides exercises on finding the required documents in the maintenance manual Gas compressor, combustion chamber, turbine, rotor, blades and vanes, bearings, instrume Able to interpret technical documents such as the Piping & Instrumentation Diagram (F Mechanical background Familiar with the service or erection of power plants

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eavy duty gas turbine-generators, Model Series (MS) / frame sizes covered are the 3, 5, 6, 7 and

rator and the functions of key accessory systems

hese relate to overall operation and performance, base design differences between frame sizes

ure control and protection features, Operating parameters and control / protection features of e inlet guide vanes, and starting means (Other auxiliary systems are covered as time permits) erations that affect maintenance intervals

bine (A, B, C)
B or C-inspection. (C-Inspection in summarizing form only)
Procedures and O&M Manuals
irred for an inspection
djustments
SEV Lances, Flame Monitors, Pulsation Probes EV and SEV, Ignition Probes

nd function.

ng Systems: Lube oil System, Jacking oil System, Power oil System, Fuel gas System, Fuel oil valves

assembly procedures, Working with quality documentation and test certificates

as Turbine components - purpose, design and function of the Gas Turbine main components:

mentation to the thermal block, sealing and cooling air

(P&ID) and drawings



Course ID# & Title		Pla	nt P	erso	nnel			elive 1etho					
(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-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, applying step covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor position), couter includes preparation work for start-up of the Gas Turbine and cleaning of systems, "motion" Mechanical background Familiar with the service or erection of power plants
O-GAS10201 Gas Turbine - GT26/GT24 Mechanical Systems & Components (Retractable EV Burner)		~		~			~			10	15	•	 Covers GT26/GT24 Thermal Block: Main components and Parts dimensions, weight a Overview of the Gas Turbine Systems - Purpose, design and function of the following System, Power oil System, Fuel gas System, Fuel oil System, NOx Water System, Air Blow off valves. Includes purpose, design and function of the gas turbine main components: Compress Rotor, Blades and vanes, Bearings, Instrumentation to the thermal block, Sealing and Includes discussion on the use of operation and maintenance manuals: Assembly and quality documentation and test certificates, exercises finding the required documents i Able to interpret technical documents such as the Piping & Instrumentation Diagram (F Mechanical background Familiar with the service or erection of power plants
O-GAS20201 Gas Turbine - GT26 Inspection (retractable 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, applying step covers special tools for disassembly and reassembly Includes alignment of the outer and inner casing to the rotor (radial rotor position), cou Includes preparation work for start-up of the Gas Turbine and cleaning of systems, "mo Mechanical background Familiar with the service or erection of power plants
O-GAS32501 Gas Turbine – Operation HA-Class (Advanced)		~	~							5	15	US	 This course is designed to enhance GE H-class gas turbine-generator operation skills protection functions. The course builds upon student's operational skills and develops operating problems and take the necessary corrective action. Focus will be on the gas support systems. Experience with Gas Turbine Operation.

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ep-by-step sequences for disassembly, inspections, and reassembly of all turbine components,

oupling alignment motor roll" and for first ignition after the inspection

t and function. Ig Systems: Lube oil System, Jacking oil Air intake System, Variable inlet guide vanes,

ssor, Combustion chamber, Turbine, d cooling air. nd disassembly procedures, working with s in the maintenance manual.

(P&ID) and drawings

ep-by-step sequences for disassembly, inspections, and reassembly of all turbine components,

oupling alignment

notor roll" and for first ignition after the inspection

Ils and provides a detailed overview of H-class turbine operating sequences and control and ps a background in gas turbine-generator operation that enables participants to properly analyze gas turbine and generator control and protection and does not include discussions on auxiliary



Course ID# & Title		Pla	nt Po	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				aintenance	ntenance	on & Controls			L	Days	of Students	suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Da	Maximum # o	Location Options⁺	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 parts if Gives an insight on the condition of turbine parts, what needs to be checked during an Executes hands-on training on tightening the various bolts correctly Mechanical background Familiar 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 steam tur and preventive maintenance requirements Covers operation impact on maintenance, routine maintenance, and inspections Prior hands-on plant maintenance experience
D-STM10703 Steam Turbine - Maintenance Familiarization (GE design) - Distace Learning		~		~						5	8		 Provides a thorough understanding of the maintenance requirements for GE steam tur and preventive maintenance requirements Covers operation impact on maintenance, routine maintenance, and inspections 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 and prot Develops a background in Steam Turbine-Generator (ST-GN) operation that enables participant Focuses on the ST-GN control and protection and will include discussions on auxiliary Review of the entire alarm list for the most current D11 control specification to date as None
O-STM10702 Steam Turbine - D11, A10 Operation		~	~				~	9		5	15	KW US	 Designed to enable operators, supervisors, and engineering personnel to safely opera Provides a background in Steam Turbine-generator operation, which will enable participants to Offers detail on turbine and generator equipment as well as their support systems Includes in-depth instruction on the start-up and loading activities, and the operational interface (HMI) None
D-STM10702 Steam Turbine - D11 Operation - Distance Learning		✓	~							5	8		 Designed to enable operators, supervisors, and engineering personnel to safely operation. Provides a background in Steam Turbine-generator operation, which will enable participants to Offers detail on turbine and generator equipment as well as their support systems Includes in-depth instruction on the start-up and loading activities, and the operational interface (HMI) None

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s taking various measurements before, during and after an overhaul an overhaul

urbines and their support systems, understanding of steam turbine maintenance fundamentals

urbines and their support systems, understanding of steam turbine maintenance fundamentals

otection functions, builds upon student's operational skills

nts to properly analyze operating problems and take the necessary corrective action

ry support systems.

is well as full analysis of all possible unit trips.

rate a GE designed steam-turbine generator unit to properly analyze operating problems and take the necessary corrective action

al duties of the operator, in-depth instruction on alarm troubleshooting and the use of the control

rate a GE designed steam-turbine generator unit to properly analyze operating problems and take the necessary corrective action

al duties of the operator, in-depth instruction on alarm troubleshooting and the use of the control



	Course ID# & Title		Plar	nt Pe	erso	nnel			elive 1eth					
· · ·	Click on Course Title to download letailed course outline)				aintenance	itenance	n & Controls			Ľ	ys	Students	nS⁺	• Executive Summary
		Leadership	Supervisors	Operations	Mechanical Ma	Electrical Maintenance	Instrumentation	Classroom	Hands-On	Site Walk-Dow	Duration in Days	Maximum # of	Location Options⁺	• Prerequisites
H	9-BOI10301 leat Recovery Steam Generator (HRSG) - Operation & Inspection		✓	~	~			~			2	18	US	 Addresses HRSG inspection and maintenance cycles and activities to outage work on Covers the arrangement of both horizontal and vertical units, cycle performance, contraissues for cyclic operation, advanced condition assessment and remaining life estimation
														• None

on the Gas Turbine and Balance of Plant for both Combined Cycle and Co-Generation Facilities ontrol, pressure part and non-pressure part degradation, water treatment, metallurgical design nation, and practical inspection and repair activities



Course ID# & Title		Pla	nt P	erso	nnel			elive letho					
(Click on Course Title to download detailed course outline)				aintenance	Itenance	n & Controls			L,	Vs	Students	ns⁺	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenanc	Instrumentation	Classroom	Hands-On	Site Walk-Down	Duration in Days		Location Options ⁺	Prerequisites
O-GEN10701 Generator - Generator Fundamentals	~	~	~		~		~	2 2 2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5		5	12	•	 The course introduces the participant to the design and construction of generator fields synchronous and isochronous operation of generators 4 days of technical training in a classroom setting and a 1-day lab session. 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 generator fields synchronous and isochronous operation of generators 4 days of technical training in a virtual classroom setting and a 1-day virtual lab sessio Laptop or computer with an Internet connection capable of streaming 1080p video A webcam is recommended but not required

elds and stators. It investigates the functions of the generator components and describes the

elds and stators. It investigates the functions of the generator components and describes the sion.



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Course ID# & Title		Pla	int P	erso	nnel				
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls	urs	us	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-CON13402 Control System - Mark™ VIe CIMPLICITY™ ActivePoint™ - Web Based Series with Simulation		~	~		✓	~	6	4	 This course will cover the knowledge and skills necessary to understand and interact with an ActivePoint¹ Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply course objective. This course is designed as a self-paced, web-based training curriculum. Narrated presentations, demonstitude Duration: 4 weeks access; 1-2 hours per week Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommended Mark[™] VIe Training - Web Based Series or equivalent training/experience recommended
W-CON13403 Control System - Mark™ VIe CIMPLICITY™ Projects - Web Based Series with Simulation		~	~		✓	~	6	4	 This course will cover the knowledge and skills necessary to understand, interact with, and edit CIMPLIC Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply course objecti This course is designed as a self-paced, web-based training curriculum. Narrated presentations, demons Duration: 4 weeks access; 1-2 hours per week
		9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9							 Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommended Mark[™] VIe Training - Web Based Series or equivalent training/experience recommended
W-CON13404 Control System – Mark™ VIe CIMPLICITY™ Advanced Viewer - Web Based Series with Simulation		~	~		~	~	6	A	 This course will cover the knowledge and skills necessary to understand, interact with, and edit CIMPLIC Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply course objective This course is designed as a self-paced, web-based training curriculum. Narrated presentations, demons Duration: 4 weeks access; 1-2 hours per week
		8 9 9 9 9 8 9 9 8 9 9 8 9 9 8 9 9 8 9 9 8 9			8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9				 Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommended Mark[™] VIe Training - Web Based Series or equivalent training/experience recommended
W-CON13405 Control System - Mark™ VIe Foundation – Web Based Series with Simulation		✓	~		~	~	80	A	 This course will utilize typical Gas Turbine (GT) software to describe and demonstrate the principles of co Access to a virtualized cloud hosted HMI with GT simulation will allow the student to apply course objective This course is designed as a self-paced, web-based training curriculum. Narrated presentations, demonstrate Duration: 4 weeks access; 10-20 hours per week
									Computer with internet connection, 1.2 Mbps (150 kbyte/s) or higher connection recommended

int™ HMI ectives hands-on following guided lab procedures onstration videos and guided lab exercises will be utilized

