



POLITECNICO
MILANO 1863

LM NUCLEAR ENGINEERING MANIFESTO DEGLI STUDI 2020/21



Primo anno

PRIMO ANNO

PSPA – NUCLEAR ENGINEERING – X2A

N. Ord.	Codice		SSD	Denominazione Insegnamento		sede	tipo	sem	CFU	di	CFU gruppo
1	-	-	-	Courses from Table LM NUC 1	-		-	-	-	-	20
2	052591	B	ING-IND/20	Radiation Detection and Measurement		BV	M	1	10	2	10
3	055620	B	ING-IND/18	Fission Reactor Physics 1		BV	M	2	10		10
4	054649	B	ING-IND/19	Reliability, Safety and Risk Analysis A+B		BV	M	2	10	1	10
	089473	C	FIS/03	Solid State Physics		MI	M	2	10		
	085888	C	FIS/03	Fisica dello Stato Solido		MI	M	2	10		
	096043	C	ING-INF/01	Industrial and Nuclear Electronics A+B		BV	M	1	10		
5		B	ING-IND/20	Radiochimica Applicata A+B		BV	M	2	10		10
	052644	B/C	FIS/03 - ING-IND/18	Physics of Nuclear Materials+ Nuclear Techniques for the Analysis of Materials		BV	M	A	10		
	053354	B	ING-IND/19	Artificial intelligence and advanced simulation for the safety, reliability and maintenance of energy systems		BV	M	1	10	3	

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Credits (20 ECTS) at positions 1 will be assigned from Table LM NUC 1, by the MSc Access Commission under advice of the Curricula Commission and according to the previous BSc student's curriculum.

PRIMO ANNO

Table LM NUC 1

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
086055	B	ING-IND/19	Radioattività e Radioprotezione		BV	M	1	10	
091720	B	ING-IND/20	Radioattività		BV	M	1	5	
089540	C	FIS/03	Fisica Atomica		MI	M	1	10	
051086	C	FIS/03	Fisica Atomica B		MI	M	1	5	
096300	C	FIS/03	Introduction to Quantum Physics		MI	M	1	5	
094960	B	ING-IND/20	Fisica del Nucleo + Laboratorio di Fisica del Nucleo		MI/BV	I	2	10	
094893	B	ING-IND/20	Fisica del Nucleo		MI	M	2	5	
094957	B	ING-IND/20	Laboratorio di Fisica del Nucleo		MI/BV	M	2	5	
052602	C	FIS/03	Laboratorio di Fisica delle Particelle		MI	M	2	2	1
061398	B	ING-IND/19	Radioprotezione		BV	M	1	5	
061398	B	ING-IND/19	Radioprotezione		BV	M	2 ⁽¹⁾	5	
089493	B	ING-IND/19	Radioprotezione Applicata		BV	M	2	5	
054647	B	ING-IND/19	Introduction to Nuclear Engineering A+B		BV	M	1	10	2
052593	B	ING-IND/19	Introduction to Nuclear Engineering A		BV	M	1	5	1
054648	B	ING-IND/19	Introduction to Nuclear Engineering B		BV	M	1	5	1
096091	C	ING-INF/01	Industrial and Nuclear Electronics A		BV	M	1	5	
052275	C	ING-INF/01	Industrial and Nuclear Electronics B		BV	M	1	5	

PRIMO ANNO

Table LM NUC 1 (continua)

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
088782	C	MAT/05	Metodi matematici per l'ingegneria		MI	M	1	5	
094892	C	MAT/05	Metodi analitici delle E.D.P.		MI	M	2	5	
096295	C	MAT/05	Mathematical Methods in Engineering		MI	M	1	5	
096240	C	MAT/07	Mathematical Methods for Materials Engineering		MI	M	1	5	
094961	C	MAT/08	Metodi Numerici delle E.D.P.		MI	M	2	5	
096296	C	MAT/08	Numerical Methods in Engineering		MI	M	1	5	
054069	-	SECS-S/01	Inferenza Statistica		MI	M	2	5	2
089494	C	ICAR/08	Meccanica dei Solidi		MI	M	1	5	
097485	C	ING-IND/14	Machine Design		MI	M	2	5	
096193	B	ING-IND/08-09	Macchine e Sistemi Energetici		BV	M	1	5	
088805	B	ING-IND/10	Fisica Tecnica		MI	M	1	5	
088805	B	ING-IND/10	Fisica Tecnica		MI	M	2	5	
096041	B	ING-IND/10	Heat and Mass Transfer I		BV	M	1	5	
096042	B	ING-IND/10	Heat and Mass Transfer II		BV	M	1	5	
052204	B	ING-IND/10	Multiphase systems and technologies		BV	M	1	5	
052603	B	ING-IND/10	Heat Transfer and Thermal Analysis		BV	M	2	5	



