Prerequisites.
Content that specifies the topics covered, implementation modalities.
The numbering of the modules is done as follows: M XYZ M
(Letter M for Module), X (number) semester, Y (number) type of UE (1 - Fundamental, 2 b. Methodological, 3 Transversal), Z (number) of the module within the UE and the semester.

b. Synthetic table of modules and Educational Units by semester

Institute of Applied Sciences and Techniques in Constantine,
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Semester 1

Educational Unit	Modules	Lectures	Tutorials		Total	Coef.	ECTS
Unit Fundamental Education - UEF 1 : Introduction to Mechanical Design	M111 - MECA 1 - Statics	9	15	9	*33*	*3*	*3*
	M-112- INDUSTRIAL DRAWING 1	12	42		*54*	*4*	*4*
	M-113 - MATERIALS 1 Properties and Designation	9	15	9	*33*	*3*	*3*
Total UEF 1		***30***	***72***	***18***	***120***	***10***	***10***
Unit Methodological Education - UEM 1 : Introduction to Industrialization	M-121 - FAB 1 - Manufacturing Technology	18	18	27	*63*	*4*	*4*
	M-122 - METROLOGY 1	6	15	9	*30*	*2*	*2*
	M-123 - AUTO 1 - Fundamentals of Automation	12	15	18	*45*	*2*	*2*
	M-124 - INTERNSHIP 1 (2 x 2 weeks)				*(160)*	*2*	*2*
Total UEM 1		***36***	***48***	***54***	***138***	***10***	***10***
Unit Transversal Teaching – UEC 1: Discovery of Transversal Skills	M-131 - MATHS 1	18	24	0	*42*	*3*	*3*
	M-132 - COM 1 (Communication Expression)		12	12	*24*	2	2
	M-133 - ENGLISH 1		12	12	*24*	*2*	*2*
	M-134 - SAFETY 1		18		*18*	*2*	*2*
	M-135 - PPP 1 (Personal and Professional Project)		9	9	*18*	*1*	*1*
Total UEF 1		***18***	***75***	***33***	***126***	***10***	***10***
Total		**84**	**195**	**105**	**384**	**30**	**30**

The total does not include internship hours.

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Semester 2

Educational Unit	Modules	Lectures	Tutorials	Total	Coefficient	ECTS
Educational Unit Fundamental - UEF 2 : Deepening of mechanical design	M-211 - MECA 2 - Strength of Materials	12	15	18	*45*	*3*	*3*
	M-212 - INDUSTRIAL DRAWING 2	12	15	24	*51*	*3*	*3*
	M-213 - MATERIALS 2 - Tests and behavior	12	15	18	*45*	*2*	*2*
	M-214 - PROJECT MANAGEMENT	3	9	18	*30*	*2*	*2*
Total UEF 2		***39***	***54***	***78***	***171***	***10***	***10***
Educational Unit Methodological – UEM 2 : Deepening of Industrialization	M-221 - FAB 2 - Implementation of Means of Production	12	21	27	*60*	*3*	*3*
	M-222 - FAB 3 - Methods Office	12	21	18	*51*	*3*	*3*
	M-223 - ELECTRICITY	12	15	12	*39*	*2*	*2*
	M-224 - METROLOGY 2	6	9	9	*24*	*2*	*2*
Total UEM 2		***42***	***66***	***66***	***174***	***10***	***10***
Educational Unit Transversal – UET 2 : Deepening in transversal skills	M-231 - MATH 2	18	27		*45*	*2*	*2*
	M-232 - COM 2 (Communication Expression)		15	15	*30*	2	2
	M-233 - ENGLISH 2		15	15	*30*	*2*	*2*
	M-234 - PPP 2 (Personal and Professional Project)		6	9	*15*	*1*	*1*
	M-235 - COMPUTER SCIENCE			24	*24*	*1*	*1*
	M-236 - BUSINESS ORGANIZATION	12	12		*24*	*2*	*2*
Total UET 2		***30***	***75***	***63***	***168***	***10***	***10***
Total		**111**	**195**	**207**	**513**	**30**	**30**

