GE Energy

Power Systems & Energy Course (PSEC*)

Guiding energy leaders through growth and change

imagination at work

How we manage energy today will determine the kind of world we live in tomorrow.

In this challenging global economy, companies continuously look to maximize the efficiency of their power systems and energy resources, while planning for infrastructure projects required to meet energy demands expected to double by the year 2030[1]. To succeed in this environment, the most successful companies recognize the importance of providing their power systems and energy professionals with the quality education needed to make informative decisions.

GE's Power Systems & Energy Course (PSEC), has a respected 63-year history of developing the world's energy leaders. The professional experts at PSEC, understand customer problems and have proven, real-world expertise in a wide range of technologies—from power systems planning and energy economics to power markets and emerging generation solutions—including renewables.

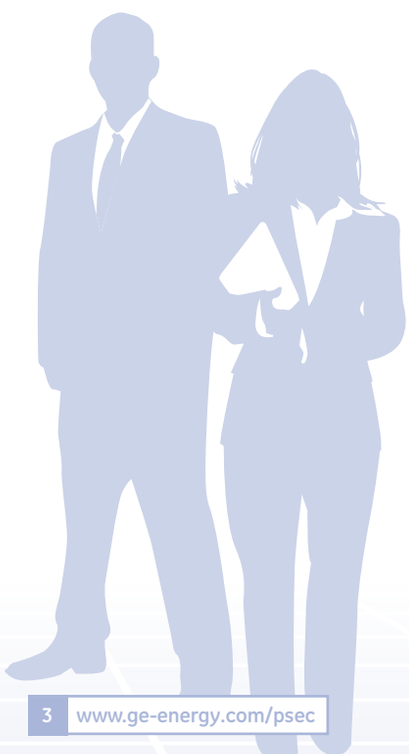
[1] *U.S. Energy Information Administration, International Energy Power Outlook 2008*

Power System Engineering Courses

FIRST QUARTER:

Monday, August 13, 2012 –
Thursday, September 7, 2012

PSEC is a corporate education partner of the Institute of Electrical and Electronics Engineers (IEEE).



Power Systems Fundamentals
Monday Aug. 13, 2012 – Tuesday Aug. 14, 2012

Learn more about today's energy solutions, including an introduction to power markets. Review fundamental concepts in electric power, generation, power delivery, and integrated system operations.

Power Systems Analysis and Symmetrical Components
Wednesday Aug. 15, 2012 – Friday Aug. 17, 2012

Study electric Power Systems Analysis fundamentals—from evolution of alternating current power concepts to analysis of unbalanced faults on large electric power systems. This course delivers a foundation for further work in electric power systems engineering and operation.

Protective Relaying Fundamentals
Monday Aug. 20, 2012 – Thursday Aug. 23, 2012

Gain an analytical understanding of the application of components of power system protective relaying. Learn engineering best practices required to protect transmission, distribution, and rotating machinery systems.

Surge Analysis and Equipment Application
Monday Aug. 27, 2012 – Wednesday (morning) Aug. 29, 2012

Learn about switching and lightning surges, overvoltage control and protection, and coordination of overvoltages with equipment insulation to ensure safe and reliable design. Participants also will learn how to quantify transient voltage stresses from the electrical environment.

Reactive Power Compensation and Voltage Control
Wednesday (afternoon) Aug. 29, 2012 – Friday Aug. 31, 2012

Find out how reactive power—when properly coordinated with the reactive needs of the load—facilitates improved power factor and voltage regulation. Case studies on the effect of reactive power on voltage regulation and power transfer at the transmission level are highlighted.

Synchronous Machine Fundamentals
Tuesday Sept. 4, 2012 – Friday Sept. 7, 2012

A respected expert's detailed presentation of the design and construction of synchronous machines—including theory of operation, synchronous machine models, the Park's transformation, the per-unit system, steady-state and transient operation, and control of real and reactive power.

Power System Planning and Advanced Applications

SECOND QUARTER:

Monday, September 10, 2012 –
Friday, October 5, 2012

Current members of IEEE can receive a discount of 10% when registering for individual courses or one of our four-week programs.

Power System Dynamics
Monday Sept. 10, 2012 – Wednesday Sept. 12, 2012

The knowledge acquired in this course will provide a reliable foundation for an understanding of power system dynamic characteristics. Fundamentals of stability will also be a focus area, through in-class exercises to increase knowledge retention.

Transmission Planning and Analysis
Monday Sept. 17, 2012 – Wednesday Sept. 19, 2012

A detailed look at transmission and its key role in the overall energy delivery system is essential when planning expansion. Steady-state power flow analysis and dynamic simulations show how to interpret results using the analysis tools. The impact of deregulation on the power industry is introduced.

Power Generation Control and Excitation
Thursday Sept. 20, 2012 – Friday Sept. 21, 2012

Understand power generation control concepts, and their impact on overall system performance—including characteristics of excitation and governor controls on individual generating units. The behavior of controls during system disturbances and emergencies is a major focal point.