Secondo anno

Tabelle LM NUC 2A, 2B, 2C, 2D, 2E

SECONDO ANNO

PSPA – Track NUCLEAR PLANT – X2B

N. Ord	Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di	CFU gruppo
6	097616	B	ING-IND/19	Nuclear Design and Technology		BV	M	1	10		10
7	097675	B	ING-IND/18	Fission Reactor Physics II		BV	M	1	5		10
	097680	B	ING-IND/18	Transport of Radioactive Contaminants		BV	M	2	5		
	052594	B	ING-IND/19	Experimental Nuclear Reactor Kinetics		BV	M	1	5	5	
8	097731	B	ING-IND/19	Radioprotezione applicata + Contaminazione interna		BV	I	2	10		10
	053354	B	ING-IND/19	Artificial intelligence and advanced simulation for the safety, reliability and maintenance of energy systems		BV	M	1	10	3	
	052710	B	ING-IND/19	Reliability, Safety and Risk Analysis A+B		BV	M	2	10	1	
		B	ING-IND/20	Radiochimica Applicata A+B		BV	M	2	10		
	056243	B	ING-IND/10	Multiphase systems and technologies + CFD for Nuclear Engineering		BV	I	1	10		
9	-	-	-	On student's choice from Table LM NUC 2A-2B-2C-2D-2E	-		-	-	-	-	15
	097721			Thesis Work			V	1	15		15
	097721			Thesis Work			V	2	15		

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SECONDO ANNO

PSPA – Track NUCLEAR TECHNOLOGIES – X2C

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6	097616	B	ING-IND/19	Nuclear Design and Technology (NEW SYLL)		BV	M	1	10		10
7	097564	B	ING-IND/20	Medical Applications of Radiation Fields		BV	M	1	10		10
	097731	B	ING-IND/19	Contaminazione interna + Radioprotezione applicata		BV	I	2	10		
8		B	ING-IND/20	Radiochimica Applicata A+B		BV	M	2	10		10
	097731	B	ING-IND/19	Contaminazione interna + Radioprotezione applicata		BV	I	2	10		
	055626	C	FIS/03	Physics of Nuclear Materials + High intensity lasers for nuclear and physical applications I		BV MI	I	1	10		
	055629	C B	FIS/03 ING-IND/18	Physics of Nuclear Materials + High intensity lasers for nuclear and physical applications II		BV MI	I	A	10		
	051426	B	ING-IND/18	Fission Reactor Physics II+ Transport of Radioactive Contaminant		BV	M	A	10		
9	-	-	-	On student's choice from Table LM NUC 2A-2B-2C-2D-2E			-	-	-	-	15
	097721			Thesis Work			V	1	15		15
	097721			Thesis Work			V	2	15		

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SECONDO ANNO

PSPA – Track NUCLEAR SYSTEMS PHYSICS – X2D

N. Ord	Codice		SSD	Denominazione Insegnamento		sede	tip o	Sem	CFU	di	CFU gruppo
6	097616	B	ING-IND/19	Nuclear Design and Technology		BV	M	1	10		10
7	097564	B	ING-IND/20	Medical Applications of Radiation Fields		BV	M	1	10		10
	052645	C/B	FIS/03 ING-IND/18	High intensity lasers for nuclear and physical applications I+II		MI	M	A	10		
8	097609	C	FIS/03	Plasma Physics I+II		MI	M	1	10		10
	097716	C	FIS/03	Physics of Nuclear Materials+Physics of Disordered Materials		BV/MI	I	1	10		
	051426	B	ING-IND/18	Fission Reactor Physics II + Transport of Radioactive Contaminant		BV	M	A	10		
	097621	C	FIS/03	Statistical Physics		MI	M	1	10		
9	-	-	-	On student's choice from Table LM NUC 2A-2B-2C-2D-2E			-	-	-	-	15
	097721			Thesis Work			V	1	15		15
	097721			Thesis Work			V	2	15		

