OVERVIEW

This course is intended for degree-holding engineers and scientists with some knowledge of nuclear technology, who are or will be participating in the design, construction, operation, or regulatory safety review of all nuclear installations. It will be of particular interest to technically-trained representatives of the electrical power utility industry, safety regulators and evaluators for Department of Energy facilities, reactor or reactor component fabricators, and other personnel interested in obtaining an overall view of current issues in reactor safety.

The lecturers are among the most knowledgeable experts in nuclear technology from industry, government and academia, and are closely associated with current reactor and/or fuel facility safety issues, as well as strategies for future plant operations and designs.

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EARLY BIRD DISCOUNTS and other discounts may also apply (see website). A limited number of ½-tuition scholarships are available (upon request) for teaching faculty of other US educational institutions, for those with the rank of instructor or higher. Course size is limited.

CO-DIRECTORS

NEIL TODREAS  
Massachusetts Institute of Technology  
Professor of Nuclear Science and Engineering, and  
Professor of Mechanical Engineering (Emeritus)

Prof. Todreas is a Professor of Nuclear Science and Engineering and Professor of Mechanical Engineering (Emeritus) at MIT. His research and teaching focuses on thermal and hydraulic aspects of nuclear reactor engineering and safety analysis. From 1981 to 1989, he headed the MIT Nuclear Engineering Department. He has an extensive record of service for government, utility, industry review committees, and international scientific review groups. He holds bachelor’s and master’s degrees in Mechanical Engineering from Cornell University and a doctorate in Nuclear Engineering from MIT, and is the author of three books and over 250 papers on nuclear reactor energy extraction and safety features. He is a fellow of the American Nuclear and the American Mechanical Engineering Societies as well as a member of the National Academy of Engineering.

BENOIT FORGET  
Massachusetts Institute of Technology  
Associate Professor of Nuclear Science and Engineering

Prof. Forget is an Associate Professor at MIT in the Department of Nuclear Science and Engineering. He graduated from Georgia Tech with a PhD in Nuclear Engineering, and from École Polytechnique de Montréal with undergraduate and master’s degrees in Chemical Engineering and Energy Engineering. His research and teaching focuses mainly on transport theory, computational reactor physics, and the nuclear fuel cycle. His group, the Computational Reactor Physics Group (CRPG), has developed the open source reactor simulation software OpenMC (Monte Carlo) and OpenMOC (Method of Characteristics) which serve as modern algorithm development platforms for high performance computing. Prior to joining MIT, he worked at the Idaho National Laboratory as a nuclear/reactor engineer. Prof. Forget has recently served as chair of the Reactor Physics division of the American Nuclear Society.
“My experience at the MIT Nuclear Safety course was great. The topics were very interesting and taught by leaders in their respective fields. The most beneficial aspect of the course was the expert panels that stimulated open and frank discussions on the daily topics.”

SENIOR REACTOR OPERATIONS ENGINEER, U.S. NUCLEAR REGULATORY COMMISSION

“It was a great experience to participate in the program. The experience was enhanced by the fact that the speakers were prominent people with real insight in the ongoing activities in the business.”