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Semester 3

Educational Unit	Modules	Lectures	Tutorials	Total	Coefficients	ECTS
Educational Unit Fundamental - Fundamental Educational Unit (UEF 3): **Advanced Training in mechanical design**	M-311 - MECA 3 (Kinematics Dynamics)	12	15	18	*45*	*4*	*4*
	M-312 - INDUSTRIAL DRAWING 3 - (DAO)			45	*45*	*3*	*3*
	M-313 - INTERNSHIP 2 (8 weeks) Form (graded by the Internship Supervisor)				*(320)*	*3*	*3*
Total UEF 3		***12***	***15***	***63***	***90***	***10***	***10***
Educational Unit Methodological – UEM 3 : Advanced Training in industrialization	M-321 - FAB 4 - Preparation of a MOCN production	12	18		*30*	*2*	*2*
	M-322 - FAB 5 - Methods (Manufacturing Phase + Costs)	12	18		*30*	*3*	*3*
	M-323 - AUTO 2 - Pneumatics + hydraulics on/off	9	12	9	*30*	*2*	*2*
	M-324 - INTERNSHIP 2 (8 weeks) Basic (graded by the Internship Supervisor)				*(320)*	*3*	*3*
Total UEM 3		***33***	***48***	***9***	***90***	***10***	***10***
Educational Unit Transversal – UET 3 : Advanced Training in Transversal Skills	M-331 - MATHS 3	15	15		*30*	*3*	*3*
	M-332 - COM 3 (Communication Expression)		15		*15*	1	1
	M-333 - ENGLISH 3			15	*15*	*1*	*1*
	M-334 - PPP 3 (Personal and Professional Project)		6	9	*15*	*1*	*1*
	M-335 - Report and Defense STAGE 2 (graded by the Supervisor)				-	*4*	*4*
Total UET 3		***15***	***36***	***24***	***75***	***10***	***10***
Total		**60**	**99**	**96**	**255**	**30**	**30**

The total does not include internship hours.

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Semester 4

Educational Unit	Modules	Lectures	Tutorials		Total Coefficient		ECTS
Unit Fundamental Education - UEF 4 : **Specialization in Mechanical Design**	M-411 - MECA 4 (Kinetics, Energetics)	12	18		*30*	*2*	*2*
	M-412 - MECHANICAL DESIGN 1 - Bearings and Gears	15	24	9	*48*	*2*	*2*
	M-413 – STRUCTURE (Sizing)		12	18	*30*	*2*	*2*
	M-414 – INDUSTRIAL DRAWING 4 – (CAD)			45	*45*	*2*	*2*
	M-415 - MECA 5 - Fluid Mechanics	9	12	9	*30*	*2*	*2*
Total UEF 4		***36***	***66***	***81***	***183***	***10***	***10***
Unit Methodological Education - UEM 4 : **Specialization in Industrialization**	M-421 - FAB 6 - Production of Computer Numerical Control Machine Tools		15	45	*60*	*3*	*3*
	M-422 - FAB 7 - Multi-Process Production Preparation		15	15	*30*	*2*	*2*
	M-423 - FAB 8 - Production preparation under industrial conditions			30	*30*	*2*	*2*
	M-424 - AUTO 3 - Control and regulation	18	24	18	*60*	*3*	*3*
Total UEM 4		***18***	***54***	***108***	***180***	***10***	***10***
Unit Transversal Teaching – UEC 4 : **Specialization in Transversal Skills**	M-431 - MATH 4		15	15	*30*	*2*	*2*
	M-432 - COM 4 (Communication Expression)		15	15	*30*	*2*	*2*
	M-433 - ENGLISH 4		15	15	*30*	*2*	*2*
	M-434 - QUALITY	12	18		*30*	*2*	*2*
	M-435 - MANAGEMENT	15	15		*30*	2	*2*
Total UET 4		***27***	***78***	***45***	***150***	***10***	***10***
Total		**81**	**198**	**234**	**513**	**30**	**30**

