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| **COURSE OVERVIEW** ***Aim of Course***The aim of this CNS course is to provide an understanding of CANDU fuel design, fuel manufacturing, fuel operations and performance, and how the fuel interacts with interfacing systems. The course will also provide an overview of fuel physics, thermal-hydraulics, fuel handling, coolant chemistry, materials, fuel safety, and disposal of spent fuel. The course will also include talks on continuous improvements/R&D, SMR Fuels, and advanced fuel cycles.***Target Audience***The CNS CANDU Fuel Technology Course is ideally suited for beginning professionals but will also be of great interest to fuel designers, manufacturers, station operations, fuel channel and fuel handling system designers, safety analysts, performance and inspection staff. | ***Registration*** Please register on-line via the link on the CANDU Fuel Technology Course through the CNS website. It can be reached directly at: **https://www.cns-snc.ca/event/cns-candu-fuel-technology-course-2025/**The regular registration fees are shown below: * CNS Member: $1500 (Incl. HST)

[Must be a CNS member in good standing] * Non-CNS Member: $1600 (Incl. HST)
* Full-time student (CNS member) or CNS Retiree member: $640 (Incl. HST)

For all enquires please contact CNS Office705 – 1 Eglinton Ave East, Toronto, Ontario M4P 3A1Tel: 416-977-7620; Fax: 416-977-8131 **E-mail/Courriel:** cns\_office@cns-snc.ca***Hotel Accommodation***Holiday Inn Downtown, Toronto 30 Carlton Street, Toronto, Ontario M5B 2E9Accommodation arrangements can be made, if required, directly with the hotel at **Canadian Nuclear Society - Fuel Division**OR Directly Call Tel: 1-855-914-9610A special group rate of $229 + tax per night is available for January 26-29, 2025, if booked before **January 3, 2025.** Refer to **“CNS Fuel Division Group”** at the time of booking. | **CNS CANDU FUEL TECHNOLOGY COURSE 2025****Canadian Nuclear Society****Fuel Technologies Division****January 27-29, 2024****Holiday Inn Downtown, Toronto****30 Carlton Street, Toronto, Ontario M5B 2E9*****Course Contacts*** For course related enquires please contact:**Mukesh Tayal****Chair, Fuel Technology Division****Canadian Nuclear Society****Cell: (905) 467-5842****E-Mail: tayal2000@gmail.com** **Raheel Hameed****Co-Chair, Fuel Technology Division****Canadian Nuclear Society****Cell: (905) 924-5333****E-Mail: raheel\_hameed@cameco.com** |
| ***Course Information*** | ***Course Information*** | ***Course Information*** |
| **Overview:**The Organizing Committee has significantly updated the upcoming edition of this course with the following outcomes: * Reflect recent evolutions in our industry, products, and technology.
* Better explain the relatively more important aspects of the underlying technology; and
* Better harmonize and integrate the contents of the lectures/course.

**Learning Objectives:*** + We’ll learn about salient features of CANDU fuels and how they are achieved, e.g.:
		- * The design, and why is it the way it is?
			* How is the fuel made?
			* How is it operated?
			* How do we ensure its safety and reliability?
			* What happens to it after it is discharged from the reactor?
			* How do we generate and improve the required technology?
			* We’ll learn how CANDU fuel is crafted to be so very good:
		- What enables CANDU fuel to produce 30% more energy per unit mined uranium?
		- What enables on-power refueling of CANDU fuel which increases reactor’s availability?
		- What do IAEA’s worldwide surveys tell us repeatedly about the exceptionally high reliability of CANDU fuel?
 | **Learning Objectives (continued):*** + What enables defective CANDU fuel to be discharged quickly without shutting down the reactor – which reduces radioactive debris in the coolant?
	+ What major factors contribute to the low cost of CANDU fuel?
	+ We’ll peek at what greater things are possible in the future with improved fuel designs and with advanced fuel cycles:
	+ Higher margins for safety
	+ Potential for almost zero waste
	+ Significant extension of available resources of energy
	+ Higher efficiency etc.
	+ Focus
	+ Primarily on reliability, safety and efficiency of CANDU fuel
	+ Limited high-level coverages of impacts of key interfaces on fuel:
	+ Physics, Thermal-Hydraulics, Fuel Handling, Coolant Chemistry.
	+ Scope
		- The primary emphasis is on current CANDU fuels.
		- Illustrations will be based largely on C6 fuel, with limited coverage of other CANDU fuels.
		- Limited discussion of upcoming/promising fuels such as SMRs.
 | **Course Topics:** Some of the topics to be covered in the CANDU Fuel Technology Course: * Fuel Design
* Fuel Testing
* Fuel Manufacture
* Fuel Operations
* Fuel Performance
* Fuel Physics
* Coolant Chemistry
* Thermal-Hydraulics
* Fuel Safety
* Spent Fuel Management
* Continuous Improvement / R&D
* Advanced Fuel Cycles
* SMR Fuels
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