LICITY™ Project based HMI displays ectives hands-on following guided lab procedures onstration videos and guided lab exercises will be utilized

ICITY™ Advanced Viewer HMI displays ectives hands-on following guided lab procedures onstration videos and guided lab exercises will be utilized

f configuration and troubleshooting the Mark[™] VIe control system actives hands-on following guided lab procedures constration videos and guided lab exercises will be utilized

CUSTOMER COURSE CATALOG Online - Technology Courses - Aeroderivative Gas Turbines



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Course ID# & Title		Pla	nt P	erso	onnel				
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls	urs	ns	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Ma	Electrical Main	Instrumentatio	Duration in Ho	Location Optio	
W-AER10101 Aeroderivative Engine - LM2500 Familiarization	~	~	✓	~	✓	~	2	A	 Provides a basic overview of GE Gas Turbines Includes theory of operation, the influencial properties of a Gas Turbine, configuration and construction 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 construction This course is applicable for all models of the LM6000 aeroderivative Gas Turbine None
	(Click on Course Title to download detailed course outline) W-AER10101 Aeroderivative Engine - LM2500 Familiarization W-AER10301	(Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) (Click on Course outline) Image: Click on Course outline) W-AER10101 ✓ M-AER10301 ✓	(Click on Course Title to download detailed course outline) I	(Click on Course Title to download detailed course outline) I<	(Click on Course Title to download detailed course outline) I<	(Click on Course Title to download detailed course outline)IIII(Click on Course Title to download detailed course outline)III </td <td>(Click on Course Title to download detailed course outline)II<t< td=""><td>(Click on Course Title to download detailed course outline)IIIIII(Click on Course Title to download detailed course outline)II<</td><td>(Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) W-AER10101 Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Click o</td></t<></td>	(Click on Course Title to download detailed course outline)II <t< td=""><td>(Click on Course Title to download detailed course outline)IIIIII(Click on Course Title to download detailed course outline)II<</td><td>(Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) W-AER10101 Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Click o</td></t<>	(Click on Course Title to download detailed course outline)IIIIII(Click on Course Title to download detailed course outline)II<	(Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) W-AER10101 Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Course Title to download detailed course outline) Image: Click on Click o

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and key components of the unit assembly

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



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Course ID# & Title		Pla	nt P	erso	nnel				
(Click on Course Title to download detailed course outline)				lintenance	tenance	า & Controls	urs	SL	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	Prerequisites
W-GAS10703 Gas Turbine Fundamentals (7F)	~	~	~	~	8		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 turbine performance issues from specific situle. 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, their effect on None
W-GAS10908 Gas Turbine Systems - Compressor Water Wash				~			2	4	 Explains the purpose of the compressor water wash system and covers system components, operation a Describes the function of each component Covers various operating modes None
W-GAS10909 Gas Turbine Systems - Cooling and Sealing Air	2 2 2 2 3 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5			✓			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, Heating and Ventilation	5 5 5 5 5 5 5 5 5 5 5 5 5 5			~	~	✓	2	4	 Provides an overview of the fire protection system and the heating and ventilation system, including func None
W-GAS10913 Gas Turbine Systems - Fuel and Atomizing Air Systems				~			2	A	 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	4	 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

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formance enhancements ituational data

on the environment and how they are controlled

and maintenance

nction, components, operation and maintenance



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Course ID# & Title		Pla	nt P	erso	nne				
(Click on Course Title to download detailed course outline)				aintenance	itenance	n & Controls	urs	ns	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	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 inspection requi None
W-GAS10918 Gas Turbine Systems - Steam and Water Injection				~			2	4	 Describes the components of the steam and water injection systems, including function, operation and main 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, key compo Includes various operating modes of the air inlet system and describes appropriate inspection and maintee None
W-GAS12002 Gas Turbine - Generator Hydrogen Control System			~	~			1.5	A	 In this course, you will learn about the elements of the hydrogen gas control system. None

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maintenance	
ponents and their functions ntenance procedures	
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CUSTOMER COURSE CATALOG Online - Technology Courses - Steam Turbines



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Course ID# & Title		Plai	nt Pe	erso	nnel				
(Click on Course Title to download detailed course outline)				laintenance	aintenance	n & Controls	Hours	Suc	Executive Summary
	Leadership	Supervisors	Operations	2	Electrical Main	Instrumentation	Duration in Ho	Location Options	Prerequisites
W-STM10703 Steam Turbine Fundamentals	✓	~	~	✓	✓	~	4	A	 Addresses Steam Turbine components, including nozzles, bearings, rotor, steam-sealing devices and val Covers the location and assembly of each component Introduces the basics of the Steam Turbine cycle, including physics, components, types of turbines, turbin Covers the basics of efficiency and applications
		9 5 5 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8				• • • • • •			• None

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bine classes and subclasses of Steam Turbines

CUSTOMER COURSE CATALOG Online - Technology Courses - Generators



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Course ID# & Title		Pla	nt P	erso	nne	I			
(Click on Course Title to download detailed course outline)				aintenance	tenance	n & Controls	urs	ns	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-ELX10901 Generator & Electrical - 3-Phase Power	~	~	~	~	~	~	1	A	 Describes methods and procedures required to perform single-phase and 3-phase power calculations Identifies Wye and Delta connections Familiarizes participants with rearragement on motor windings Covers line-to-line and line-to-neutral voltage measurements None
W-ELX10902 Electrical - ACDC Motors			~		~		2	4	 Introduces the components and operation of a motor with three modules: Components of a Motor - Covers the various parts of a motor DC Motors - Describes the operation of a DC motor and identification of relevant nameplate data AC Motors - Describes the operation of an AC motor and identification of relevant nameplate data None
W-GEN10701 Generator & Electrical - Elements of Power Delivery	~	~	~	~	~	~	1	4	 Introduces participants to the elements involved in the process of power delivery with three modules: Functions of a Power System - Describes the functions of a power system and the process of power g One-line Diagrams - Explains the use and importance of a one-line diagram System Components - Covers the components of a power system None
W-GEN10703 Generator - Generator Theory	~	~	✓	~	~	✓	1	4	 Introduces the fundamentals of generator theory with two modules: Basics of Electromagnetism - Covers the characteristics of magnetic flux and the factors affecting curr Components and Operation of an AC Generator - Describes the major components and operation of a None
W-GEN10901 Generator & Electrical - Hydrogen Gas Control System			~	~			1	~	 Introduces the elements of the hydrogen gas control system with five modules: Operating Principles - Explains the use of hydrogen as a cooling medium in the gas control system as Major Components - Covers the functions of the components of the generator gas control system System Operation - Describes how the generator gas control system operates Maintenance - Addresses maintenance of the gas control system for optimal performance Inspection - Covers the various operational inspections, lubrication, and tests of the generator gas cort
W-GEN10801 Generator & Electrical - Stator Winding Cooling System	~	~	~	~	✓	~	1	A	 Introduces participants to the stator winding cooling system of a generator with four modules: Major Components - Covers the locations and functions of the various components that comprise the Operating Systems - Provides in-depth coverage of the operation process of a stator winding cooling s Testing of Components - Explains the tests and inspections for stator winding cooling system component Removal of Stator Cooling Water and Unit Operation Without Cooling Water - Addresses the procedure the flow of cooling water
									• None

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generation and transmission

urrent induced in a conductor f an AC, 3-phase synchronous generator and explains the tabular sequence winding diagram

as well as the operating requirements of the system

control system

he stator winding cooling system

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dure to remove cooling water from the generator and describes how a generator functions without



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Course ID# & Title		Pla	nt P	erso	nnel				
(Click on Course Title to download detailed course outline)				aintenance	ntenance	n & Controls	urs	SUC	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-ELX11701 Excitation - Circuit and MCC Basics	~	~	~		✓	✓	1	4	 Familiarization of electrical circuits, forms of circuit protection, and motor control centers, or MCCs Reading circuit symbols and ladder diagrams and, demonstrate basic circuit troubleshooting techniques None
W-ELX11702 Excitation - Generator Operation and Synchronization	~	~	~		~	~	2	4	 Understanding of the operation of a generator and the various types of power generated at power plants generator and the various parameters required for the safe synchronization of a generator None
W-GEN11401 Generator - Generator Fundamentals - Design and Construction	~	~			~	~	1.5	4	 Provide a basic understanding of the design and construction of a generator, including the function of diff None
W-GEN11402 Generator - Introduction to Generator Product Line	~	~	✓		~	~	1.5	4	 Provides product summary and specifications of key/common generator models from both legacy GE an Models covered include: 6A6, 6FA, 7A6, 9A5, SPL-MA, 7FH2, 7FH2B, 324, 330H, SPL-MH, 390H, 450H 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 inspection points a It will also guide the field engineer in assessing damage that will require the specific intervention of a qua None
W-GEN10501 Generator - Shaft Sealing System	✓	✓	✓	~	* * * * *		1.5	4	 In this module, learners will come to know about the importance, components, operation, and detecting a None
W-GEN10704 Generator - Generator Fundamentals - Field Design and Construction	~	~	~		~		1	4	 This course focuses on the design and construction of the major components of the rotor, how the rotor i A reasonable ability to read and understand English is required.
W-GEN10705 Generator - Generator Fundamentals - Power Plant Overview	~	~	~	~	~		1	4	 This course introduces the basics of power plants, electromagnetic principles, and electricity generation. mediums and their applications. A reasonable ability to read and understand English is required.
W-GEN10706 Generator - Generator Fundamentals - Stator Design and Construction	~	✓	✓		~		1	4	 This course focuses on the design and construction of the major components of the stator, how the stato 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 Backup Sys described in terms of: function, operation and location in the EX2100 Warm Backup Panel. A reasonable ability to read and understand English is required.
W-ELX11001 Excitation - LCI Static Starter System Fundamentals	~	✓	✓		~		1	4	 The LCI Static Starter System Fundamentals course is designed to provide basic knowledge of GE stati This course is not intended to provide technical training on testing, evaluating, or repairing electrical equi A reasonable ability to read and understand English is required.

