

CAMPUS:

Blacksburg & Northern Virginia
(Falls Church)

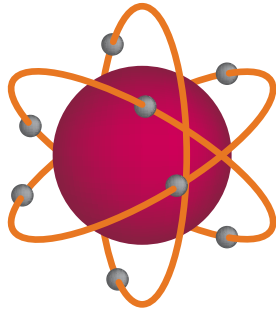


NUCLEAR ENGINEERING PROGRAM

nuclear.ncr.vt.edu

HISTORY:

1956	1985	2007	2014	2019
Started in Physics	Terminated	Restarted in ME	Approved grad degrees	Approved undergraduate minor



DEGREES OFFERED:

- PhD, MS and MENG in NE
- Accelerated MENG in NE for the USNA
- Graduate Certificates (GC): NE and Nuclear Science, Technology and Policy (NSTP)
- Undergraduate Minor (UM) in NE



FACULTY:

Core: 2 Prof.; 2 Assoc. Prof.; 1 Assist. Prof.; 1 Assoc. Prof. of Practice
Affiliate/adjunct: 14
Researcher/postdoc.: 3

DEGREES AWARDED:

PhD (2); MS (1); MENG-USNA (1); GC-NE (1); UM-NE (14)



RESEARCH COLLABORATIONS

Multiphysics for Advanced Reactor Simulation (MARS) – Design of novel microreactor systems; ML algorithms using RAPID code and CHANDLER antineutrino detector for monitoring reactor cores (BNL, Dominion Energy, INL, Jozef Stefan Institute (JSI, Slovenia), Univ. of Utah, VNEC-university partners, VT’s Indust. & System Engineering and Visionarium); Advanced Materials Research - Molten salt and liquid metal chemistry, corrosion and control; Development of molecular dynamic algorithms for materials modeling; Chloride-Induced Stress Corrosion Cracking Investigation for Dry Cask Systems (INL, LANL, ORNL, Univ. of Wisconsin, MIT, Univ. of Utah, and VT’s MSE)

RESEARCH ACTIVITIES:

With application to: Power, Security, Medicine and Policy; specific subject areas include: Nuclear Materials & Fuel; Particle Transport Methods; Reactor Physics and Shielding; multi-modal detector design; Thermal-Hydraulics (TH) & Reactor Safety; application of machine learning and immersive visualization for monitoring, control and safeguards; and design of novel test and power microreactors.



VNEC (VIRGINIA NUCLEAR ENERGY CONSORTIUM) NONPROFIT ACTIVITIES

Has contributed to the passing of legislations on inclusion of nuclear energy in the Virginia carbon-free and clean energy, worked on the design of a test microreactor and the establishment of the state-wide Virginia Nuclear Innovation Hub in collaboration with other Virginia universities (LU, UVA, VCU) and nuclear organizations (Dominion Energy, Lightbridge, GE, Newport News Shipbuilding)

ENROLLMENT:

PhD: 12, MS: 11
UM-NE: 60 students representing 10 departments, 14 majors

FUNDING:

DOE, FLIBE energy, INL, NNL, NRC, NSF, Terrestrial Energy, VT-ICTAS

EDUCATIONAL COLLABORATIONS

Offering the NSTP Graduate Certificate in collaboration with the VT’s Department of Science, Technology and Society, and the School Public and International Affairs (SPIA); Under the MOU with JSI, Slovenia, providing a semester aboard program focused on experimental reactor physics and reactor operator using the JSI’s TRIGA Mark II reactor.