DEPUTY MANAGER OFFICE OF NUCLEAR SAFETY, FORSMARKS KRAFTGRUPP AB

### TYPICAL SCHEDULE FOR THE NUCLEAR PLANT SAFETY COURSE (2019)

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<tr>
<th>TIMES</th>
<th>PERSPECTIVES ON SAFETY</th>
<th>NEW REACTORS</th>
<th>REACTOR DESIGN</th>
<th>REACTOR TECHNOLOGY/OPERATIONS</th>
<th>MATERIALS FUEL SAFETY</th>
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</thead>
<tbody>
<tr>
<td>8:30 am - 9:30 am</td>
<td>DR. GEORGE APOSTOLAKIS, MIT/ Professor Emeritus NRRC – Japan</td>
<td>DR. JENNIFER UHLE, NEI</td>
<td>DR. DOUG CHAPIN, MPR Associates</td>
<td>MR. HIDEKI MASUI, TEPCO</td>
<td>PROF. RONALD BALLINGER, MIT</td>
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<td>9:30 am - 10:45 am</td>
<td>COFFEE BREAK</td>
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<td>10:45 am - 11:45 am</td>
<td>International Regulatory Perspective</td>
<td>NuScale Design and Licensing</td>
<td>Seismic Safety</td>
<td>Fukushima Forensics</td>
<td>Fuel Safety Issues</td>
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<td>DR. RICHARD MESERVE, US NRC/ Chair (Retired)</td>
<td>DR. KENT WELTER, NuScale - Chief of Engineering - Testing &amp; Analysis</td>
<td>DR. ROBERT BUDNITZ, LBNL</td>
<td>DR. JOY REMPE, Rempe and Associates, LLC</td>
<td>MR. ZEZAS KAROUTAS, Westinghouse</td>
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<tr>
<td>10:45 am - 11:45 am</td>
<td>Current Regulatory Issues</td>
<td>Multi-Unit Sites</td>
<td>PWR Active and Passive Systems</td>
<td>Decommissioning</td>
<td>Safety of Spent Fuel</td>
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<td>MR. NORMEN, US NRC</td>
<td>DR. GEORGE APOSTOLAKIS, MIT/ Professor Emeritus NRRC – Japan</td>
<td>DR. REGIS MATZE, Westinghouse (Retired)</td>
<td>DR. ANDREW KADAK, Kadak Associates, Inc.</td>
<td>DR. CHARLES FORSBERG, MIT</td>
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<td>11:45 am</td>
<td>LUNCH</td>
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<td>1:00 pm - 2:00 pm</td>
<td>Operational Safety</td>
<td>Regulation- Canadian View</td>
<td>Physical and Cyber Security</td>
<td>Analysis of Operating Experience</td>
<td>LWR Materials Issues II</td>
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<td>MS. SUSAN LANDAHL, EXELON</td>
<td>DR. DOUG CHAPIN, Canadian Commission (CNCC)</td>
<td>MR. BRIAN HOULAN, US NRC</td>
<td>MR. ROBERT GAMBRILL, INPO</td>
<td>PROF. RONALD BALLINGER, MIT</td>
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<td>2:00 pm</td>
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<td>2:15 pm - 3:15 pm</td>
<td>Industry Perspective on Safety</td>
<td>Licensing Processes</td>
<td>Phenomena and Design Responses</td>
<td>Human Reliability Analysis</td>
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<td>MR. DOUG TRUE, NEI</td>
<td>MR. WILLIAM RECKLEY, US NRC</td>
<td>MR. ROBERT SANDERS, Corys, Inc.</td>
<td>DR. DENNIS BLEY, Buttonwood Consulting Inc.</td>
<td>2:00-3:00 pm PANEL DISCUSSION</td>
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<td>3:15 pm - 4:15 pm</td>
<td>PANEL DISCUSSION</td>
<td>PANEL DISCUSSION</td>
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<tr>
<td>Activities</td>
<td>Reception</td>
<td>MIT Laboratory Tour</td>
<td>MIT Reactor Tour</td>
<td>Dinner</td>
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<td>Time: 4:30 pm</td>
<td>Location: MIT</td>
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<td>Time: 5:00 pm</td>
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LECTURERS

Our lecturers are selected among the prominent authorities on nuclear power plant technology, operations, safety and regulations in industry, government, and universities. They will provide authoritative answers in their technical fields, and will not necessarily present the official views of any group with which they may be associated. The unique group of speakers listed below for the 2018 course offering are unlikely to be matched at any other professional course.

