DEPUIS 1973®

ULT

Bouebdelli Education Group

Mechatronics Engineering Study Plan

Mechatronics Engineering Year 1 Semester 1										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			IC	PW	Project	SSH	Module	UNIT	Module	UNIT
U1.1	*Mathematics 1*	Math for Engineering	42	0	0	35	2	3,5	3	5
		Statistics & Probability	21	0	0	21	1,5		2	
U1.2	*Electronics Electrotechnics & Automatic control EEA 1*	Regulation & Servo Control	42	10,5	0	35	2	8	2	8
		Analog Electronics 1	21	10,5	0	21	2		2	
		Robotics 1	21	21	0	35	2		2	
		Digital Electronics	10,5	10,5	0	21	2		2	
U13	*Mechanics & Mechatronics Elements*	Workshop Mechatronics Systems Design 1 (CATIA V5)	0	21	0	21	2	6,5	1	6
		Theory of Materials	21	0	0	21	1,5		2	
		Mechanical Engineering	21	0	0	21	2		2	
		Introduction to Mechatronics Systems	0	0	21	21	1		1	
U1.4	*Computer Science 1*	Computer Architecture & Assembly Programming	10,5	10,5	0	21	2	4	2	4
		C Programming	21	21	0	35	2		2	
U1.5	*Languages & Social Science*	English 1	21	0	0	21	1	2	2	4
		Communication Techniques	21	0	0	21	1		2	
U1.6	*Project 1*	Supervised Project 1	0	0	21	21	3	3	3	3
TOTAL			273	105	42	371	27	27	30	30
Total Semester Workload			791							

One semester of study length is 14 weeks and 1 week for exams

The Student Self Study Hours SSH are estimated as follows: Module with weekly hours ≥3 SSH=2.5Hrs; Module with weekly hours <3 SSH=1.5Hr

The average Workload/ week = 791H/14= 56.5 Hours

The Total Semester ECTS Credits = 30

IC: Integrated Course (Classroom course & guided work) PW: Practical Workshop (in Lab) SSH: Self Study Hours

Mechatronics Engineering Year 1 Semester 2										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			IC	PW	Project	SSH	Module	UNIT	Module	UNIT
U2.1	*Mathematics 2*	Operational Research	21	0	0	21	1,5	3	1,5	3
		Numerical Analysis	21	0	0	21	1,5		1,5	
U2.2	*Mechanics & Mechatronics Elements 2*	Workshop Mechatronics systems Design 2 (CATIA V5)	0	21	0	21	1,5	8	1,5	7,5
		Resistance Of Materials ROM	10,5	10,5	0	21	2,5		2	
		Mechanical Engineering	21	0	0	21	1		1,5	
		Manufacturing Technology	10,5	10,5	0	21	1,5		1,5	
		Transmission Mechanics	21	0	0	21	1,5		1	
U2.3	*Electronics Electrotechnics & Automatic control EEA2*	Electrotechnics	21	0	0	21	1,5	7,5	2	8
		Electronic Functions	42	21	0	35	2		2	
		Robotics 2	21	0	0	21	2		2	
		Industrial Programmable Automated 1	21	0	0	21	2		2	
U2.4	*Computer Science 2*	Java Object Oriented Programming	21	21	0	35	2,5	6,5	2	5,5
		Workshop Operating Systems OS (UNIX & LINUX)	21	0	0	21	2		1,5	
		Mechatronics Systems Simulation-Lab view	10,5	10,5	0	21	2		2	
U2.5	*Languages & Social Science*	English 2	21	0	0	21	1	2	1,5	3
		Personnel & Social Development	21	0	0	21	1		1,5	
U2.6	*Project 2*	Supervised Project 2	0	0	21	21	3	3	3	3
TOTAL			304,5	94,5	21	385	30	30	30	30
Total Semester Workload			805							

Mechatronics Engineering Year 2 Semester 1										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			IC	PW	Project	SSH	Module	UNIT	Module	UNIT
U3.1	*Electronics Electrotechnics & Automatic control EEA3*	Digital Control	21	0	0	21	2	10	2	10
		Power Electronics	21	21	0	35	2		2	
		Sensors & Actuators	42	0	0	35	2		2	
		Instrument & Measurement	0	0	21	21	2		2	
		Signal Processing	21	0	0	21	2		2	
U3.2	*Mechanics & Mechatronics Elements 3*	Workshop Computer Aided Design CAD (CATIA V5)	0	21	0	21	2	8	2	8
		Manufacturing Analysis	21	0	0	21	2		2	
		Robotics 3	21	21	0	35	2		2	
		Continuum Mechanics	21	0	0	21	2		2	
U3.3	*Embedded Systems*	Embedded Systems based on 32bits Microcontrollers	21	21	0	35	2	6	2	6
		Python Programming	10,5	10,5	0	21	2		2	
		Microcontroller & Microprocessor	10,5	10,5	0	21	2		2	
U3.4	*Languages & Social Science*	Innovation Management	21	0	0	21	1	3	1	3
		ENGLISH TOEIC 1	21	0	0	21	1		1	
		Intellectual Propriety IP Law	21	0	0	21	1		1	
U3.5	*Year Project 1*	Year Project1	0	0	21	21	3	3	3	3
		TOTAL	273	105	42	392	30	30	30	30
		Total Semester Workload	812							

