

NUCLEAR ENGINEERING MASTERS DEGREE COURSE PLAN – 30 CREDITS

Prerequisites may need to be taken prior to enrolling in these courses. Check www.uidaho.edu/registrar, catalogs.

*Courses	Bachelor's Degree in Nuclear Engineering	Bachelor's Degree in Physics or Chemistry	Bachelor's Degree in Mechanical Engineering	Bachelor's Degree in Chemical Engineering
CORE	All students must take at least 3 courses in this area			
NE 450 Principles of Nuclear Engr	Not needed	Required	Required	Required
NE 565 Reactor Engr (Intermed NE)	Required	Required	Required	Required
ME 540 Continuum Mechanics	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged
ME 541 Mechanical Engr Analysis	Required	Required	Required	Required
SPECIALITY TRACKS	All students must select at least one specialty track			
THERMOHYDRAULICS (TH)	Select at least 2 courses (including the required)			
NE 504 Nuclear Heat Transport	Strongly Encouraged			
NE 570 Nuclear Chemical Engr	Strongly Encouraged			Required
NE 575 Adv Nuclear Power Engr	Required	Required	Required	Required
NUCLEAR MATERIALS (NM)	Select at least 2 courses (including the required)			
ME 539 Adv Mech of Materials				
NE 538 Fundamentals/Nuclear Mtrls	Required	Required	Required	Required
NE 537 Radiation Effects on Materials	Required	Required	Required	Required
NE 554 Radiation Det/Shielding	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged
FUEL REPROCESSING (FR)	Select at least 2 courses (including the required)			
NE 504 Molten Salt Technology	Required	Required	Required	Required
NE 582 Spent Nuclear Fuel Disp/Mgt	Required	Required	Required	Required
NE 585 Nuclear Fuel Cycles				
THERMAL-FLUIDS	Select at least 2 courses (including the required)			
ME 504 Advanced Heat Transfer	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged
ME 520 Fluid Dynamics	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged
NE 530 Two-Phase Flow	Optional	Optional	Optional	Optional
NUCLEAR CRITICALITY SAFETY	Select at least 3 courses (including the required). NCS certificate is also available in this area.			
NE 535 Nuclear Criticality Safety I	Required	Required	Required	Required
NE 555 Nuclear Criticality Safety II	Required	Required	Required	Required
NE 533 Monte Carlo Methods	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged
Advisor approved elective				

SUGGESTED ELECTIVES	Electives can be taken as part of the 30 credit minimum for the degree			
	Select from the list below and/or take any of the specialty track courses that are not in your focus area, check with your advisor before enrolling in elective courses.			
BUS 552 Mgt of Scientific Innovation				
CHE 590 Hydrogen Energy Systems				
CHE 515 Transport Phenomena				
CHEM 550 Radioanalytical Chemistry				
CS 511 Parallel Programming				
CS 576 Data Mining Topics/Tech				
EM 510 Engineering Mgt Fundmntls				
ENVS 583 Water and Energy Systems				
MATH 432 Numerical Linear Algebra				
ME 513 Engineering Acoustics				
ME 526 Statistical Thermodynamics				
ME 583 Reliability of Engr Systems				
ME 552 TechVentures:HiTech Entrp				
NE 501 Seminar	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged	Strongly Encouraged
NE 504 Fortran for Engineers				
PHYS 550 Quantum Mechanics	Permission Required	Permission Required	Permission Required	Permission Required
PHYS 565 Particle/Nuclear Physics	Permission Required	Permission Required	Permission Required	Permission Required
PTTE 514 Nuclear Safety				
PTTE 516 Nuclear Rules/Regulations				
Advisor approved ISU courses	Check with advisor regarding equivalencies and limits on transfer credits before enrolling			
THESIS OPTION	All thesis students must take 6-9 credits of research			
NE 500 Master's Research and Thesis	Required	Required	Required	Required
NON THESIS OPTION	All non-thesis students must complete a capstone (i.e. comprehensive exam)			
Capstone (see advisor for details)	Required	Required	Required	Required

*Courses may be delivered live, web, Engineering Outreach or hybrid. Check course schedule for delivery.