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SECONDO ANNO

Table LM NUC 2A

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
097675	B	ING-IND/18	Fission Reactor Physics II		BV	M	1	5	
051426	B	ING-IND/18	Fission Reactor Physics II + Transport of Radioactive Contaminants		BV	M	A	10	
052601	B	ING-IND/18-19	Fission Reactor Physics II + Experimental Nuclear Reactor Kinetics		BV	I	1	10	5
052594	B	ING-IND/19	Experimental Nuclear Reactor Kinetics		BV	M	1	5	5
097674	C/B	FIS/03-ING-IND/19	Physics of Nuclear Materials + Experimental Nuclear Reactor Kinetics		BV	I	1	10	5
097680	B	ING-IND/18	Transport of Radioactive Contaminants		BV	M	2	5	
054649	B	ING-IND/19	Reliability, Safety and Risk Analysis A+B		BV	M	2	10	1
054650	B	ING-IND/19	Reliability, Safety and Risk Analysis A		BV	M	2	5	1
089543	B	ING-IND/19	Reliability, Safety and Risk Analysis B		BV	M	2	5	
052605	B	ING-IND/19	Computational Methods for Reliability, Availability and Maintenance		BV	M	1	5	2
053354	B	ING-IND/19	Artificial Intelligence and Advanced Simulation for The Safety, Reliability and Maintenance of Energy Systems		BV	M	1	10	3
052604	B	ING-IND/19	Integrated Deterministic and Probabilistic Safety Analysis of Nuclear Power Plants		BV	M	1	5	1
095909	B	ING-IND/09	Energy Conversion A		BV	M	1	10	
095902	B	ING-IND/10	Heat and Mass Transfer		BV	M	1	10	
096041	B	ING-IND/10	Heat and Mass Transfer I		BV	M	1	5	
096042	B	ING-IND/10	Heat and Mass Transfer II		BV	M	1	5	
056389	B	ING-IND/10	CFD for Nuclear Engineering		BV	M	1	5	
097485	C	ING-IND/14	Machine Design		MI	M	2	5	
095841	C	ING-IND/14	Machine Design 2		BV	M	2	10	
083442	C	ING-IND/14	Costruzione di Macchine 1		BV	M	1	10	
096246	C	ING-IND/14-21	Mechanical Behaviour and Failure of Metals		BV	I	1	10	
091729	-	ING-IND/21	Failure and Control of Metals		BV	M	1	5	
091677	-	ING-IND/22	Corrosion Engineering		MI	M	1	5	
092844	C	ICAR/08	Dynamics of Structures		MI	M	2	10	
092839	C	ICAR/08	Computational Mechanics and Inelastic Structural Analysis		MI	M	1	10	
097320	-	ING-IND/17	Industrial Project Management A		BV	M	1	10	
097356	-	ING-IND/17	Industrial Project Management B		BV	M	1	5	

SECONDO ANNO

Table LM NUC 2B

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
089493	B	ING-IND/19	Radioprotezione Applicata		BV	M	2	5	
091726	B	ING-IND/19	Contaminazione Interna		BV	M	2	5	
097731	B	ING-IND/19	Contaminazione Interna + Radioprotezione Applicata		BV	I	2	10	
	B	ING-IND/20	Radiochimica Applicata A+B		BV	M	2	10	
	B	ING-IND/20	Radiochimica Applicata A		BV	M	2	5	
	B	ING-IND/20	Radiochimica Applicata B		BV	M	2	5	
097564	B	ING-IND/20	Medical Applications of Radiation Fields		MI	M	1	10	
091734	-	FIS/07	Radiobiologia*		-	U	2	5	
096043	C	ING-INF/01	Industrial and Nuclear Electronics A+B		BV	M	1	10	
095394	C	ING-INF/01	Semiconductor Radiation Detectors		MI	M	2	5	
090935	C	ING-INF/01	Electronics Design for Biomedical Instrumentation		MI	M	2	10	
051145	C	ING-INF/06	Technologies for Sensors and Clinical Instrumentation		MI	M	2	10	
096281	C	ING-INF/06	Biomedical Signal Processing and Medical Images–BIOE440-421			I	2	10	
096264	C	ING-INF/06	Methods for Biomedical Imaging and Computed Aided Surgery		MI	I	2	10	
091735	-	FIS/07	Tecniche di Diagnostica Medica*, #		-	U	2	5	
083042	-	ING-IND/34	Bioingegneria Cellulare		MI	M	1	10	
096210	-	ING-IND/34	Life Support Systems		MI	M	2	5	

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Table LM NUC 2C

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
096129	C	ING-INF/04	Advanced and Multivariable Control		MI	M	2	10	
089195	C	ING-INF/04	Dinamica dei Sistemi Complessi		MI	I	1	10	
097484	C	ING-INF/04	Simulation Techniques and Tools		MI	M	2	5	
094172	C	ING-INF/04	Systems Theory (Nonlinear Dynamics)		MI	M	1	5	
089194	C	ING-INF/04	Complessità nei Sistemi e nelle Reti		MI	M	1 ⁽²⁾	5	
095959	-	ING-INF/05	Algorithms and Parallel Computing		MI	M	1	10	1
093153	C	MAT/03	Geometria Differenziale [#]		MI	M	2	8	
097673	C	MAT/05	Calculus of Variations [#]		MI	M	2	8	
097634	C	MAT/07-08	Computational Fluid Dynamics		MI	I	1	10	
095965	C	MAT/08	Advanced Programming for Scientific Computing		MI	M	2	10	
052504	C	MAT/08	Advanced Numerical Methods for Coupled Problems with Application to Living Systems		MI	M	2	8	