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ts, various generator curves, regulators & limiters, typical start-up & shut-down operations of a

different parts of the generator

and legacy Alstom DHE, SPL-LH, LSTG-675-60-2, SPL-LW, LSTG-710-50-2, LSTG-900-60-2,

s and evaluation criteria. ualified generator specialist.

alarm signals of the Shaft Sealing System

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

n. You will also learn the basics of generator architecture and function, as well as, various cooling

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

ystem. Using color graphics and text, the major components and individual circuit boards are

atic starters for gas turbine applications. uipment.



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Course ID# & Title		Pla	nt P	erso	nnel				
(Click on Course Title to download detailed course outline)				aintenance	aintenance	n & Controls	Hours	ns	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Ma	Electrical Main	Instrumentation	Duration in Ho	Location Options	• Prerequisites
W-ELX10903	\checkmark	✓	\checkmark		\checkmark	8	1	A	Motor Control and Elementary basic theory.
Electrical - Electrical Troubleshooting	-	7	-	7	-				 A reasonable ability to read and understand English is required.
W-ELX10201	\checkmark	\checkmark	\checkmark		\checkmark	-	2	A	 This course provides an overview of the simplex system and introduces you to the elements of EX2100R
Excitation - EX2100R Excitation System									 A reasonable ability to read and understand English is required.
W-GEN10708 Generator - Generator Assembly &	✓	~	✓	✓	✓		1	4	 This course is intended to show Field Engineers the generic processes of disassembly and re-assembly hydrogencooled generators, and Large Steam hydrogen/liquid cooled generators.
Disassembly									 A reasonable ability to read and understand English is required.

0R excitation system.

ly of GE designed Medium Steam/Gas air-cooled generators, Medium Steam/Gas

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



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Course ID# & Title		Pla	nt P	erso	nne				
(Click on Course Title to download detailed course outline)				aintenance	tenance	n & Controls	urs	us	Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	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, including the best Explains to use the Trip Cost Calculator
		2 - - - - - - - - - - - - -	2 - - - - - - - - - - - - - - - - - - -		2 - - - - - - - - - - - - -			7	 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 to prevent e 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	4	 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 collector ring 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 turbines Helps to understand how high exhaust temperature spreads occur in gas turbines and how to recognize Familiarizes with the common causes of HETS trips and the various trip response techniques for issues 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 vulnerable op 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
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 combined cy Helps identify the tasks performed by HRSG system during its operation Familiarizes with the regular and preventive maintenance procedures that are essential to keep the HRS
		2 4 5 5 5 5 5 5 5 5 5 5 5 5 5			1 	*			 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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st practices, supporting plant reliability

t exhaust gas thermocouple failure, thus reducing the number of Gas Turbine Trip

ze a high exhaust temperature spread as related to the HETS trips and alarms

operating ranges

cycle power plant

RSG and its components operational



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Course ID# & Title		Pla	nt Pe	erso	nnel				
(Click on Course Title to download detailed course outline)				aintenance	ntenance	n & Controls	urs	suc	• Executive Summary
	Leadership	Supervisors	Operations	Mechanical Maintenance	Electrical Maintenance	Instrumentation	Duration in Hours	Location Options	• Prerequisites
W-BOI10402 PATAT 8 - Drum Level 1: Overview - Introduction		~	~	~			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 importance of properamiliarizes with principles and components that may impact the proper control of the HRSG drum water 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 Combined Cycle
W-BOI10403 PATAT 9 - Drum Level 2: Level Controls - Control Systems		~	✓	~			1.2	4	 Introduces the Heat Recovery Steam Generator (HRSG) drum level controls, the valves that may have Familiarizes with the common troubleshooting techniques for potential problems associated with steam d A reasonable ability to read and understand English is required Recommended to complete the 'HRSG Operations and Maintenance' as well as the 'HRSG Drum Level Basic understanding of the operational fundamentals of gas turbines, steam turbines, and Combined Cyce
W-BOI10404 PATAT 10 - Drum Level 3: Condensate and Feedwater Pump Systems		~	~	~			1	A	 Introduces the components, functions, and potential problems associated with the Condensate System, the Helps to identify common problems associated with the condensate Pumps, including Condensate flow performed 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 familiarity with
W-BOI10405 PATAT 11 - Drum Level 4: Bypass Systems		✓	~	~			1.2	A	 Familiarizes with the Steam Turbine Bypass Systems that play an important role in the efficient operation Introduces the standard types of bypass systems, the valves that form part of the bypass systems Explains the control logic for the bypass valves, the types of problems that may occur in the software of t A reasonable ability to read and understand English is required Recommended to complete the 'HRSG Operations and Maintenance' as well as the 'HRSG Drum Level Basic understanding of the operational fundamentals of a steam turbine and combined cycle power plant
W-GAS10932 PATAT 12 - Bearing Lube Oil & Hydraulics		✓	~	✓			2	4	 Introduces the Bearing Lube Oil and Hydraulics System (BLOH) and the functions of the major compone Focuses on the conditions that can lead to system trips and recommended best practices in preventive r Familiarizes about the relevant safety precautions while working on or around the Bearing Lube Oil and 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

Recommended course for new equipment Customer self-registration capability at: <u>www.gevernovatechtraining.com</u> roper water level control in the HRSG steam drums ter level

Cycle Power Plants ve an impact on steam drum level control n drum level controls

el 1: Control Overview – Introduction" courses Cycle Power Plants

n, the Feedwater System, and the Feedwater Control System v problems, instrumentation failures, and common system mis-operation flow, instrumentation failures and common system mis-operation System

with all relevant safety regulations and guideline ion of a Heat Recovery Steam Generator (HRSG)

f the control systems, and the techniques for troubleshooting these problems

el 1: Control Overview – Introduction" courses ant, and be familiar with all safety regulations and guidelines nents and the sub-systems e maintenance to avoid trips

d Hydraulics System



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Course ID# & Title		Pla	nt Pe	ersc	onne	I			
(Click on Course Title to download detailed course outline)	ď	DIS	S	Mechanical Maintenance	Electrical Maintenance	itation & Controls	in Hours	Options	Executive Summary Prerequisites
	Leadership	Supervisors	Operations	Mechanic	Electrical	Instrumentation	Duration in Hours	Location (
W-GAS10933 PATAT 13 - Compressor Bleed Valve System		~	~	~			1	Â	 Introduces the function of the Compressor Bleed Valve (CBV) System Explains the problems associated with compressor bleed valves, and provide recommendations to improve Familiarizes with the safety considerations that the participant should follow when working around the Comp 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 Shutdown Procedures		~	~				1.15	Å	 Familiarizes with the problems that can occur during startup and shutdown of a Steam turbine and the methe Introduces to basic startup and shutdown procedures for a steam turbine and the safety guidelines that need 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 protection prod Familiarizes with the purpose of a Winterization Checklist as well as introduce the participant to the best pra A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a steam turbine and other equipment
W-GAS10935 PATAT 16 - Troubleshooting Liquid Fuel System Problems		~	~	~			1	A	 Introduces the various components of the Liquid Fuel System and the functionality of each component Helps identify the chief causes of trips in the Liquid Fuel System, and the strategies and guidelines for reduce Familiarizes with the advantages and disadvantages of switching between fuels, and the safety guidelines to System A reasonable ability to read and understand English is required
									 Basic understanding of the operational fundamentals of a steam turbine and other equipment An intimate familiarity with all relevant safety regulations and guidelines
W-GAS10936 PATAT 17 - Troubleshooting Gaseous Fuel System Problems		✓	~	~			1	~	 Introduces the various components of the Gaseous Fuel System and the functionality of each component Helps identify the chief causes of trips in the Gaseous Fuel System, and the strategies and guidelines for re Familiarizes with the advantages and disadvantages of switching between fuels, and the safety guidelines to System A reasonable ability to read and understand English is required Basic understanding of the operational fundamentals of a steam turbine and other equipment
		*							

rove CBV system operation Compressor Bleed Valve System

methods that can be employed to minimize such problems t need to be followed while operating or working on a steam turbine

n procedures that should be followed It practices to be followed for heat tracing site components to prevent them from freezing

reducing the number of such trips nes to be followed while working in and around the turbine compartment, and the Liquid Fuel

s for reducing the number of such trips lines to be followed while working in and around the turbine compartment, and the Gaseous Fuel 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





SELF-PACED LEARNING

WEB BASED TRAINING WITH SIMULATIONS

(<u>page 97</u>)

ONLINE - TECHNOLOGY COURSES

(<u>page 98</u>)

(<u>page 99</u>)

(<u>page 101</u>)

(<u>page 102</u>)

ONLINE - PRO-ACTIVE TRIP AVOIDANCE TRAINING

(page 104)



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Course ID# & Title			lerivat Turbin							Hea\ Gas 1	vy Di Furbi	uty ines						Othei	⁻ Maj	jor Ec	lnibm	ent					Ae	erode Ga	erivat s Tur	ive & bine	Hea Upgr	vy Di ade	uty						ontrol & citatior	Ac	ulator cess
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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 5</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 (page 6) Combined Cycle - Simulator based Process Training																																									
BALANCE OF PLANT																																									·
E-BOP10202 (<u>page 7</u>) Balance of Plant- Operation (GE Integrated Systems)∻																																								~	