Distribution Systems Planning and Engineering
Monday Sept. 24, 2012 – Thursday Sept. 27, 2012

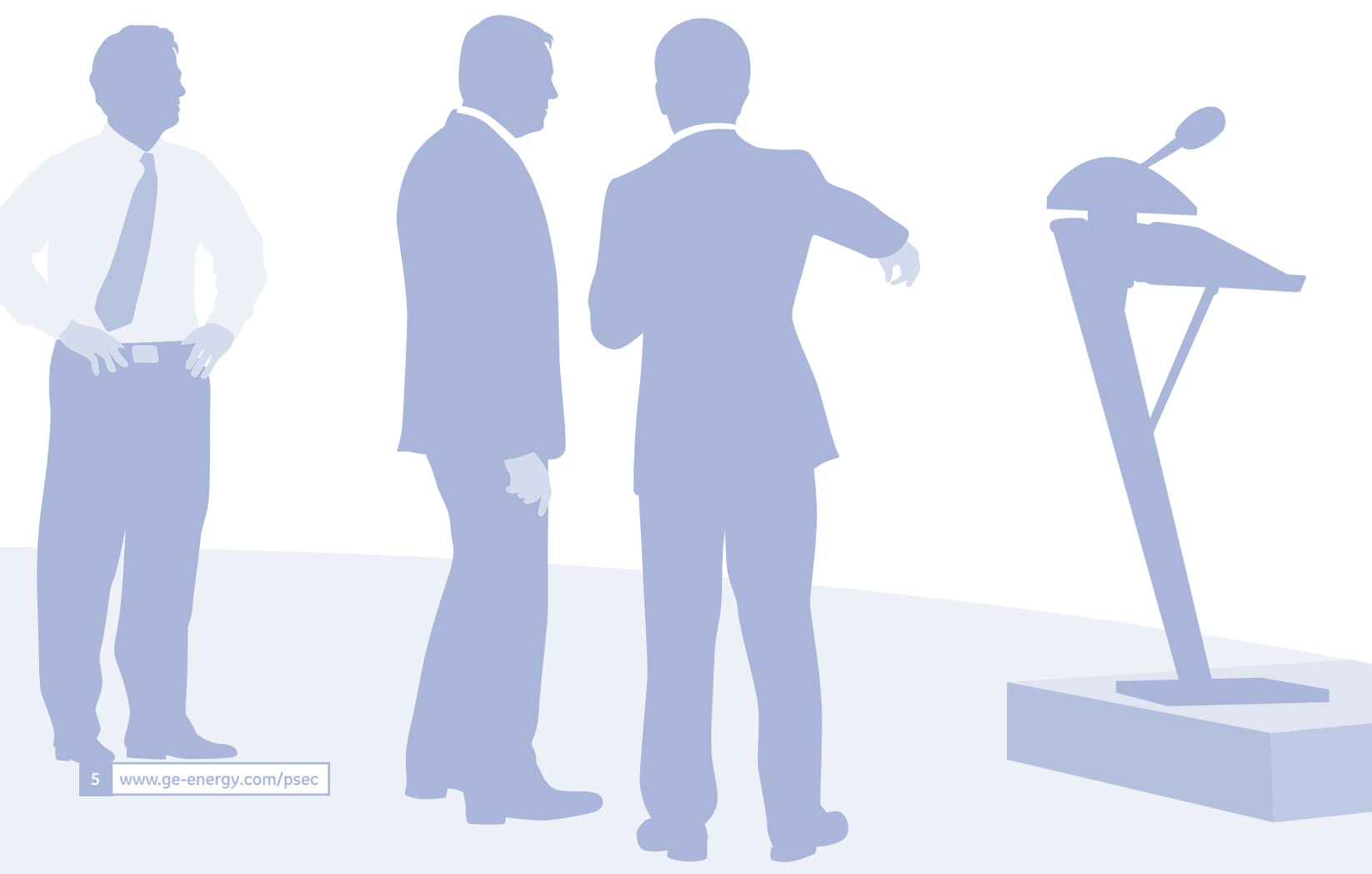
Expand your knowledge of power distribution systems planning and engineering, including basic design and operation of U.S. systems, how to meet cost and performance objectives, equipment application considerations, and how to assess and improve distribution reliability.

Smart Grid: Substation/Distribution Automation
Monday Oct. 1, 2012 – Wednesday Oct. 3, 2012

This session focuses on Smart Grid technology, especially Substation and Distribution Automation applications, designs, technical issues, and benefits. The concept Smart Grid, its real value, and a summary of its architectures is also introduced.

Power Electronic Applications in Transmission: HVDC and FACTS
Thursday Oct. 4, 2012 – Friday Oct. 5, 2012

Appreciate an expert's understanding of the application of power electronics in modern power transmission systems—High Voltage Direct Current (HVDC) and Flexible AC Transmission Systems (FACTS)—including newly developed variable frequency transformer technology.



Power Markets, Energy Economics and Strategic Planning

THIRD QUARTER:

Monday, October 8, 2012 –
Friday, November 1, 2012

Global Power Markets

Monday Oct. 8, 2012 – Tuesday Oct. 9, 2012

Get a true international look at how renewables can be part of the energy solution in a carbon-constrained world, how changes in world fuel and commodity markets affect the planning and decision-making process, and how technology needs to address requirements cost-effectively.