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⁽²⁾insegnamento offerto nel secondo emisemestre

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Table LM NUC 2D

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
097609	C	FIS/03	Plasma Physics I+II		MI	M	1	10	
097608	C	FIS/03	Plasma Physics I		MI	M	1	5	
097624	C	FIS/03	Plasma Physics II		MI	M	1	5	
097621	C	FIS/03	Statistical Physics		MI	M	1	10	
089473	C	FIS/03	Solid State Physics		MI	M	2	10	
089480	C	FIS/03	Solid State Physics A		MI	M	2	5	
050514	C	FIS/03	Solid State Physics B		MI	M	2	5	
085888	C	FIS/03	Fisica dello Stato Solido		MI	M	2	10	
054651	C	FIS/03	Teoria dei Sistemi a Molti Corpi 1*			U		5	
091604	C	FIS/03	Nanomaterials for Energy Conversion		MI	M	2	5	
091603	C	FIS/03	Physics of Nanostructures		MI	M	2	5	
096038	C	FIS/03	Plasmas for Surface Micro and Nanostructuring		MI	M	2	5	
051442	C	FIS/03	Plasmas for Surface Micro and Nanostructuring + Physics of Disordered Materials		MI	M	A	10	
096075	C	FIS/03	Thin films: Magnetism and Superconductivity		MI	M	1	5	
097726	-	FIS/01	Nanomagnetism and Spintronics		MI	M	1	5	
052552	C	FIS/03	Physics of Low Dimensional Systems I: Principles		MI	M	2	5	
052553	C	FIS/03	Physics of Low Dimensional Systems II: Experimental Methods		MI	M	2	5	
097664	C	FIS/03	Physics of Nuclear Materials		BV	M	1	5	
097716	C	FIS/03	Physics of Nuclear Materials + Physics of Disordered Materials		BV/MI	I	1	10	
052644	C/B	FIS/03 ING-IND/18	Physics of Nuclear Materials + Nuclear Techniques for the Analysis of Materials		BV	M	A	10	
052609	B	ING-IND/18	Nuclear Techniques for the Analysis of Materials		BV	M	2	5	
097584	C	FIS/03	Physics of Disordered Materials		MI	M	1	5	
052645	C/B	FIS/03 ING-IND/18	High intensity lasers for nuclear and physical applications I+II		MI	M	A	10	
052656	C	FIS/03	High intensity lasers for nuclear and physical applications I		MI	M	1	5	
052657	B	ING-IND/18	High intensity lasers for nuclear and physical applications II		MI	M	2	5	
096621	-	FIS/01	Physics of Ultrafast Processes		MI	M	1	5	
096081	C	FIS/03	Quantum Optics and Information		MI	M	2	5	
091737	C	FIS/04	Fisica Nucleare*			U	1	5	
052602	C	FIS/03	Laboratorio di Fisica delle Particelle		MI	M	2	2	1
054873	C	FIS/04	Fenomenologia del Modello Standard delle Particelle Elementari*			U		5	
091736	-	FIS/01	Fisica degli Acceleratori 1*			U	2	5	
054874	-	FIS/05	Astrofisica Nucleare Relativistica 1*			U		5	

SECONDO ANNO

Table LM NUC 2E

Codice		SSD	Denominazione Insegnamento		sede	tipo	Sem	CFU	di
053313	-	ICAR/02	Eredità Nucleari e Sviluppo Sostenibile			M	1	4	4
052585	-	ING-INF/05	Personalità, Team Building, Leadership		MI	M	2	5	5
052582	-	M-PED/03	Communication and Argumentation		MI	M	2	5	5
054179	-	IUS/07	Implicazioni Legali dell'Esercizio della Professione (Le Responsabilità dell'ingegnere)		MI	M	2	5	5
052580	-	L-FIL-LET/11	Italian and European Culture		MI	M	1	5	5
052581	-	M-FIL/02	Ethics for Technology		MI	M	1	5	5
052583	B	ING-IND/10	Sustainable Development		MI	M	2	5	5
056048		M-FIL/02	Philosophy of Science and Technology		MI	M	1	5	5
055806		M-FIL/02	Critical Thinking		MI	M	2	5	5
055807		SPS/07	Emerging Technologies and Societal Challenges		MI	M	2	5	5
098504	-	ING-IND/15	Technology Forecasting and Researching Future		MI	M	2	5	5

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