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CONTROLS AND EXCITATION - AERODERIVATIVE	GAS 1	TUR	BINE	ES																																						
E-CON23401 (<u>page 8</u>) Control System - Mark VIe (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 8</u>) Control System - RX3i Operation, Maintenance & Troubleshooting																																										
E-CON23601 (page 9) Control System - Aero DLE Familiarization & Mapping Overview] [
CONTROLS AND EXCITATION - HEAVY DUTY GAS	TURB	INE	S																																							
E-CON10501 (<u>page 10</u>) Control System - AC800M with IIT800xA																																										
E-CON10201 (page 10) Control System - ADVANT with IIT800xA																																									~	
E-CON10202 (<u>page 10</u>) Control System - ADVANT with OS520																																										
E-CON11401 (<u>page 10</u>) Control System - DLN 1.0 Standard Combustor																																									~	 Image: A start of the start of



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E-CON11402 (page 10) Control System - DLN 1.0+ Standard Combustor																																		-				
E-CON11901 (page 11) Control System - DLN 2.6+ Standard Combustor																																				v		✓
E-CON11902 (<u>page 11</u>) Control System - DLN 2.6+ Flex Combustor																													I							۷	A A A A	✓
E-CON10404 (<u>page 11</u>) Control System - ALSPA Control System Fundamentals																																				v		
E-CON20406 (page 11) Control System - ALSPA Control System Intermediate																																				v	1	
E-CON30401 (<u>page 12</u>) Control System - ALSPA Control System Advanced																																				v	/	
E-CON13302 (<u>page 12</u>) Control System - Mark VI Maintenance (HMI on 1st Day)								•] []																					v	/	
E-CON23301 (<u>page 12</u>) Control System - Mark VI Troubleshooting (Advanced)] []																					v		
E-CON13306 (<u>page 12</u>) Control System - Mark VI to Mark VIe Platform Upgrade Mainte- nance																																				v		 ✓
E-CON13401 (<u>page 13</u>) Control System - Mark VIe Maintenance (Extended)∻												• (]																					v	A A A A	✓
E-CON13402 (<u>page 13</u>) Control System - Mark VIe Maintenance																																				v		✓

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



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CONTROLS AND EXCITATION - HEAVY DUTY GAS	TURBI	NES -	- CO	NTIN	IUED)																																
E-CON13403 (<u>page 13</u>) Control System - Mark VIe Maintenance (HMI on 1st Day)											• []																				~	~
E-CON13404 (<u>page 13</u>) Control System - Mark VIe Maintenance Nuclear																																						
E-CON13413 (<u>page 13</u>) Control System - Mark VIe Migration from Mark V (HMI on 1st day)											•																										~	~
E-CON13406 (<u>page 14</u>) Control System - Mark VIe HMI											•]																				~	~
E-CON23404 (<u>page 14</u>) Control System - Mark VIe Troubleshooting (Advanced)											• (]																				~	 Image: A start of the start of
E-CON13410 (<u>page 14</u>) Control System - Mark VIe Distributed Control System Mainte- nance∻										•	• []																				~	
E-CON13412 (page 14) Control System - Mark VIe Distributed Control System Operation											• (]																				~	
E-CON23405 (page 15) Control System - OpFlex Enhanced Transient Stability Operation																																					~	✓
E-CON23406 (<u>page 15</u>) ControlSystem- OpFlex Enhanced Transient Stability with Auto- Tune DX & Cold Day Performance Operation																																					~	✓
E-CON23407 (page 15) ControlSystem- OpFlex Enhanced Transient Stability with Auto- Tune DX Operation																																					~	~
E-CON23408 (page 15) ControlSystem- OpFlex Enhanced Transient Stability with Auto- Tune LT Operation																																					~	✓

Legend:

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



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CONTROLS AND EXCITATION - HEAVY DUTY GAS	TURB	INES -	CO		1 1								1					-																		:	
E-CON23409 (<u>page 16</u>) Control System - OpFlex Enhanced Transient Stability with Auto- Tune MX & Variable Load Path Operation																																				~	v
E-CON10801 (<u>page 16</u>) Control System - ActivePoint™ HMI Operation Familiarization																																				~	~
E-CON33402 (<u>page 16</u>) Control System - Proficy CIMPLICITY™ for Turbine Controls (Advanced)																	2																			~	~
E-CON13414 (<u>page 16</u>) Control System - Mark VIe Foundation Fieldbus																																				~	
E-CON13701 (<u>page 17</u>) Control System - Control Server and Thin Client Familiarization																																					
E-ELX10902 (<u>page 17</u>) Electrical - Electrical Control System (ECS) Training ∻																																				~	
E-ELX10903 (<u>page 17</u>) Electrical - Intelligent Electronic Device (IED) IED's – Protection & Control ∻																																				~	
CONTROLS AND EXCITATION - STEAM TURBINES	_																					 							_								
E-CCP20604 (<u>page 18</u>) Combined Cycle - Simulator based Steam Cycle Operation																																				~	
E-CCP20605 (<u>page 18</u>) Combined Cycle - Simulator Based Steam Turbine Operation																																				~	



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CONTROLS AND EXCITATION - GENERATORS E-ELX10301 (page 19)																																					✓	—
Excitation - EX2100e Maintenance																																						
E-ELX10302 (<u>page 19</u>) Excitation - EX2100e Operation & Maintenance																			8																		~	
E-ELX10303 (<u>page 19</u>) Excitation - EX2100e Generator Operation																																					~	
E-ELX10304 (<u>page 19</u>) Excitation - EX2100e Platform Upgrade Maintenance																																					~	
E-ELX10305 (<u>page 19</u>) Excitation - Aero EX2100e and Integrated Generator Protection System (IGPS)																																					✓	
E-ELX11501 (<u>page 19)</u> Excitation - Generator Excitation, Protection and Static Starter Introduction∻																																						
E-ELX11101 (<u>page 20)</u> Excitation - Combisystem Excitation & Static Starting Device Maintenance∻																																					~	
E-ELX10901 (<u>page 20)</u> Electrical - Operation & Maintenance (GE Integrated Systems)∻																																						
E-ELX30101 (<u>page 20</u>) Protection - MiCOM Generator & Transformer Protection																																						
E-ELX30501 (<u>page 20)</u> Excitation - LS2100e LCI for Turbine Static Start																																					~	



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CONTROLS AND EXCITATION - GENERATORS		UE	D																																				
E-ELX30202 (<u>page 21</u>) Protection - REG216 Protection System Maintenance																																							



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AERODERIVATIVE GAS TURBINES																																							
E-AER10101 (<u>page 22</u>) Gas Turbine - LM2500 Aero Package Operation/Familiarization∻																																				•			
E-AER10201 (<u>page 22</u>) Gas Turbine - LM2500+ Aero and LM2500+ Xpress Package Operation/Familiarization																																							
E-AER10102 (<u>page 22</u>) Gas Turbine - LM2500+ Package Maintenance∻																																							
E-AER10202 (<u>page 22</u>) Gas Turbine - LM2500+ and LM2500+ Xpress Package Mainte- nance∻																																				•			
E-AER10103 (<u>page 22</u>) Gas Turbine - LM2500 Engine Familiarization																																							
E-AER10104 (<u>page 22</u>) Gas Turbine - LM2500 Level 1 Maintenance		•																																					
E-AER10105 (<u>page 23</u>) Gas Turbine - LM2500 Level 2 Cold Maintenance		•							_																														
E-AER10106 (<u>page 23</u>) Gas Turbine - LM2500 Level 2 Hot Maintenance																																							
E-AER10107 (<u>page 23</u>) Gas Turbine - LM2500+ Level 2 Hot Maintenance																																							
E-AER10203 (<u>page 23</u>) Gas Turbine - LM2500+ Borescope Inspection																																							
E-AER10204 (<u>page 23</u>) Gas Turbine - LM2500+/G4 Engine Familiarization																																							

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



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E-AER10205 (<u>page 24</u>) Gas Turbine - LM2500+ Level 1 Maintenance																																								
E-AER10206 (<u>page 24</u>) Gas Turbine - LM2500+ Level 2 Cold Maintenance																																								
E-AER10108 (<u>page 24</u>) Gas Turbine - LM2500 Borescope Inspection																																				-				
E-AER10301 (<u>page 24</u>) Gas Turbine - LM6000 Aero Package Operation/Familiarization∻																																				-				
E-AER10302 (<u>page 24</u>) Gas Turbine - LM6000 Package Maintenance∻																																								
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E-AER11201 (<u>page 25</u>) Gas Turbine - LM9000 Aero Package Operation / Familiarization ∻																																								



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Course ID# & Title		lerivat Turbin							H Ga	eavy as Tui	Duty rbine	y es					С	Other	Majo	r Equ	iipmei	nt			,					avy D Irade						i i i	ntrol & tation	Simulator Access
(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000	LMS100	ZH	Н	ZF	9F	6F 77 / 7 A	/E/EA	е 6В	55/3	GT24	GT26	13E	13D	11N		Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	5	HRSG	Generator (legacy GE)	Pa/ PC Ubrate (Aero)	Advanced Gas Path (AGP)	DLN1.0+	DLN2.U	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 Repower Projects	Turbine Control System	Generator Protection System	During Course Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINUED E-AER11202 (page 26)				-																																		
Gas Turbine - LM9000 Package Maintenance∻																																						
E-AER10401 (<u>page 26</u>) Gas Turbine - LMS100 Aero Package Operation/Familiarization∻																																						
E-AER10402 (<u>page 26</u>) Gas Turbine - LMS100 Package Maintenance∻																																						
E-AER10403 (<u>page 26</u>) Gas Turbine - LMS100 Engine Familiarization																																						
E-AER10404 (<u>page 26</u>) Gas Turbine - LMS100 Level 1 Maintenance																																						
E-AER10405 (<u>page 27</u>) Gas Turbine - LMS100 Level 2 Cold Maintenance																																						
E-AER10406 (<u>page 27</u>) Gas Turbine - LMS100 Level 2 Hot Maintenance																																						
E-AER10501 (<u>page 27</u>) Gas Turbine - TM2500 Aero Package Operation/Familiarization∻																				-																		
E-AER10601 (<u>page 27</u>) Gas Turbine - TM2500+ Aero Package Operation/Familiarization∻																																						
E-AER10502 (<u>page 27</u>) Gas Turbine - TM2500 Aero Package Maintenance∻																																						
E-AER10602 (<u>page 28</u>) Gas Turbine - TM2500+ Aero Package Maintenance�																																						