U.S. Electric Power Industry

Wednesday Oct. 10, 2012 – Friday Oct. 12, 2012

Focus on the physical elements of the U.S. electricity business and how they operate together. Roles of various market participants in regulated and deregulated markets, and the role of regulatory agencies such as FERC, NERC, and State PUCs will be discussed, as well as physical and financial electricity market operations.

Power Plant Financial Modeling and Evaluation

Monday Oct. 15, 2012 – Tuesday Oct. 16, 2012

An exclusive opportunity to learn about the various aspects of financial modeling, including its importance in the successful valuation of a power project, financial projection using simple pro forma financial statements, and the use of net present value and internal rate of return in investment decisions.

Utility Economics and Power Systems Operation

Wednesday Oct. 17, 2012 – Friday Oct. 19, 2012

Understand how economic forces drive utility decisions. View the workings of the utility business from an economic perspective, including what makes the utility business work, and how companies can meet their commitment, while meeting shareholder expectations. Additional discussions include the impact of economics on plant characteristics, economic dispatch and how power systems operate.

Smart Grid: Demand Response and Dynamic Pricing

Monday Oct. 22, 2012 – Thursday Oct. 25, 2012

Get an in-depth understanding of Demand Response and Dynamic Pricing as important elements of Smart Grid program deployment; gain comprehensive insights on relevant economic, regulatory, and policy issues; learn more about the development and structure of retail demand response and dynamic pricing programs and participation of demand resources in ISO/RTO wholesale markets of energy, capacity, and ancillary services; and understand the latest issues on the integration of demand resources into the smart grid.

Advanced Metering Infrastructure Fundamentals

Friday Oct. 26, 2012

Learn about electric revenue metering and the systems and devices that form Advanced Metering Infrastructure (AMI), including basic metering functions and features; gain insights into the business and operational value of AMI and its role as a fundamental component of the smart grid and the electricity grid of the future; take a deeper dive into the various communications and information systems underlying the AMI solution; and develop an understanding of the strategies and practices used in the design, implementation, and operation of the AMI systems.

Strategic Transmission & Generation Planning

Monday Oct. 29 2012 – Thursday Nov. 1, 2012

Learn more about power systems planning—including the frequency and type of power plant to operate, when and where to add new transmission voltage levels, the best time to maintain your power plants, and when to order new generating capacity.

Emerging Generation Technologies

FOURTH QUARTER:

Monday, November 5, 2012 –
Friday, December 7, 2012

As the global demand for energy continues to rise, the need also increases for educated energy professionals.

Competitive Power Generation

Monday Nov. 5, 2012 – Thursday Nov. 8, 2012

Understand the procedures required to develop an economically attractive independent power generation project involving cogeneration. The scope is based on fossil-fuel-fired power generation cycles that primarily focuses on gas turbine-based systems. Hands-on projects help to enhance learning.

Industrial Energy Users

Monday Nov. 12, 2012 – Wednesday, Nov. 14, 2012

From a broad range of different industrial manufacturing processes, understand how each user's power system affects their processes. Analysis focuses on industrial customers generating their own power, cost of power, by-products of process needs, and reliability of power supply.

Integrated Gasification Power Fundamentals

Thursday, Nov. 15, 2012 – Friday Nov. 16, 2012

Receive an in-depth look at IGCC power plants—including engineering and application of their components and basic knowledge of the systems engineering required to develop reliable and cost-effective solutions required for the planning and design of IGCC power plants.

Fuel Flexibility and Alternative Energy Applications

Monday, Nov. 26, 2012 – Wednesday, Nov. 28, 2012

Get a comprehensive look at alternative energy resources—including gasification, biomass, and nuclear—and the potential applications of these resources. An in-depth look at policies, as well as costs, benefits, and application limitations will be covered.

Energy Storage Fundamentals

Thursday, Nov. 29, 2012 – Friday, Nov. 30, 2012

This course provides an overview and discussion around the technologies and applications of utility-scale energy storage for generation, transmission, and distribution system services ranging from frequency regulation to energy shifting. The course examines the role various energy storage technologies could play in a grid with high penetrations of renewables energy. In addition the course provides a number of case studies of energy storage systems already in operation around the world.

Fundamentals of Renewable Energy Systems

Tuesday Dec. 4, 2012 – Friday Dec. 7, 2012

Attend a global leader's look at the comprehensive essentials of renewable energy power systems, (Wind and Photovoltaics), as well as basic knowledge of systems engineering for planning and design of reliable and cost-effective wind and utility-scale solar power plants. Participants will learn about the behavior and economics of power systems with substantial amounts of renewable energy generation.

PSEC...guiding energy leaders through growth and change.

How we manage energy today will determine the kind of world we live in tomorrow. Whether it is planning for power systems in South America, understanding fuel flexibility in the Middle East, wind power integration in Europe, or investing in Smart Grid technology in the United States, GE Energy's Power Systems & Energy Course (PSEC) is changing the way we think about power.

For more information about our portfolio of courses, please go to:
http://www.ge-energy.com/psec

Power Systems & Energy Course (PSEC)
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imagination at work