NATIONAL LABORATORIES

- Dr. Robert J. Budnitz, Staff Scientist, Energy Geosciences Division, Lawrence Berkeley National Laboratory, University of California.
- Dr. Regis Matzie, Former VP & CTO for Westinghouse Electric CO
- Mr. Robert Sanders, Corys Inc., Advisory Engineering/Senior Expert, AREVA NP, Inc. (retired)
- Dr. Kent Welter, Chief of Engineering, Testing & Analysis, NuScale Power

VENDORS

- Mr. Zeses Karoutas, Chief Engineer Nuclear Fuel Global Technology Office, Westinghouse Electric Company
- Dr. Andrew Kadak, Kadak Associates Inc., and Former CEO of Yankee Atomic
- Dr. Joy Rempe, Principal, Rempe and Associates, LLC

CONSULTANTS

- Dr. Dennis C. Bley, President of Buttonwood Consulting, Inc
- Dr. Douglas Chapin, Principal, MPR Associates, Inc., (Emeritus)
- Dr. Andrew Kadak, Kadak Associates Inc., and Former CEO of Yankee Atomic
- Dr. Joy Rempe, Principal, Rempe and Associates, LLC

ACADEMIA

- Prof. Ronald G. Ballinger, Nuclear Science and Engineering, and Materials Science and Engineering, MIT
- Dr. George Apostolakis, MIT Professor Emeritus and Head, Nuclear Risk Research Center, Japan
- Dr. Charles Forsberg, Principal Research Scientist, Exec. Director, MIT Nuclear Fuel Cycle Project, Director and PI, Fluoride Salt-Cooled High-Temperature Reactor Project, MIT

NUCLEAR ENERGY INSTITUTE

- Mr. Doug True, Senior Vice President and Chief Nuclear Officer, NEI
- Dr. Jennifer Uhle, Vice President of Generation & Suppliers, NEI

INSTITUTE OF NUCLEAR POWER OPERATIONS

- Mr. Robert Gambrill, Vice President Industry Trends and Organizational Learning, INPO

REGULATORY

- Dr. Richard Meserve, Chair (retired), Nuclear Regulatory Commission (US NRC)
- Mr. Brian Holian, Director, Nuclear Security and Incident Response, (US NRC)
- Mr. Ho Nieh, Director, Office of Nuclear Reactor Regulation (US NRR)
- Mr. William Reckley, Senior Project Manager, Advanced Reactor Program (US NRO)
- Mr. Douglass Miller, Lead Technical Advisor, Directorate of Regulatory Improvement and Major Project Management, Regulatory Operations Branch, Canadian Nuclear Safety Commission (CNSC)

UTILITIES

- Ms. Susan Landahl, Senior Vice President, Exelon Generation Company
- Mr. Hideki Masui, Deputy Chief Nuclear Officer, Tokyo Electric Power Co. Holdings

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BRIEF HISTORY OF THE SAFETY COURSE

The Safety Course was initiated in 1966 by Prof. Theos Thompson, who later became an AEC commissioner. Professor Norman C. Rasmussen directed the course from 1970 until 1989, some of these years as co-director with Profs. Arden L. Bement, Mujid S. Kazimi, and Neil E. Todreas, who has co-directed the course since 1975. It is currently under the joint directorship of Profs. Neil E. Todreas and Benoit Forget. For many years it was a two-week course, with the first week devoted to topics concerning light water reactors, and the second week to general safety issues. Several times the course included a third week on the topic of fast reactor safety. It was restructured into a one-week course in 2005, after the only gap year in its annual offering. Until 1998, the course had been known as the Nuclear Reactor Safety Course, but has had several name changes since then. In 2005, it was renamed the Nuclear Plant Safety Course. The course lecturers have always been among the foremost experts on reactor safety and regulations from industry, regulatory bodies, and academia.

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For more than 65 years, MIT Professional Education has been providing technical professionals worldwide a gateway to renowned MIT research, knowledge and expertise, through advanced education programs designed specifically for them. In addition to industry-focused, two-to-five-day courses on campus through Short Programs, MIT Professional Education offers professionals the opportunity to take blended learning courses through Digital Plus Programs, attend courses abroad through International Programs, enroll in regular MIT academic courses through the Advanced Study Program, or attend Custom Programs designed specifically for their companies. For more information, please visit: professional.mit.edu.