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(Click on Course Title to download detailed course outline)	2500 / LM2500	2	2	7H Bu	7F	9F	бF	7E / EA	9E 6B	55/3	Z.	GT26	13E	13D	11N 8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler HRSG	Generator (legacy GE)	Generator (legacy Alstom)	PA / PC Uprate (Aero)	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 XI /MXI /MXI 2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINUED																																					
E-AER10701 (<u>page 28</u>) Gas Turbine - Aero MKVIe Operations∻]																																		✓	

CUSTOMER APPLICABILITY MATRIX Site-Specific:



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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+		LMS100	ΤH	9H 7	9F	6F	7E / EA	ЧЕ 6В	Fr5/3	GT24	GT26	13E 13D	11N	8C	ine (legacy	Steam Turbine (legacy Alstom)	Boller HRSG	Generator (legacy GE)	Generator (legacy Alstom)	rate (Aer	Advanced Gas Path (AGP) DI N1 0	DLN1.0+	DLN2.0	DLN2.6	i	DLN2.6+ Flex Combustor	rasi olari Onflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	AL/MAL/MAL2 Upgrade	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
HEAVY DUTY GAS TURBINES E-GAS10401 (page 29)																																						1	
Gas Turbine - Familiarization for Power Plant Management																																							
E-GAS12001 (<u>page 29</u>) Gas Turbine - Operation ∻					•				•]]																							~	~
E-GAS22101 (<u>page 29</u>) Gas Turbine - Operation E-Class (Advanced)																						•																✓	~
E-GAS22201 (<u>page 30</u>) Gas Turbine - Operation F-Class (Advanced)																					•	•																~	~
E-GAS22501 (<u>page 30</u>) Gas Turbine- Operation H-Class (Advanced)																						•																~	~
E-GAS20203 (<u>page 30</u>) Gas Turbine - Operation Training on GT26 Simulator																																							
E-GAS12002 (<u>page 30</u>) Gas Turbine - Maintenance∻					•																																		
E-GAS20101 (<u>page 31</u>) Gas Turbine - GT13E2 Inspection																																							
E-GAS10102 (<u>page 31</u>) Gas Turbine - GT13E2 Mechanical Systems & Components																																							
E-GAS20201 (<u>page 31</u>) Gas Turbine - GT26 Inspection (retractable EV Burner)																																							
E-GAS10204 (<u>page 31</u>) Gas Turbine - GT26 Mechanical Systems & Components (retractable EV Burner)																																							



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(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	00	LM9000	7H	H6	/F 9F	6F	7E / EA	9E 6R	50 Fr5/3	GT24	GT26	13E 13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)	Boiler	HRSG	Generator (legacy GE)	PA / PC Uprate (Aero)	Advanced Gas Path (AGP)	DLN1.0	DLN1.07 DLN2.0	DLN2.6	+9.	DLN2.6+ Flex Combustor	Fast Start	Opriex 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
HEAVY DUTY GAS TURBINES - CONTINUED																																						
E-GAS10205 (<u>page 32</u>) Gas Turbine - GT24/GT26 Routine Maintenance																																						



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Course ID# & Title			erivat Furbin							He Ga	eavy is Tur	Duty bines					Ot	ther M	ajor I	Equip	omen	nt						& He le Up							Contro & xcitatio		Simula Acce	
(Click on Course Title to download detailed course outline)	_	TM2500 / TM2500+	LM6000	LM9000	ZH	H6	7F or	9F cr	0F 7E / EA	/E/EA OF	eB	Fr5 / 3	GT24	GT26 12F	13D 44N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG Constant (locant, CE)	Generator (legacy ਰੁਵ) Generator (legacy Alstom)	orate (A	d Gas	DLN1.0	DLN1.0+	DLN2.6+	DLN2.6+ Flex Combustor	Opflex	Advanced Compressor	HeX Sulle H2 Fuel Rlanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flanç		Generator Protection System	During Course	Extension After Course
STEAM TURBINES																																						
E-STM10702 (page 33) Steam Turbine - Conversion/Modification/Upgrade Operation with Controls Upgrade																																					✓	
E-STM10801 (<u>page 33</u>) Steam Turbine - Maintenance∻																																						
E-STM10802 (<u>page 33</u>) Steam Turbine - Operation∻																																					✓	
E-STM10803 (<u>page 33</u>) Steam Turbine - Operation (Basic)																																					✓	
E-STM20701 (<u>page 34</u>) Steam Turbine - Operation (Advanced)																																					✓	



		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equipment	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	7H 7F 9F 6F 7E / EA 7E / EA 9E 6B 6B 6124 6124 6T26 6T26 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 DLN2.6 DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor CPIN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor Flex Suite Advanced Compressor Flex Suite Advanced Compressor Advanced Compressor CPflex Suite Advance Package Adv. Performance Package	Turbine Control System Generator Protection System During Course Extension After Course
HEAT RECOVERY STEAM GENERATORS					
E-BOI10302 (<u>page 35</u>) Heat Recovery Steam Generator (HRSG) - Operation & Maintenance (GE Engineered)∻					



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Course ID# & Title			erivat ⁻ urbin								leavy as Tui							C)ther I	Major	Equ	ipmer	nt								& He e Up								Contro & xcitatio		Simula Acces	
(Click on Course Title to download detailed course outline)	_	TM2500 / TM2500+	LM6000	LMS100	7H	Н	7F	9F	6F 7E / EA	/E/EA or	9E 6B	Fr5 / 3	GT24	GT26	13E	13D	11N		Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		HRSG	Generator (legacy GE)	prate (Ae	d Gas	DLN1.0	DLN1.0+	DLN2.0	DLN2.6 DI N2 6+	DLN2.6+ Flex Combustor	ť		Advanced Compressor Flev Suite	H2 Fliel Blanding	Adv. Performance Package	gra	0	e to	Kepower Projects		Generator Protection System	During Course	Extension After Course
GENERATORS																																										
E-GEN10403 (page 36) Generator - Water & Hydrogen Cooled Operation & Maintenance of Auxiliary Systems																																						*				
E-GEN10301 (<u>page 36</u>) Generator - Mechanical Systems & Components																																										
E-GEN10901 (<u>page 36</u>) Generator - Hydrogen Cooling System Operation & Maintenance																																										
E-GEN10102 (<u>page 36</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 Equipment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LMS100	7H 9H 9F 6F 6F 7E / EA 9E 6B 6B 6124 6126 6124 6126 6126 6126 13D 11N	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+ DLN2.6 DLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor Advanced Compressor Fast Start DLN2.6+ Flex Combustor Coffiex DLN2.6+ Flex Combustor Coffiex DLN2.6+ Flex Combustor Coffiex DLN2.6+ Flex Combustor Coffiex DLN2.6+ Flex Combustor Coffiex DLN2.6+ Flex Combustor Flange to Flange Cofficiency Optimizer Flange to Flange	Turbine Control System Generator Protection System During Course Extension After Course
TOTAL PLANT SOLUTIONS					
O-CCP10205 (<u>page 37</u>) Combined Cycle - Operation Familiarization					✓



Please select a course

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Course ID# & Title		erivati urbine									Duty bine						Othe	er Ma	ajor E	quip	men	t				ļ			itive & Irbine									ontrol & citation	Aco	ulator cess
(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000 LM9000	LMS100	ZH	H6	7F 0	9F or	6F 7E / E.A	9E	6B	Fr5/3	GT24	GT26	13E	13D	11N	gacy	Steam Turbine (legacy Alstom)	Boiler HPSG	Generator (lecacy GF)	Generator (legacy Alstom)	orate (A	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	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 Droiacts	Turbine Control System	Generator Protection System	During Course	Extension After Course
CONTROLS AND EXCITATION			-							-	-									-																			-	-
O-ELX10101 (<u>page 38</u>) Excitation - EX2000 Generator Excitation Maintenance																				L]																			
O-ELX10201 (<u>page 38</u>) Excitation - EX2100 Generator Excitation Maintenance] 🗆											L]																			
O-ELX20201 (<u>page 38</u>) Excitation - EX2100 Generator Excitation Maintenance (Advanced)] [] 🗆											C]																			
O-ELX10301 (<u>page 38</u>) Excitation - EX2100e Generator Excitation Maintenance∻																																								
D-ELX10301 (<u>page 38</u>) Excitation - EX2100e Generator Excitation Maintenance - Distance Learning																																								
O-ELX20301 (<u>page 38</u>) Excitation - EX2100e Generator Excitation Maintenance (Advanced)∻																																								
O-ELX11002 (<u>page 39</u>) Excitation - LS2100 LCI for Turbine Static Start] 🗆]																			
O-ELX11003 (<u>page 39</u>) Excitation - LS2100e LCI for Turbine Static Start] 🗆											C]																			
O-CON13301 (<u>page 39</u>) Control System - Mark VI Operation																																							~	
O-CON23301 (<u>page 39</u>) Control System - Mark VI Maintenance (Advanced)																																							~	
O-CON23302 (<u>page 39</u>) Control System - Mark VI Troubleshooting (Advanced)																																							~	

