

**SNEAM / NEPIA**  
**Sustainable Nuclear Energy and Waste Management and Industrial Applications**

**Program syllabus**

ECOLE DES MINES DE NANTES	<b>SNEAM/NEPIA : Master of Science and Technology in Nuclear Energy Production and Industrial Applications</b>	Year 1		Year 2	
		Sem 1	Sem 2	Sem 1	Sem 2
CODE	<b>Scientific and Technical courses</b>	<b>European Crédit - ECTS</b>			
ST111IR	<b>Physics of Ionising Radiation</b> E. Liénard	8			
	Nuclear Physics and Radioactivity				
	Interaction of Radiation with Matter				
	Ionizing Radiation Detection				
ST212RA	<b>Physico-Chemistry of Environment</b> T. Suzuki		7		
	Environment and Radioactivity				
	Introduction to radiochemistry				
	Detectors and radiochemical analyses				
ST112RP	<b>Radioprotection</b> C. Hartnack		6		
	Principals of Radioprotection				
	Work Practices				
	Simulation				
ST312NT	<b>Introduction to Nuclear Technology</b> N. Thiollière		4		
	Nuclear Reactors				
	Aspects of criticality				
	Accelerators				
	Fuel cycle and nuclear materials				
ST221EP	<b>Engineering in Nuclear Power Plants</b> G. Ban			7	
	Thermohydraulical simulation				
	Operation				
	Safety				
	Detailed study of nuclear materials				
ST121RT	<b>Reactors &amp; Advanced Nuclear Technologies</b> C. Hartnack			7	
	Nuclear reactors				
	Physics of neutron transport				
	Thermohydraulics				
	Particles beam and radiation production				
	Particles beam and radiation qualification				
ST321EI	<b>Engineering in Standard Nuclear Installations</b> F. Poirier			5	
	Safety				
	Technical applications review				
	Security applications and waste characterisation				
ST421SW	<b>Safety, Radioprotection &amp; Waste Management</b> M. Fattahi			4	
	Safety of the fuel cycle installations				
	Non proliferation				
	Radioprotection				
	Specific waste management in industrial environment				
	<b>Social Science &amp; Management</b>				
SSG111PM	<b>Project Management</b> P. Laborie	8			
	Project Management				
	Intercultural Management				
	International negotiations				
SSG12EM	<b>Environmental Management and Strategies of Sustainability</b> A. Abdelouas		7		
	International Environmental Management				
	Risk Analysis				

	Energy Strategies				
	Environment and Sustainability Management				
SSG121NS	<b>Nuclear : Management, Safety &amp; Society</b> B. Journée			5	
	<b>Scientific and Technical Project</b>				
PRI111SP	Integrated Scientific Project J. Fadili	3			
PRI112EP	Integrated Nuclear Engineering Project A. Kalinichev		3		
	<b>Training for the corporate world</b>				
FEM111VC	Visits and Conferences J.S. Broc	1	1		
FEM22MT	Master Thesis E. Michel				30
	<b>Generic Engineering Methods</b>				
MGI11DA	Measurement and Data Analysis D. Boilley	8			

**Additional credits**

	<b>Foreign Languages</b>				
LV121FL	French Language and Culture S. Evans	2	2	2	