One semester of study length is 14 weeks and 1 week for exams

The Student Self Study Hours SSH are estimated as follows: Module with weekly hours ≥3 SSH=2.5Hrs; Module with weekly hours <3 SSH=1.5Hr

The average Workload/ week = 805H/14= 57.5 Hours

The Total Semester ECTS Credits = 30

IC: Integrated Course (Classroom course & guided work) PW: Practical Workshop (in Lab) SSH: Self Study Hours

Mechatronics Engineering Year 2 Semester 2										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			IC	PW	Project	SSH	Module	UNIT	Module	UNIT
U4.1	*Modelling*	Lean Manufacturing	21	0	0	21	2	4,5	1,5	4
		CAM Computer Aided Manufacturing using CNC	0	42	0	35	2,5		2,5	
U4.2	*Mechanics & Mechatronics Elements 4*	Mechatronics Systems Dynamic	0	21	0	21	2	8,5	1,5	7,5
		Pneumatic & Hydraulic	21	0	0	21	2		1,5	
		Fluid Mechanics & Applied Thermodynamics	21	21	0	35	2,5		2,5	
		Mechanical Vibrations	21	0	0	21	2		2	
U4.3	*Electronics Electrotechnics & Automatic control EEA 4*	Vision & Image Processing	21	0	0	21	2	9,5	2	9,5
		Industrial programmable Automated 2	21	21	0	35	2,5		2,5	
		Electrical Machine	21	21	0	21	2,5		2,5	
		Robotics 4	21	21	0	35	2,5		2,5	
U4.4	*Computer Science 3*	Real Time Programming	21	21	0	35	2,5	2,5	3	3
U4.5	*Languages & Social Science*	English TOEIC 2	21	0	0	21	1	2	1,5	3
		Marketing	21	0	0	21	1		1,5	
U4.6	*Year Project 2*	Year Project 2	0	0	21	21	3	3	3	3
		TOTAL	231	168	21	364	30	30	30	30
		Total Semester Workload	784							

One semester of study length is 14 weeks and 1 week for exams

The Student Self Study Hours SSH are estimated as follows: Module with weekly hours ≥3 SSH=2.5Hrs; Module with weekly hours <3 SSH=1.5Hr

The average Workload/ week = 784H/14= 56 Hours

The Total Semester ECTS Credits = 30

IC: Integrated Course (Classroom course & guided work) PW: Practical Workshop (in Lab) SSH: Self Study Hours

Mechatronics Engineering Year 3 Semester 1										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			IC	PW	Project	SSH	Module	UNIT	Module	UNIT
U5.1	*Modelling & Optimizatio*	Electrical Installation : REVIT	0	21	0	21	2	4	2	4
		Energy Management	21	0	0	21	2		2	
U5.2	*Mechanics & Mechatronics Elements 5*	Machines Dynamics	21	0	0	21	2	6	2	6
		CMMS Computerized Maintenance Management System	0	21	0	21	2		2	
		Finite Element & Abaqus Method	21	21	0	35	2		2	
U5.3	*Electronics Electrotechnics & Automatic control EEA 5*	Analysis & Control of Complex Systems	21	0	0	21	2	6	2	6
		Design & Implementation of Automated Systems	10,5	10,5	0	21	2		2	
		Robotics Control	21	0	0	21	2		2	
U5.4	*Computer Science 4*	Synthesis & Technologies of Integrated Circuits	21	21	0	35	2	8	2	8
		Local Industrial Network LIN	21	0	0	21	1		1	
		Artificial Intelligence (AI)	21	0	0	21	1		1	
		Internet Of Things (IOT)	21	21	0	35	3		3	
		Embedded Linux	14	7	0	21	1		1	
U5.5	*Mechatronic Elements Reliability Methods*	Reliability & Safety of Mechatronic systems	21	0	0	21	2	4	2	4
		Business Intelligence	21	0	0	21	2		2	
U5.6	*Social Science*	Lean start-up	21	0	0	21	1	2	1	2
		Industry 4.0	21	0	0	21	1		1	
		TOTAL	297,5	122,5	0	399	30	30	30	30
		Total Semester Workload	819							

One semester of study length is 14 weeks and 1 week for exams

The Student Self Study Hours SSH are estimated as follows: Module with weekly hours ≥3 SSH=2Hrs; Module with weekly hours <3 SSH=1Hr

The average Workload/ week = 819H/14= 58.5Hours

The Total Semester ECTS Credits = 30

IC: Integrated Course (Classroom course & guided work) PW: Practical Workshop (in Lab) SSH: Self Study Hours

Mechatronics Engineering Year 3 Semester 1						
Code	UNIT	Credit Hours	IC	Project	COEF	ECTS Credit
U6.1	*Graduation Research Project (4-6 months)*	450	-	450	-	30
U6.2	*Internship 1 (1-2 months)*	-	-	-	-	-
U6.3	*Internship 2 (1-2 months)*	-	-	-	-	-
	TOTAL	450	0	450	0	30

The Total Semester ECTS Credits = 30