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



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Course ID# & Title			lerivat Turbin							Hea Gas	avy E Turb							Othe	er Ma	ijor Eq	quipm	nent					Ae		ve & I bine L			ty					Cor 8 Excit		Simu Acc	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+	TM2500 / TM2500+	LM6000	LMS100	τH	H6	7F	9F CT	or 7E / EA	9E	GB	Fr5/3	GT24 CT36	0120 13E	13D	11N	8C	ım Turbine (legacy (Steam Turbine (legacy Alstom)	Boller HRSG	Generator (legacy GE)	Generator (legacy Alstom)	prate (Aer	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	rast statt Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade 13F2 Ffficiency Ontimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
O-CON13405 (page 40)																																							✓	
Control System - Mark VIe Familiarization (Advanced Viewer) D-CON13405 (page 40) Control System - Mark VIe Familiarization (Advanced Viewer) - Distance Learning											•] 🗆]																								✓	
O-CON13406 (<u>page 40</u>) Control System - Mark VIe Familiarization (ActivePoint™)																																							~	
D-CON13406 (<u>page 40</u>) Control System - Mark VIe Familiarization (ActivePoint™) - Distance Learning															1 🗆																								✓	
O-CON13407 (page 40) Control System - Mark VIe Intermediate (Advanced Viewer)								•																															✓	
D-CON13407 (<u>page 40</u>) Control System - Mark VIe Intermediate (Advanced Viewer) - Distance Learning								•																															~	
O-CON13408 (<u>page 41</u>) Control System - Mark VIe Intermediate (ActivePoint™)																																							~	
D-CON13408 (<u>page 41</u>) Control System - Mark VIe Intermediate (ActivePoint™) - Distance Learning								•							1 🗆																								~	
O-CON23401 (<u>page 41</u>) Control System - Mark VIe Maintenance (Advanced)																																							~	
O-CON33401 (<u>page 41</u>) Control System - Mark Ve / VIe Troubleshooting (Advanced)														ם נ																									~	

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



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Course ID# & Title			erivati Furbine								eavy I s Turl	Duty bines						Othe	er Maj	jor Eq	uipme	nt					oderi\ Gas 1			/					Cont & Excita		Simulato Access
(Click on Course Title to download detailed course outline)	_	TM2500 / TM2500+	LM6000	LMS100	7H	Н	7F	9F	6F 7F / FA	96	6B	Fr5/3	GT24 CT26	G120 13F	13E 13D	11N	8C	oine (legacy (Steam Turbine (legacy Alstom)	HRSG	(legacy	Generator (legacy Alstom) PA / PC I Inrate (Aero)	Gas	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	 Opflex	Advanced Compressor	Hz 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
CONTROLS AND EXCITATION - CONTINUED	<i>,</i> ,	,	,	,	, ,	,,		,		,			,		,		<i>,</i>	, ,		,	, ,		,	<i>,</i> ,	,		,		,	,		,	, ,	ŕ	,	,	,
O-CON13401 (<u>page 42</u>) Control System - Mark VIe Migration from Mark V, Familiarization																																					~
O-CON13501 (<u>page 42</u>) Control System - Introduction to Mark VIeS Functional Safety System																																					~
O-CON20701 (<u>page 42</u>) Control System - Mark VIe (Aero) Operation, Maintenance & Troubleshooting																																					
O-CON10801 (<u>page 42</u>) Control System - Woodward (Aero) Operation, Maintenance & Troubleshooting																																					
O-CON13602 (<u>page 42</u>) Control System - RX3i Operation, Maintenance & Troubleshooting																																					
O-CON11401 (page 43) Control System - Aero DLE Familiarization and Mapping Overview																																					
O-CON13409 (page 43) Control System - Control Server & Thin Client Familiarization] []] [
D-CON13409 (<u>page 43</u>) Control System - Control Server & Thin Client Familiarization - Distance Learning] [] [
O-CON10402 (<u>page 43</u>) Control System - ALSPA Control System Fundamentals																																					✓
O-CON20401 (<u>page 43</u>) Control System - ALSPA Control System Intermediate																																					✓

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 Equipment	Aeroderivative & Heavy Duty	Control & Excitation	Simulator Access
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000	7F 9F 6F	7E / EA 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)	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 CPIex Elar DLN2.6+ Flex Combustor Fast Start DLN2.6+ Flex Combustor Fast Start DLN2.6+ Flex Combustor Flarge To Planding Adv. Performance Package XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade XL/MXL/MXL2 Upgrade T3E2 Efficiency Optimizer Flange to Flange Repower Projects	Turbine Control System Generator Protection System	During Course Extension After Course
CONTROLS AND EXCITATION - CONTINUED								
O-CON30401 (<u>page 44</u>) Control System - ALSPA Control System Advanced								~
O-CON33404 (<u>page 44</u>) Control System - Foundation Fieldbus∻								



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Course ID# & Title			erivati Turbine								eavy [is Turl							Oth	er Ma	ajor E	Equip	ment					Ae				Heav Jpgra		ty					Cont & Excita		Simula Acce	
(Click on Course Title to download detailed course outline)	· · ·	TM2500 / TM2500+	LM6000 LM9000	LMS100	7H	H6	7F	9F or	6F 7F / F A	ובו בא סד	6B	Fr5/3	GT24 CT26	G120 43F	13E 13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	HRSG Generator (legacy GF)	Generator (legacy Alstom)	prate	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	i	DLN2.6+ Flex Combustor	Dpflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	VI MAYI MAYI 2 Hostodo	13E2 Efficiency Optimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
AERODERIVATIVE GAS TURBINES																																									
O-AER10101 (<u>page 45</u>) Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization																																									
D-AER10101 (<u>page 45</u>) Gas Turbine - LM2500 & LM2500+ Aero Package Operation/Familiarization - Distance Learning																																									
O-AER10105 (<u>page 45</u>) Gas Turbine - LM2500 Engine Familiarization																																									
D-AER10105 (<u>page 45</u>) Gas Turbine - LM2500 Engine Familiarization - Distance Learning																															_										
O-AER10106 (<u>page 45</u>) Gas Turbine - LM2500 Level 1 Maintenance																																									
O-AER10104 (<u>page 45</u>) Gas Turbine - LM2500 Level 2 Cold Maintenance																																									
O-AER10103 (<u>page 46</u>) Gas Turbine - LM2500 Level 2 Hot Maintenance																																									
O-AER10102 (<u>page 46</u>) Gas Turbine - LM2500 Borescope Inspection																															_										
O-AER10203 (<u>page 46</u>) Gas Turbine - LM2500+/G4 Engine Familiarization																																									
D-AER10203 (<u>page 46</u>) Gas Turbine - LM2500+/G4 Engine Familiarization - Distance Learning																																									



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Course ID# & Title		erivati\ urbine						(Heavy Gas Tu	/ Dut	y es					Ot	her M	lajor I	Equip	oment	t				Ae			Heav Upgra		ıty					ontrol & citation	Simulato Access
(Click on Course Title to download detailed course outline)	 1M2500 / 1M2500+	LM9000	LMS100	7H	9H 7F	9F	6F	7E / EA	9E 60	5/3 Fr5/3	GT24	GT26	13E	13D 11N	8C	Steam Turbine (legacy GE)	Turbine (legacy Alsi	Boiler	HRSG	Generator (legacy ਯੁ⊏) Generator (legacy Alstom)	prate (Aer	Advanced Gas Path (AGP)	DLN1.0	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	rası əları Onflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package 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 (page 46) Gas Turbine - LM2500+ Level 1 Maintenance																																				
O-AER10205 (page 46) Gas Turbine - LM2500+ Level 2 Cold Maintenance																										 										
O-AER10202 (<u>page 46</u>) Gas Turbine - LM2500+ Level 2 Hot Maintenance																																				
O-AER10201 (<u>page 47</u>) Gas Turbine - LM2500+ Borescope Inspection																																				
O-AER10301 (<u>page 47</u>) Gas Turbine - LM6000 Aero Package Operation/Familiarization																																				
D-AER10301 (<u>page 47</u>) Gas Turbine - LM6000 Aero Package Operation/Familiarization - Distance Learning																																				
O-AER10306 (<u>page 47</u>) Gas Turbine - LM6000 Engine Familiarization																																				
D-AER10306 (<u>page 47</u>) Gas Turbine - LM6000 Engine Familiarization - Distance Learning																																				
O-AER10303 (<u>page 48</u>) Gas Turbine - LM6000 Level 1 Maintenance																																				
O-AER10304 (<u>page 48</u>) Gas Turbine - LM6000 Level 2 Cold Maintenance																																				
O-AER10302 (<u>page 48</u>) Gas Turbine - LM6000 Borescope Inspection																																				



Please select a course

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Course ID# & Title		oderiva s Turbir							leavy as Tu							Oth	er Ma	jor E	quipm	ent									-leavy Jpgra		ty					Con & Excita		Simul Acce	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+		LMS100	7H	9H 7F	9F	бF	7E / EA	9E 6B	Er5/3	GT24	GT26	13E	13U 11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	BOILET HRSG	Generator (legacy GE)	Generator (legacy Alstom)	orate	Advanced Gas Path (AGP) DI N1 0	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ DLN2.6+ Elov Combutotor	Fast Start	Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	XI /MXI /MXI 2 LIndrade	13E2 Efficiency Optimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
AERODERIVATIVE GAS TURBINES - CONTINUED																																							
O-AER10401 (<u>page 48</u>) Gas Turbine - LMS100 Aero Package Operation/Familiarization																																							
D-AER10401 (<u>page 48</u>) Gas Turbine - LMS100 Aero Package Operation/Familiarization - Distance Learning																																							
O-AER10405 (<u>page 48</u>) Gas Turbine - LMS100 Engine Familiarization																																							
O-AER10402 (<u>page 49</u>) Gas Turbine - LMS100 Level 1 Maintenance																																							
O-AER10403 (<u>page 49</u>) Gas Turbine - LMS100 Level 2 Cold Maintenance																																							
O-AER10404 (<u>page 49</u>) Gas Turbine - LMS100 Level 2 Hot Maintenance																																							
O-AER10406 (<u>page 49</u>) Gas Turbine - LMS100 Borescope Inspection																																							
O-AER10501 (<u>page 49</u>) Gas Turbine - TM2500 & TM2500+ Aero Package Operation/ Familiarization																																							
D-AER10501 (<u>page 49</u>) Gas Turbine - TM2500 & TM2500+ Aero Package Operation/ Familiarization - Distance Learning																																							
O-AER10305 (<u>page 48</u>) Gas Turbine - LM6000 Level 2 Hot Maintenance																																							