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Semester 5

Educational Unit	Modules	Lectures	Tutorials	Total	Coefficient	Credits
Unit Fundamental Education - UEF 5 : **Expertise of the mechanical conception**	M-511 - MECA 6 Vibrational Mechanics	9	18	18	*45*	*2*	*2*
	M-512 - THERMAL	9	18	18	*45*	*2*	*2*
	M-513 - MECHANICAL DESIGN 2 Epicyclic Gear Train		30		*30*	*2*	*2*
	M-514 - MECA 7 - Mechanics of Fracture, Expertise	15	15		*30*	*2*	*2*
	M-515 - THERMODYNAMICS	9	18	18	*45*	*2*	*2*
Total UEF 5		***42***	***99***	***54***	***195***	***10***	***10***
Unit Methodological Education - UEM 5 : **Expertise in Industrialization**	M-521 - FAB 8 - Optimization of Cutting Conditions		15	15	*30*	*2*	*2*
	M-522 - LUBRICATION	9	9		*18*	*1*	*1*
	M-523 - AUTO 4 - PROPORTIONAL HYDRAULICS		18	12	*30*	*2*	*2*
	M-524 - WORK ORGANIZATION	15	15		*30*	*1*	*1*
	M-525 - MATERIALS 3 - Non-Destructive Testing		12	18	*30*	*2*	*2*
	M-526 - ELECTRICAL MACHINES	9	9	12	*30*	*2*	*2*
Total UEM 5		***33***	***78***	***57***	***168***	***10***	***10***
Unit Transversal Teaching – UET 5 : **Expertise in Skills transversal**	M-531 - ECONOMICS	9	6		*15*	*1*	*1*
	M-532 - COM 5 (Communication Expression)		15	15	*30*	2	2
	M-533 - ENGLISH 5		15	15	*30*	*2*	*2*
	M-534 - QUALITY MANAGEMENT	15	15		*30*	*2*	*2*
	M-535 - SECURITY 2	12	18		*30*	*2*	*2*
	M-536 - LEGISLATION	9	6		*15*	*1*	*1*
Total UET 5		***45***	***75***	***30***	***150***	***10***	***10***
Total		**120**	**252**	**141**	**513**	**30**	***30***

Semester 6

	Designation	**Coef.**	**hours**	**Coef.**	**ECTS**	Distribution	
Internship and Project supervised	INTERNSHIP 3 - Internship in the company		*(640)*	*25*	*25*		
	Evaluation of the Internship Supervisor	15				UE 61 and 62	
	Internship Report	5				UE63	
	Internship Defense	5				UE63	
	Supervised Project	5	*(200)*	5	5	UE 61	
Total		***30***	***(840)***	***30***	***30***		

C. Internships and Supervised Projects

Internships in an industrial environment will be governed by an agreement. They should be a privileged moment for discovering the company, its realities, and immersing oneself in the industrial environment. The choice of the internship site made by the student is verified to ensure that the internship is also a source of complementary training and improvement. Internships will be monitored by a teacher: telephone contacts and visits to the company will be made whenever possible. There will be supervision by an industrial tutor or internship supervisor. Evaluation will be carried out jointly by an industrial tutor for the content in the company and by the teacher based on a written report and an oral presentation using evaluation sheets.

The duration of these internships is two sessions of two weeks in the first year, which amounts to a minimum of two times 80 hours in the company.

For the second year, the 8-week internship represents a total of 320 hours of presence in the company, which should allow for the study of a problem for the company, making proposals to remedy this problem, and following the validation of the chosen solution by the company, the implementation of the solution to the problem.

Finally, for the sixth semester in the third year, the sixteen weeks represent the entirety of the Final Project, proposed by the company, totaling 640 hours in total.

The supervised projects are synthesis activities whose grades are integrated into UE 1 and 2 in semester 6. They are carried out in semesters 4 and 5, and it is strongly recommended that the themes of the projects be provided by companies, research laboratories, associations, institutions, or communities. They can be Self-equipment activities supervised by teachers. Inter-departmental challenges or national competitions may also be supported.

The group of students assigned to a project must apply analysis methods, collective organization, and meeting management on concrete industrial cases. The projects will be supervised and evaluated. The choice of projects is particularly important: the selected projects should not be overly ambitious to ensure they can be completed, while also constituting a true synthesis of the teachings provided.