



Université Libre de Tunis
Bouebdellii Education Group



**Plan
d'études**

**Génie
Informatique**

Study Plan Computer Engineering

STUDY PLAN

Computer Engineering Year 1 (Semester 1)										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U1.1	Engineering Tools I	Engineering Mathematics (Discrete Math)	42	0	0	35	3	7	3	7
		Acquisition and Digital Signal Processing	18	3	0	30	2		2	
		Introduction to Artificial Intelligence	21	0	0	30	2		2	
U1.2	Programming I	Algorithmics and Data Structures	42	0	0	35	3	9	3	9
		C Programming Workshop	0	21	21	35	3		3	
		Web Development I	0	21	21	35	3		3	
U1.3	Network and Architecture I	Introduction to Networks (CCNA Certification Level I)	0	21	21	14	2	4	2	4
		Computer Architectures & Microprocessors	21	0	0	30	2		2	
U1.4	Systems and Database	Operating Systems Fundamentals	21	21	0	14	2	5	2,5	5
		Database Fundamentals	21	21	0	35	3		2,5	
U1.5	Languages and Communication I	Communication Techniques	21	0	0	21	1,5	3	1,5	3
		Technical English I	21	0	0	21	1.5		1.5	
U1.6	Project	Supervised Project I	0	0	21	30	2	2	2	2
SUB TOTAL			228	108	84	365	30	30	30	30
Total Semester Workload			785							

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

The Total Semester ECTS Credits = 30

Computer Engineering Year 1 (Semester 2)										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U2.1	Engineering Tools II	Probability and statistics	31,5	0	0	35	2,5	5	2,5	5
		Operational Research and Optimization	31,5	0	0	35	2,5		2,5	
U2.2	Object Oriented Programming	Object-Oriented Programming	21	21	10,5	42	4	7	4	7
		Object Oriented Modeling	42	0	0	35	3		3	
U2.3	DBMS and Cyber Security	Database Management Systems (DBMS)	21	21	0	35	3	5	3	5
		Introduction to Cyber Security	21	10,5	0	21	2		2	
U2.4	Programming II	Python Programming Language	10,5	10,5	10,5	21	2	4	2	4
		Web Development II	0	21	10,5	21	2		2	
U2.5	Network and Architecture II	System Architecture, Embedded Systems and IoT	9	12	0	21	1,5	4	1,5	4
		Computer Networks (CCNA Certification Level 2)	0	21	21	21	2,5		2,5	
U2.6	Languages and Communication II	Engineering Ethics	21	0	0	21	1,5	3	1,5	3
		Technical English II	21	0	0	21	1,5		1,5	
U2.7	PROJET	Supervised Project II	0	0	21	30	2	2	2	2
SUB TOTAL			229,5	117	73,5	359	30	30	30	30
Total Semester Workload			779							

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

The Total Semester ECTS Credits = 30

Computer Engineering Year 2 (Semester 3)										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U3.1	Optimization	Language Theory and Compilation	21	0	0	21	2	7	2	7
		Graph theory	21	0	0	21	2		2	
		Complexity and Optimization of Algorithms	31,5	0	0	35	3		3	
U3.2	Web Programming	Advanced web programming	0	21	21	35	3	6	3	6
		JEE Technologies	0	21	21	35	3		3	
U3.3	Advanced Databases	Distributed Databases	21	21	0	35	3	6	3	6
		Data Mining	21	21	0	21	3		3	
U3.4	Big Data & Cloud	Big Data	0	21	21	42	3	6	3	6
		Virtualization and cloud computing	21	21	0	35	3		3	
U3.5	Soft skills & Languages I	Scientific Writing	0	0	21	21	1,5	5	1,5	5
		Project management	21	0	0	21	1,5		1,5	
		English TOIEC I	21	0	0	21	2		2	
SUB TOTAL			178,5	126	84	343	30	30	30	30
Total Semester Workload			700,5							