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Course ID# & Title		oderiva s Turbi							leavy as Tu							Othe	er Maj	or Ec	quipme	ent								eavy l ograde							ontrol & citation	Aco	ulator cess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	LM6000	LM9000 LMS100	ZН	9H 7E	95	бF	7E / EA	9E 6B	50 Fr5 / 3	GT24	GT26	13E	13D 11N	%C	m Turbine (legacy G	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 DI ND 6+	DLN2.6+ Flex Combustor	Opflex	Advanced Compressor	Flex Suite H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Proiects	Turbine Control System	Generator Protection System	During Course	Extension After Course
HEAVY DUTY GAS TURBINES															_															_							
O-GAS12002 (<u>page 50</u>) Gas Turbine - 6, 7, 9, B, E, F Class Introduction to Maintenance Theory										I																											
D-GAS12002 (<u>page 50</u>) Gas Turbine - 6, 7, 9, B, E, F Class Maintenance Familiarization - Distance Learning										•																											
O-GAS22101 (<u>page 50</u>) Gas Turbine - Operation E-Class (Advanced)																																					
O-GAS22201 (<u>page 50</u>) Gas Turbine - Operation F-Class (Advanced)																																					
O-GAS12003 (<u>page 50</u>) Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization																																					
D-GAS12003 (<u>page 51</u>) Gas Turbine - 6, 7, 9, B, E, F Class Operation Familiarization - Distance Learning																																					
O-GAS20401 (<u>page 51</u>) Gas Turbine - GT11, GT13E2, GT24/GT26 Routine Maintenance																																					
O-GAS10102 (<u>page 51</u>) Gas Turbine - GT13E2 Mechanical Systems & Components																																					
O-GAS20101 (<u>page 52</u>) Gas Turbine - GT13E2 Inspection			2																																		
O-GAS10201 (<u>page 52</u>) Gas Turbine - GT26/GT24 Mechanical Systems & Components (Retractable EV Burner)																																					
O-GAS20201 (<u>page 52</u>) Gas Turbine - GT26 Inspection (retractable EV Burner)																																					

Legend:

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



		PLATFORM		UPGRADE	
Course ID# & Title	Aeroderivative Gas Turbines	Heavy Duty Gas Turbines	Other Major Equipment	Aeroderivative & Heavy Duty Gas Turbine Upgrade	Control & Simulator Access
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000 LMS100	7H 9H 7F 6F 6F 7E / EA 9E 6B 6B 6B 6124 6124 6126 6126 13D 13D 11N	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 PLN2.6 DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor DLN2.6+ Flex Combustor ClN2.6+ Flex Combustor Advanced Compressor Fast Start DLN2.6+ Flex Combustor ClN2.6+ Flex Combustor DLN2.6+ Flex Combustor ClN2.6+ Flex Combustor 13E2 Efficiency Optimizer Flange to Flange Renower Protects	Turbine Control System Generator Protection System During Course Extension After Course
HEAVY DUTY GAS TURBINES - CONTINUED					
O-GAS32501 (<u>page 52</u>) Gas Turbine – Operation HA-Class (Advanced) ∻					



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Course ID# & Title		erivat Turbin						Heav Gas T							Other I	Majo	r Equ	ipme	nt				A				& Hea 9 Upg		uty						ontrol & citation	Ac	ulator cess
(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000	7H	H6	7F oe	gr 6F	7E / EA	9E	6B T_T_	FF573 GT24	GT26	13E	13D	11N	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		HRSG		Generator (legacy Alstom) PA / PC Ubrate (Aero)	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	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 Repower Proiects	Turbine Control System	tion	During Course	Extension After Course
STEAM TURBINES	 																· · · · ·																				
O-GRL10501 (<u>page 53</u>) General - Practical Steam Turbine Maintenance (Brown Boveri Design)																																					
O-STM10703 (<u>page 53</u>) Steam Turbine - Maintenance Familiarization (GE design)																																					
D-STM10703 (<u>page 53</u>) Steam Turbine - Maintenance Familiarization (GE design) - Distace Learning																																					
O-STM20701 (<u>page 53</u>) Steam Turbine - D11 Operation (Advanced)																																					
O-STM10702 (<u>page 53</u>) Steam Turbine - D11, A10 Operation																																					
D-STM10702 (<u>page 53</u>) Steam Turbine - D11 Operation - Distance Learning																																					



			P	PLATFORM					UPGRADE		
Course ID# & Title	Aeroderivative Gas Turbines		Hea Gas	avy Duty Turbines		Other Major Equipmen		Aeroderivat Gas Tur	ive & Heavy Duty bine Upgrade	Control & Excitation	Simulator Access
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000 LM9000	7F	9F 6F 7E / EA 9E	6B Fr5 / 3 GT24	GT26 13E 13D 11N	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	Fast Start Opflex Advanced Compressor Flex Suite H2 Fuel Blanding Adv. Performance Package Adv. Performance Package XL/MXL/MXL2 Upgrade 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											
O-BOI10301 (<u>page 54</u>) Heat Recovery Steam Generator (HRSG) - Operation & Inspection											



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Course ID# & Title			erivati Turbine						Heavy Gas Ti							Oth	her M	ajor E	quipr	nent					Aeı	roder Gas	ivativ Turb	e & F ine U	leavy pgrad	Duty le						Contro & kcitatio	Ac	nulator ccess
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+	TM2500 / TM2500+	LM6000 LM9000	 7H	H6	7F 9F	6F	7E / EA	96	0b Fr5/3	GT24	GT26	13E	13D	11N 8C	Steam Turbine (legacy GE)	am Turbine (legacy Alst	Boiler	Generator (legacy GE)	Generator (legacy Alstom)	PA / PC Uprate (Aero)	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	+ ī	DLN2.6+ FIEX Combustor Fast Start	Opflex	Advanced Compressor	Flex Suite	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
GENERATORS																																						
O-GEN10701 (<u>page 55</u>) Generator - Generator Fundamentals																																						
D-GEN10701 (<u>page 55</u>) Generator - Generator Fundamentals - Distance Learning																																						



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Course ID# & Title			derivat Turbin							Heav Gas Ti							Othe	r Majo	or Eq	luipm	ent					Ae			Hea Upgr		uty					ontrol & citatio	A	imulator Access
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+	TM2500 / TM2500+	LM6000	ZH	9H	7F	9F	6F	7E / EA	9E	0B Fr5 / 3	GT24	GT26	13E	13D	11N	rbine (legacy (Steam Turbine (legacy Alstom) Boiler	HRSG	Generator (legacy GE)	Generator (legacy Alstom)	Jprate (Aer	Advanced Gas Path (AGP)	DLN1.0+	DLN2.0	DLN2.6	DLN2.6+ Flex Combustor	Fast Start	Opilex Advanced Compressor		H2 Fuel Blanding	Adv. Performance Package	13E2 Efficiency Optimizer	Flange to Flange Renower Proiects	Turbine Control System	Generator Protection System	During Course	Extension After Course
CONTROLS	· · ·																																		-		1	
W-CON13402 (<u>page 56</u>) Control System - Mark™ VIe CIMPLICITY™ ActivePoint™ - Web Based Series with Simulation]] [] 🗆						•]		✓	
W-CON13403 (<u>page 56</u>) Control System - Mark [™] VIe CIMPLICITY [™] Projects - Web Based Series with Simulation											ב																			•							🗸	
W-CON13404 (<u>page 56</u>) Control System – Mark™ VIe CIMPLICITY™ Advanced Viewer - Web Based Series with Simulation]	1 🗆																[] [] 🗆]		√	
W-CON13405 (<u>page 56</u>) Control System - Mark™ VIe Foundation – Web Based Series with Simulation																																					~	



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Course ID# & Title	roder as Tur								eavy s Tur	Duty bines						Othe	er Maj	or Eq	uipm	ent					Ae	erode Ga	erivat s Tur	ive 8 bine	Hea Upg	avy D rade	uty						ntrol & tation	Ac	ulator cess
(Click on Course Title to download detailed course outline)	1MZ5000	LM9000	LMS100	H H6	7F	9F	6F 7E / E A	/E / EA QF	6B	Fr5/3	GT24	G126 42F	13E 13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	HRSG	Generator (legacy GE)	Generator (legacy Alstom)	(o	Advanced Gas Path (AGP)	DI N1 0+	DLN2.0	DLN2.6	+9	DLN2.6+ Flex Combustor	Fast Start	Opriex 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	During Course	Extension After Course
AERODERIVATIVE GAS TURBINES																																							
W-AER10101 (<u>page 57</u>) Aeroderivative Engine - LM2500 Familiarization																																							
W-AER10301 (<u>page 57</u>) Aeroderivative Engine - LM6000 Familiarization																																							



Please select a course

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Course ID# & Title				rivativ Irbine								Heavy Sas Ti								Oth	ner M	lajor	Equi	pmen	t				J					eavy grade							Cont & Excita		Simu Acc	
(Click on Course Title to download detailed course outline)	-	LM2500 / LM2500+ TM2500 / TM2500+	1	LM9000	LMS100	ZН	Н6	7F	9F	6F	7E / EA	9E	0D	Fr5/3 GT24	GT26	13F	13E 13D	11N	8C	Steam Turbine (legacy GE)	gacy Alst	Boiler	HRSG	Generator (legacy GE) Generator (legacy Alstom)	orate (A	d Gas	DLN1.0	DLN1.0+	DLN2.0	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex	Advanced Compressor	HeX Sulte H2 Filel 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
HEAVY DUTY GAS TURBINES																																											·`	
W-GAS10703 (<u>page 58</u>) Gas Turbine Fundamentals (7F)																																												
W-GAS10906 (<u>page 58</u>) Gas Turbine Systems - Basics of Gas Turbine Combustion												•																																
W-GAS10908 (<u>page 58</u>) Gas Turbine Systems - Compressor Water Wash																																												
W-GAS10909 (<u>page 58</u>) Gas Turbine Systems - Cooling and Sealing Air																																												
W-GAS10910 (<u>page 58</u>) Gas Turbine Systems - Cooling Water																																												
W-GAS10912 (<u>page 58</u>) Gas Turbine Systems - Fire Protection, Heating and Ventilation																																												
W-GAS10913 (<u>page 58</u>) Gas Turbine Systems - Fuel and Atomizing Air Systems																																												
W-GAS10915 (<u>page 58</u>) Gas Turbine Systems - Hydraulic Oil, Trip Oil, and VIGV Systems																																												
W-GAS10917 (<u>page 59</u>) Gas Turbine Systems - Lube Oil Systems																																												
W-GAS10918 (<u>page 59</u>) Gas Turbine Systems - Steam and Water Injection																																												
W-GAS10903 (<u>page 59</u>) Gas Turbine - Inlet and Exhaust																																												

