

## Course Overview

This CNS course will present an extensive overview of the important disciplines in CANDU reactor technology and safety. The course provides an introduction to the basic design, technology, and operation of nuclear reactors. It will also present the major systems in a nuclear plant, as well as the important CANDU reactor safety principles and systems. How to prepare and execute safety analysis to meet licensing demands will also be discussed.

The CNS is presenting this course to enhance the professional and technical capabilities of its members (and non-members) working in, or interested in, the nuclear industry. The course is ideally suited for beginning professionals, but also beneficial to experienced professionals. Come broaden your nuclear knowledge beyond your specific area of work and your own area of expertise.

*This course is eligible for Continuing Education Units in the context of the **Engineering Institute of Canada** Continuing Education program.*

Continental breakfast, buffet lunch, and coffee breaks are provided each day. There will also be a banquet on the second evening of the course, with an after-dinner speech highlighting a timely topic in the Canadian Nuclear industry.

Tentative topics to be covered in the course:

- CANDU Design
- Balance of Plant
- Reactor Physics
- Radiation Safety
- Thermalhydraulics
- CANDU Fuel Design and Performance
- Fuel & Fuel-Channel Safety
- Nuclear Steam Supply System
- CANDU Safety Design
- Refurbishment & Reactor Start-Up
- Experiments and Computer Codes
- CANDU Instrument and Control

## Registration

Please register on-line via the link on the **Course web page**, which you can reach directly by clicking [here](#) or via the [CNS web site](#).

The registration fees are shown below, and include **13% HST** (HST # 870488889RT)

### Early-Bird Rate

(Register by February 10, 2023)

- CNS Member:** \$1190.00  
[Must be a CNS member in good standing]
- Non-CNS Member:** \$1280.00
- Full-Time Student (CNS member) or  
CNS Retiree Member:** \$530.00

### Regular Rate

(Register after February 10, 2023)

- CNS Member:** \$1290.00  
[Must be a CNS member in good standing]
- Non-CNS Member:** \$1380.00
- Full-time student (CNS member) or  
CNS retiree member:** \$580.00

The registration deadline is **March 17, 2023**

For registration information, please communicate

with: **CNS Office**  
998 Bloor St. W., #501  
Toronto, ON, Canada, M6H 1L0  
Tel: 416-977-7620  
e-mail: [cns\\_office@cns-snc.ca](mailto:cns_office@cns-snc.ca)

## HOTEL ACCOMMODATION

A very special room rate per night of \$179 + Tax is available at the Courtyard by Marriott Downtown Toronto, but to receive this special rate you must book by **2023 February 27**; [click here](#) (if clicking doesn't work, please try copying the link directly to your browser) to book early to avoid disappointment! Or call 1-800-847-5075 and request the CNS Course Group Booking.

# CNS CANDU REACTOR TECHNOLOGY & SAFETY COURSE



Organized by:  
**The Canadian Nuclear Society  
Nuclear Science & Engineering  
Division**

**2023 March 20-22  
(Mon-Wed)**

**Courtyard by Marriott Downtown  
Toronto  
475 Yonge St.  
Toronto, ON  
M4Y 1X7**

Course contact (not for registration):

**B. Rouben**  
Tel: 416-977-7620  
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**CNS CANDU Reactor  
Technology & Safety Course  
2023 March 20-22  
Courtyard by Marriott Downtown  
Toronto  
475 Yonge St.  
Toronto, ON  
M4Y 1X7**

**Objectives of the course**

- To provide an introduction to CANDU technology and reactor safety
- To present safety-analysis principles
- To provide an overview of the major CANDU systems
- To foster nuclear safety culture
- To network with colleagues in the industry

**Monday, March 20**

07:30     **Continental Breakfast**

08:20     Welcome & Opening Remarks  
W. Shen (CANDU Owners Group)

08:30     CANDU-Design Overview  
B. Rouben (12 & 1 Consulting)

10:00     **Break**

10:20     Balance of Plant  
J. Froats (Ontario Tech University)

12:00     **Lunch**

13:00     Reactor-Physics Fundamentals  
E. Nichita (Ontario Tech University)

14:30     **Break**

15:00     Radiation Safety  
R. Khaloo (SNC-Lavalin - Candu  
Energy Inc.)

16:30     End of Day-1 Lectures

**Tuesday, March 21**

07:30     **Continental Breakfast**

08:30     Nuclear Steam Supply System  
B. Rouben (12 & 1 Consulting)

10:00     **Break**

10:30     Reactor Instrumentation and Control  
J. Harber (SNC-Lavalin - Candu  
Energy Inc.)

12:00     **Lunch**

13:00     Thermalhydraulics Fundamentals  
D. Novog (McMaster University)

14:30     **Break**

15:00     Fuel & Fuel-Channel Safety  
Y. Guo (Canadian Nuclear Safety  
Commission)

16:30     End of Day-2 Lectures

18:00     **Host Bar**

18:30     **Banquet**  
With Guest Speaker D. Novog  
(McMaster University), "The Silver  
Bullet Syndrome: Action and Inaction  
on Climate Change"

**Wednesday, March 22**

07:30     **Continental Breakfast**

08:30     CANDU Fuel Design and  
Performance  
P. Chan (Royal Military College of  
Canada)

10:00     **Break**

10:30     Refurbishment of Darlington +  
Reactor Start-Up Tests  
Constantin Banica (Ontario Power  
Generation)

12:00     **Lunch**

13:00     Fuel, Fuel Channel, and  
Containment Experiments and  
Computer Codes  
T. Nitheanandan (Canadian Nuclear  
Safety Commission)

14:30     **Break**

15:00     CANDU Safety Design  
V.G. Snell (VGSSolutions)

16:30     Closing remarks  
W. Shen (CANDU Owners Group)

**16:40     End of Course**