

Polytech Lyon

Mechanics curriculum

2012-2013

3rd year – Semester 5

	ECTs	Heures	CM	TD	TP/Projet
Mathematics and numerical methods	6	96			
Mathematical tools for engineers 1 (Optional) (Matrix calculus/Ordinary differential equations/ Vector calculus)	3	48	24	24	
Basic numerical methods	3	48	16	16	16
Mechanics and Power engineering	9	144			
Rigid body mechanics	2	32	10	22	
Analytical mechanics	2	32	16	16	
Continuum mechanics	2	32	16	16	
Fluid mechanics 1	3	48	16	16	16
Thermodynamics	2	32	16	16	
The engineer's methods and tools	7	112			
Mechanical technology (Optional)	3	48		48	
Automation	2	32	16		16
Computer science 1	3	48	12		36
The backdrop for engineering activities	4,5	72			
Management (Accounting / business game)	1	16	6	10	
Business awareness	1,5	24	24		
Law	1	16	16		
Project management 1 / Quality	1	16	16		
Languages	3	48		48	
(English/ 2nd language or additional English)					
Sport	0,5	8			
	30	480			

3rd year– Semester 6

	ECTs	Heures	CM	TD	TP/Projet
Mathematics and Numerical methods	5	80			
Mathematical tools for engineers 2 (Probabilistic and statistical methods/ Integral transforms)	3	48	24	24	
Numerical methods of mechanics 1 (Finite difference method)	2	32	16		16
Mechanics and power engineering	13	208			
Strength of materials	3	48	16	16	16
Fluid mechanics 2	3	48	24		16
Vibration mechanics	3	48	16	16	16
Transfer phenomena	4	64	24	24	16
Methods and tools for l'Ingénieur	4	64			
CAD	4	64	16	16	32
The backdrop for engineering activities	4,5	64			
Communication 1	1	16	8	8	
Setting up a business	2,5	40	20	20	
Specialty optional course 1 (Software law/ Intellectual property / Patents /Business intelligence)	1	16	16		
Languages	3	48		48	
(English / 2nd language or additional English)					
Sport	0,5	8			
	30	480			

4th year – Semester 7

	ECTs	Heures	CM	TD	TP/Projet
Mathematics and numerical methods	5	80			
Mathematical tools for engineers3 (Complex analysis/Distributions/Green functions)	2	32	16	16	
Numerical methods of mechanics 2 (Finite elements)	3	48	16	16	16
Mechanics and power engineering	12	192			
Acoustics	3	48	16	16	16
Fluid mechanics 3	3	48	32		16
Structural mechanics	3	48	16	16	16
Mechanics of multibody systems	3	48	16	16	16
Methods and tools for engineers	5	80			
IComputer science 2	3	48	16	16	16
Signal processing	2	32	16	16	
The backdrop for engineering activities	4	64			
Communication 2	1	16	0	16	
Marketing	1	16	8	8	
Project Management 2	1	16	0	16	
Specialty optional course 2 (Applied project management)	1	16			16
Languages	4	64		64	
(English / 2nd language or additional English)					
	30	480			

4th year– Semester 8

	ECTs	Heures	CM	TD	TP
Internship as Technician – Assistant Engineer (During the whole semester)	30				

5th year – Semester 9

	ECTs	Heures	CM	TD	TP/Projet
Mathematics et Numerical methods	3	48			
Numerical methods of mechanics 3 (Finite volume)	3	48	48		
Mechanics and power engineering	5	80			
Fluids and structures in energy production systems	2	32	32		
Vibrations and Acoustics	3	48	32		16
The backdrop for engineering activities	4	64			
Employability	3	48	18	30	
Specialty optional course 3 (Product Data Management / Product Life Cycle)	1	16	16		
Languages	4	64		48	
	16	256			

«Structure design and building» track

	ECTs	Heures	CM	TD	TP/Projet
10 ETCs to choose from					
Plates and shells	3	32	32		16
Fast dynamics and shocks	2	32	32		
Fatigue and Rupture	2	32	32		
Non linear mechanics	3	48	32		16
Materialoptimization eand composite structures	3	48	32		16
Structure design and building Project	4	64			64
	14	224			

Transport, Energy and EnvironmentTrack

	ECTs	Heures	CM	TD	TP/Projet
10 ETCs to choose from					
Physiscs of Turbulence	3	48	32		16
Turbomachinery	3	48	32		16
Physics of Combustion	3	48	32		16
Fluid biomechanics	2	32	32		
Gas dynamics and aeroacoustics	2	32	32		
Two-phase flows	2	32	32		
Transport, Energy and Environment Project	4	64			64
	14	224			

Biomechanics Track

	ECTs	Heures	CM	TD	TP/Projet
10 ETCs to choose from					
Non linear mechanics	3	48	32		16
Fluid biomechanics	3	32	32		16
Biotribology	2	32	32		
Human motion analysis and simulation	2	32	16	16	
Fast dynamics and shocks	2	32	16	16	16
Ultrasounds: medical and industrial applications	3	48	32		16
Biomechanics Project	4	64			64
	14	224			

5th year – Semester 10

	ECTs	Heures	CM	TD	TP
Internship as Engineer (6 months)	30				