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+	LM6000	LMS100	7H 9H	7F	9F	6F 77 / 7 ^	/E/EA OF	6B	Fr5 / 3	GT24	GT26 12E	13E 13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	HRSG	Generator (legacy GE)	Generator (legacy Alstom)	Advanced Gas Path (AGP)	DLN1.0	DLN1.0+	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Opflex Advanced Commessor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade	13E2 Efficiency Optimizer	Flange to Flange Renower Droiects	Turbino Control Svotom	Generator Protection System	Durina Course	Extension After Course
HEAVY DUTY GAS TURBINES - CONTINUED CON	TINUI	ED																																					
W-GAS12002 (<u>page 59</u>) Gas Turbine - Generator Hydrogen Control System																																							



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Course ID# & Title	Aeroderiv Gas Turb					eavy D as Turb					01	her Maj	or Equ	ipment					Aeroo G	lerivat as Tur	ive & bine l	Heav <u>y</u> Jpgra	y Dut Ide	y				Cor 8 Excit	&	Simulat Acces	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+ LM6000	LM9000 LMS100 7H	9H 7F	9F 6F	7E / EA	ЧП 6В	Fr5/3 GT24	GT26	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)	DLN1.0+	DLN2.0	DLN2.6 DLN2.6+	DLN2.6+ Flex Combustor	Fast Start Onflex	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 Atter Course
STEAM TURBINES																															
W-STM10703 (<u>page 60</u>) Steam Turbine Fundamentals																															



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Course ID# & Title			erivati Turbine							Hea Gas [°]	vy D Turbi	uty nes					(Other I	Major	Equi	pmen	it				A		erivat as Tu										ntrol & itation	Simula Acce	
(Click on Course Title to download detailed course outline)	_	TM2500 / TM2500+	LM6000	LMS100	ZН	9H	7F 0F	6F	7E / EA	9E	6B	Fr5/3	GT26	13E	13D	11N	8C	Steam Turbine (legacy GE) Steam Turbine (legacy Alstom)		HRSG	Generator (legacy GE) Generator (legacy Alstom)	prate (A	d Gas	DLN1.0	DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Optiex Advanced Compressor	Flex Suite	H2 Fuel Blanding	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
GENERATORS									-																															;
W-ELX10901 (<u>page 61</u>) Generator & Electrical - 3-Phase Power																																								
W-ELX10902 (<u>page 61</u>) Electrical - ACDC Motors]																		
W-GEN10701 (<u>page 61</u>) Generator & Electrical - Elements of Power Delivery																																								
W-GEN10703 (<u>page 61</u>) Generator - Generator Theory																																								
W-GEN10901 (<u>page 61</u>) Generator & Electrical - Hydrogen Gas Control System						•																																		
W-GEN10801 (<u>page 61</u>) Generator & Electrical - Stator Winding Cooling System																																								
W-ELX11701 (page 62) Excitation - Circuit and MCC Basics																																								
W-ELX11702 (<u>page 62</u>) Excitation - Generator Operation and Synchronization								-																																
W-GEN11401 (<u>page 62</u>) Generator - Generator Fundamentals - Design and Construction																																								
W-GEN11402 (<u>page 62</u>) Generator - Introduction to Generator Product Line																																								
W-GEN11403 (<u>page 62</u>) Generator - Generator Inspection																																								



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Course ID# & Title		erivati urbine							Hea\ Gas T							Oth	ner Ma	jor Eo	quipn	nent					Ae	rode Gas	rivativ Turb	ve & F bine U	leav Ipgra	y Du de	ty					Con & Excita		Simu Acce	
(Click on Course Title to download detailed course outline)	TM2500 / TM2500+	LM6000	LMS100	ZН	9H 7E	05	er 6F	7E / EA	9E	6B Er5 / 3	GT24	GT26	13E	13D	11N 8C	Steam Turbine (legacy GE)	Turbine (legacy Als	boller HRSG	Generator (legacy GE)	Generator (legacy Alstom)	orate (Aer	Advanced Gas Path (AGP)	DLN1.0	DLN2.0	DLN2.6	i	DLN2.6+ Flex Combustor Fact Start	Opflex	Advanced Compressor	Flex Suite	H2 Fuel Blanding	Adv. Performance Package	XL/MXL/MXL2 Upgrade 13F2 Ffficiency Optimizer	Flange to Flange	Repower Projects	Turbine Control System	Generator Protection System	During Course	Extension After Course
GENERATORS - CONTINUED	 1															1		1	-												-								
W-GEN10501 (<u>page 62</u>) Generator - Shaft Sealing System																																							
W-GEN10704 (<u>page 62</u>) Generator - Generator Fundamentals - Field Design and Construction																																							
W-GEN10705 (<u>page 62</u>) Generator - Generator Fundamentals - Power Plant Overview																																							
W-GEN10706 (<u>page 62</u>) Generator - Generator Fundamentals - Stator Design and Construction					•						•																												
W-ELX11502 (<u>page 62</u>) Excitation - Generator Digital Systems																																							
W-ELX11001 (<u>page 62</u>) Excitation - LCI Static Starter System Fundamentals																																							
W-ELX10903 (<u>page 63</u>) Electrical - Electrical Troubleshooting																																							
W-ELX10201 (<u>page 63</u>) Excitation - EX2100R Excitation System																																							
W-GEN10708 (<u>page 63</u>) Generator - Generator Assembly & Disassembly																																							

CUSTOMER APPLICABILITY MATRIX Online Pro-Active Trip Avoidance Training



Please select a course

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Course ID# & Title			lerivat Turbin							۲ G	Heavy Gas Tu	y Du urbin	ty ies					Othe	er Maj	jor Ec	quipn	nent				A			tive & rbine									Cont & Excita		Simu Acc	
(Click on Course Title to download detailed course outline) PRO-ACTIVE TRIP AVOIDANCE TRAINING (PATAT)	LM2500 /	TM2500 / TM2500+	LM6000	LMS100	7H	H6	7F	9F	6F	7E / EA	9E	0D Fr.f. / 3	GT24	GT26	13E	13D	11N	-	Steam Turbine (legacy Alstom)	Boller HRSG	Generator (legacy GE)	Generator (legacy Alstom)	prate	Advanced Gas Path (AGP)	DLN2.0	DLN2.6	DLN2.6+	DLN2.6+ Flex Combustor	Fast Start	Optiex 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
W-GAS10928 (page 64) PATAT 2 - Plant Trip Reduction																																									
W-GAS10929 (<u>page 64</u>) PATAT 3 - GT Exhaust Gas Thermocouple Installation													•												 																
W-GEN10710 (<u>page 64</u>) PATAT 4 - Generator Brush Inspection & Maintenance] []																												
W-GAS10930 (<u>page 64</u>) PATAT 5 - High Exhaust Temperature Spread											•														 																
W-GAS10931 (<u>page 64</u>) PATAT 6 - Lean Blowout											•																														
W-BOI10401 (<u>page 64</u>) PATAT 7 - HRSG Operation and Maintenance																																									
W-BOI10402 (<u>page 65</u>) PATAT 8 - Drum Level 1: Overview - Introduction																																									
W-BOI10403 (<u>page 65</u>) PATAT 9 - Drum Level 2: Level Controls - Control Systems																																									
W-BOI10404 (<u>page 65</u>) PATAT 10 - Drum Level 3: Condensate and Feedwater Pump Systems																																									
W-BOI10405 (<u>page 65</u>) PATAT 11 - Drum Level 4: Bypass Systems																																									
W-GAS10932 (<u>page 65</u>) PATAT 12 - Bearing Lube Oil & Hydraulics																																									

CUSTOMER APPLICABILITY MATRIX Online Pro-Active Trip Avoidance Training



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Course ID# & Title		oderiv s Turb							C	Heav Gas 1	vy Dı Furbi	uty nes						Oth	ier Ma	ajor E	quip	ment	t				ŀ	Aeroo G	deriva as Tu	ative urbine	& He e Upo	avy D grade	Outy						Contro & xcitatio	Simula Acces	
(Click on Course Title to download detailed course outline)	LM2500 / LM2500+ TM2500 / TM2500+	LM6000	LM9000	LMS100	H6	TF	9F	6F	7E / EA	9E	6B	Fr5/3	G124 GT26	0120 13E	13D	11N	8C	Steam Turbine (legacy GE)	Steam Turbine (legacy Alstom)	Boiler	Generator (Jeoacy GF)	Generator (legacy Alstom)		d Gas	DLN1.0	DLN1.0+	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	Flang	Control CV	Generator Protection System	During Course	Extension After Course
PRO-ACTIVE TRIP AVOIDANCE TRAINING (PATAT)	- CON	ITINU	IED	-		,									1							,										,						;	,		,
W-GAS10933 (<u>page 66</u>) PATAT 13 - Compressor Bleed Valve System																																									
W-STM10705 (<u>page 66</u>) PATAT 14 - Steam Turbine Startup and Shutdown Procedures																																									
W-GAS10934 (<u>page 66</u>) PATAT 15 - Winterization																																									
W-GAS10935 (<u>page 66</u>) PATAT 16 - Troubleshooting Liquid Fuel System Problems																																									
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