Centrale Nantes Engineer Training Programme

Second year
Semester 7 (the 7th semester of higher education and the 3th semester of Engineering programme)

		Credits	Coef.	hours
UE31		**6**		**110**
	LVOS3 Modern Languages S3	2	1	34
	LVCS3 Modern Languages 2 S3	2	1	34
	EPSS3 Education Physique et Sportive	1	1	32
	COMS3 Communication	1	1	10
UE32		**6**		**66**
	COES3 Connaissance de l'Entreprise	3		34
	PROF3 Professionalisation	3		32
UE33		**6**		**102**
	SYSTE Approche Système	2		34
	CMDE Control systems	2		34
	Differentiation cours (1 to choose)	2		34
	Electric Energy : transformation and electric machines dEECOA			
	Système d'entreprise dSYSEN			
	Electronics dEONIQ			
UE34		**4**		**64**
	Electif 2 (1 to choose)	2		32
	Mobile Robots eROMOB			
	Digital Images eIMAGE			
	Experimental design and axprimental strategy ePLEXP			
	Study and Research Project ePRETR			
	Some Aspects of Modelling eASMOD			
	Conceptions, constructions et maintenance des ouvrages eCOMAO			
	Advanced Methods in Ocean Sailboats Design eCOVOI			
	Facteurs Humains en Conception de Systèmes eFACCS			
	Electif 3 (1 to chose)	2		32
	Mathematics applied to environmental eMENVI			
	Statistics in Engineering eSTASI			
	Eco-design eECODE			
	Physics of Musical instruments - Musical Acoustics ePIMAM			
	The waves eVAGUE			
	Modeling and simulation of Internal Combustion engines eMSMCI			
	Industrial and Environmental Applications of Fluid Mechanics eMFLAP			
	Non destructif Testing for Materials and Structures eCNDMS			
	Professionalisation ePROFE			
UE35		**8**		**134**
	MELOG Software methods	2		34
	PRSTA Probability and Statistics	2		34
	MEEFI Finite Elements Method	2		34
	Differentiation cours (1 to choose)	2		32
	PHYSICS: The key equations of physics revisited dPHYSI			
	Production Industrialization dPROIN			
	Dynamic of structures Application to transport dDYSAT			
	Total	**30**		**476**

Semester 8 (the 8th semester of higher education and the 4th semester of Engineering programme)

		Credits	Coef.	hours
UE41		**2**		**32**
	A to chose	2	1	32
	Evolution des politiques économiques dans le contexte de la crise eEPECC			
	Management Leadership et Ethique eMALEE			
	Northern American Litteratures eLINOA			
	TOEIC eTOEIC			
	Sitcom et Films eSITFI			
	Politics, business, & finance through the english media ePBFEM			
	Management & personal success eMAPSU			
	La peinture française de la évolution à la seconde guerre mondiale ePEINT			
	BRIO, projet d'ouverture sociale eBRIO			
	Epistémologie et Histoire des sciences et des techniques eHPScT			
UE42		**14**		**360**
	PROF4 Professionnalisation			
	STAIN2 Stage Ingénieur			
UE43, UE44 and UE45		**14**		**160**
	One to chose			
	Technology and automobile disiplinary			
	Web strategy			
	Virtual engineering			
	Aeronautics			
	Composit structure			
	Water engineering			
	Renewable energy			
	AgroAlimentaire			
	Total	**30**		**552**
	Total of the second year	**60**		**1028**

Centrale Nantes Engineer Training Programme

Firts Year

Semester 5 (the 5th semester of higher education and the first semester of Engineering programme)

