

**UNIVERSITY OF IDAHO**  
**Graduate Program – Nuclear Engineering**  
**Quick Overview**

Vivek Utgikar, Presenter  
Akira Tokuhiko, Director  
Alice Allen, Program Coordinator  
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# *UI Nuclear Engineering Graduate Program*

- Interdisciplinary graduate program under Mechanical Engineering Department, degrees:
  - M.Engr, NE (non-thesis)
  - M.S., NE (thesis)
  - Ph.D., NE (thesis)
- Focus areas: nuclear materials, reactor engineering-thermohydraulics-safety, radioactive waste treatment, modeling/simulations and computing
- Co-located with ISU NSE program, BSU MSE program

# *UI Nuclear Engineering Graduate Program*

- Specialty Tracks
  - Thermohydraulics
    - Heat transport and advanced power generation
  - Nuclear Materials
    - Advanced Materials and radiation effects
  - Fuel Reprocessing
    - Back end of the fuel cycle
  - Thermal Fluids
    - Fluid dynamics and advanced heat transfer
  - Nuclear Criticality Safety
    - Operational safeguards

# ***UI Nuclear Engineering Graduate Program***

## **FACULTY, COURSES, STUDENTS**

**Idaho Falls:** Tokuhiro (NE), Aydogan (NE), Phongikaroon (ChE), Gunnerson (ME, retired), McBurney-Rebol (NE, instructor); contributing faculty: Hironoto (CS), Manic (CS), McEligot (ME, retired); Ostrom (INDT), Kanakala (INDT)

**Moscow:** Utgikar (ChE), Charit (MSE); contributing faculty: Pesic (MSE), Bitterwolf (CHEM), Wai (CHEM), Machleidt (PHYS), Sammarruca (PHYS)

Courses in fuel reprocessing, special applications (hydrogen), reactor engineering and thermohydraulics, industrial safety (nuclear technology and practice)

20+ traditional, full-time graduate students

40+ non-traditional, part-time graduate students

## ***Required and 'popular' courses***

- **ME540** – *Continuum Mechanics* (usually offered during Spring semester from Moscow campus)
- **ME541** – *Mechanical Engineering Analysis* (usually offered both Fall and Spring (via DVD) semesters from Moscow); Chemical Engineering Analysis
- **NE450** – *Principles of Nuclear Engineering*
- **NE 565** – *Reactor Engineering* (aka: *Intermediate NE*)
- **NE575** – *Advanced Nuclear Power Engineering*
- **NE537** – *Radiation Effects on Materials*
- **NE538** – *Introduction to Nuclear Materials*
- **NE 535/555** – *Nuclear Criticality Safety I & II*
- **NE554** – *Radiation Detection and Measurement*
- **NE504A** – *Nuclear Heat Transport; Molten Salt Technology*
- **NE504B** – *Advanced Nuclear Systems and Modeling*

**CAES**

Center for Advanced  
Energy Studies

# Center for Advanced Energy Studies

*A research partnership between Boise State University,  
Idaho National Laboratory, Idaho State University and  
University of Idaho*





- **Center for Advanced Energy Studies**

- 55,000ft<sup>2</sup> (about 40% lab space)

- **User Labs**

- Imaging Suite
- Material Science Lab
- Thermal-Fluids Lab
- Virtual Reality CAVE
- Radiochemistry Lab
- Analytical Chemistry
- Machine shop, instrumentation rooms
- Wind and PV-solar demonstrations

- **Representative Success**

- Overall tremendous ratio of ROI; now funded yearly
- Consistently garnered nationally-competitive nuclear R&D funding since 2009
- Most recently awarded some \$2.5M in awards; 3 faculty
- One grad student awarded \$155K fellowship for PhD
- Number of international graduate students from one in 2007 to 20+ today (Korean interns under Korea WEST)

**CAES**

University of Idaho



# *Recent Highlights*

- **Ammon Williams, Rob Hoover** – ANS student conference awards
- **Rob Hoover** – Innovations in Fuel Cycle Research award
- **Ryan Davis, Olu' Omotowa** - DOE National Labs' Modeling, Experiments and Validation Summer School
- **Lei Tu** - recipient of \$5K Post Foundation graduate fellowship
- **Leslie Kerby** - summer internship at LANL; fully supported through MS & PhD by LANL
- **Clemente Parga** – recipient of 3½ year European Union PhD Fellowship; thesis work at French 'Atomic Energy' Laboratory in Cadarache, France
- **Olumuyiwa Omotowa** - attended World Nuclear University Summer Institute at Oxford University (only student), 2010; presented at IAEA (Vienna) and World Institute for Nuclear Security (Abuja, Nigeria) in 2012
- **Richard Skifton** - recipient of DOE NEUP Graduate(PhD) Fellowship worth \$155K; first UI student ever to receive this
- **11<sup>th</sup> Korea West intern** from Cultural Vistas-Korea West arrived in Idaho Falls, (U.S.-Korea exchange program)





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# Key to future of nuclear engineering in Idaho

## ***Construction of 'CAES-II' - Integration of STEM in nuclear energy-***



# **Contact information**

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