	Credits	Coef.	hours
UE11	**6**		**102**
LVOS1 Modern Languages S1	2	1	26
LVCS1 Modern Languages 2 S1	1	1	26
EPSS1 Sports and Physical Education S1	1	1	32
COMS1 Communication S1	2	1	18
UE12	**4**		**66**
COES1 Corporate Culture 1	2	1	34
PROF1 Professionalisation	2	1	32
UE13	**6**		**102**
SCUBE Signals, Systems, Simulation	2	1	34
ANUME Numerical Analysis	2	1	34
OPTIM Mathematical Optimization	2	1	34
UE14	**6**		**102**
THERM Thermofluid 3 (practical)	2	1	34
THERE Thermofluid 1 (Applied thermodynamics)	2	1	34
THERF Thermofluid 2 (fluid-mechanics)	2	1	34
UE15	**8**		**134**
MMICD Continuum and Discrete Mechanics	2	1	34
AUTOM Automatisms	2	1	34
PHYMA Matter Physics	2	1	34
AMPIN Analysis and modeling of industrial products	2	1	32
Total	**30**	**16**	**506**

Semester 6 (the 6th semester of higher education and the second semester of Engineering programme)

	Credits	Coef.	hours
UE21	**6**		**102**
LVOS2 Modern Languages S2	2	1	42
LVCS2 Modern Languages 2 S2	2	1	42
EPSS2 Sports and Physical Education S2	1	1	8
COMS2 Communication S2	1	1	10
UE22	**6**		**98**
COES2 Corporate Culture 2	2	1	34
PEINS Industrial Project	2	1	32
PROF2 Professionalisation - CME	2	1	32
UE23	**6**		**102**
ALGPR Algorithms and Programming	2	1	34
SCUBE Signals, Systems, Simulation	2	1	34
Differentiation cours (1 to choose)	2	1	34
dSIBAD Information systems and databases			
dENVIR Environment			
dANALY dAnalysis			
UE24	**6**		**100**
DYVIB Dynamics and Vibrations	2	1	34
MESTR Structural Mechanics	2	1	34
Electif cours (1 to choose)	2	1	32
Organisation des Systèmes Informatiques eOSINF			
Propulsion Automobile ePRAUT			
Introduction aux Méthodes Numériques eMNEDP			
Architectures contemporaines : enjeux sociaux, techniques et esthétiques eARCHI			
Risques naturels et Environnementaux, Aménagement du Territoire eRINAT			
Conception, Prototypage et Industrialisation eCOPRI			
Science pour l'Ingénieur et Médecine eSPIME			
Robotique eROBOT			
UE25	**6**		**100**
GEMAT Materials Engineering	2	1	34
COPIN Design of industrial products	2	1	32
PRODI Industrial Production	2	1	34
Total	**30**	**16**	**502**
Total of the first year	**60**	**32**	**1008**

Water engineering

Semester 8 (or Semester 4 of the Centrale Nantes engineer training)

The courses are taught by faculty members in civil engineering from the Ecole Centrale de Nantes and engineers and researchers of research institutes on environmental management and related businesses (EDF, Cemagref ...).

UE43

Introduction to the water properties

- Physics and chemistry of water,

- Introduction to mechanics of porous media,

- Diffusive transport in reactive media,

- Hydraulics.

This course presents the fundamental knowledge on physical and chemical properties of water in its environment. Introduction to mechanics of porous media and to soil mechanics is proposed.

Management of water in the environment

- Hydrology,

- HGHydrogeology,

- Watershed management,

- Oceans,

- Aquatic environments.

How to manage water resources in the environment? We study the water cycle and resources of the subsoil. For better management, it is also important to control pollution in the environment (aquatic environments, oceans ...).

UE44

Water engineering in urban areas

- Rainwater collection,

- Drinking water,

- Wastewater treatment,

- Design and durability of hydraulic structures,

- Coastal management.

The civil engineering methods are presented in this course to manage the water in cities. A particular course is offered on the durability of concrete structures in contact with aggressive water. Also, coastal management is important, both for environmental

Risk Management

- Dam engineering,

- River dikes,

- Flood-risk management.

For the protection of the population near the impoundment of water, courses are offered on the construction and management of dams and dikes. In the case of accidents, we consider the risk of flooding.

UE45 – Projects

Study of desalination of sea water, management of a drinking water system, Modernization of a water treatment plant, water resources management ...