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

The Total Semester ECTS Credits = 30

Computer Engineering Year 2 (Semester 4) – Option 1: Software engineering										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U4.1	Advanced Web Technologies	JEE Framework (Spring Boot)	0	21	21	35	3	6	3	6
		Server-side Javascript (Node JS)	0	21	21	35	3		3	
U4.2	Software Engineering I	Software Engineering	0	0	21	21	3	7	3	7
		Software Validation & Verification (ISTQB)	21	21	0	35	2		2	
		Collaborative Work Tools (git)	0	0	21	21	2		2	
U4.3	Software Architecture	Service Oriented Architecture (SOA)	0	21	21	21	3	6	3	6
		Software Architecture and Design Patterns	21	21	0	21	3		3	
U4.4	Data science	Machine Learning	0	21	21	42	3	6	3	6
		Business Intelligence	0	21	21	42	3		3	
U4.5	Soft skills & Languages II	Business Management	21	0	0	21	1,5	3	1,5	3
		English TOIEC II	42	0	0	35	1,5		1,5	
U4.6	Project	End of Year Project	0	0	21	42	2	2	2	2
			105	147	168	329	30	30	30	30
Total Semester Workload			749							

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

The Total Semester ECTS Credits = 30

Computer Engineering Year 2 (Semester 4) – Option 2: Artificial Intelligence										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U4.1	Statistics	Inferential Statistics	21	21	0	35	3	6	3	6
		Statistics Workshop with R	0	21	0	21	3		3	
U4.2	Artificial Intelligence	Deep Learning	0	21	21	42	3	9	3	9
		Multi-agent Systems	21	21	0	21	3		3	
		Data Preprocessing and Visualization	0	21	21	35	3		3	
U4.3	Information Technologies	BlockChain Technology	21	0	0	21	2	4	2	4
		Information Technology Management (ERP, CRM)	21	0	0	21	2		2	
U4.4	Data science	Machine Learning	0	21	21	42	3	6	3	6
		Business Intelligence	0	21	21	42	3		3	
U4.5	Soft skills & Languages II	Business Management	21	0	0	21	1,5	3	1,5	3
		English TOIEC II	42	0	0	35	1,5		1,5	
U4.6	Project	End of Year Project	0	0	21	42	2	2	2	2
Total Semester Workload			147	147	105	378	30	30	30	30
			777							

The Total Semester ECTS Credits = 30 One semester of study length is 14 weeks and 1 week for exams

The Total Semester ECTS Credits = 30

Computer Engineering Year 3 (Semester 5) – Option 1: Software engineering										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U5.1	Software Engineering II	Micro-service Architecture	0	21	21	35	2	4	2	4
		DevOps	0	21	21	35	2		2	
U5.2	Advanced Web Programming	Python Web Framework (Django)	0	21	21	35	3	9	3	9
		.NET Technologies	0	21	21	35	3		3	
		Front-end Framework	0	21	21	21	3		3	
U5.3	Mobile and Java Programming	Mobile Programming	0	21	21	35	3	6	3	6
		Advanced Java Programming (OCA Certification)	21	21	0	35	3		3	
U5.4	Information Technologies	Blockchain Technology	21	0	0	21	2	4	2	4
		Information Technology Management (ERP, CRM)	21	0	0	21	2		2	
U5.5	Advanced Databases	Database Administration	21	21	0	21	2	4	2	4
		NoSQL Databases	21	21	0	21	2		2	
U5.6	Entrepreneurship and Marketing	Entrepreneurship and innovation	21	0	0	10,5	1,5	3	1,5	3
		Digital Marketing	21	0	0	10,5	1,5		1,5	
			147	189	126	336	30	30	30	30
Total Semester Workload			798							

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

The Total Semester ECTS Credits = 30

Computer Engineering Year 3 (Semester 5) – Option 2: Artificial Intelligence										
Code	UNIT	Modules	Semester Credit Hours				COEFFICIENT		ECTS Credits	
			Lecture	Workshop	Project	Self-Study	Module	Unit	Module	Unit
U5.1	Analysis and Optimization Methods	Time Series Analysis	21	21	0	21	3	6	3	6
		Optimization and heuristics	21	21	0	21	3		3	
U5.2	Advanced IA	Natural Language Processing	0	21	21	42	3	9	3	9
		Computer Vision	0	21	21	42	3		3	
		Generative IA	0	21	21	42	3		3	
U5.3	Intelligent Systems	Federated Learning	21	0	0	21	2	4	2	4
		Recommender Systems	0	21	21	35	2		2	
U5.4	Project Management and Governance	Data Science Project Management & MLOps	0	0	21	35	2,5	4	2,5	4
		Data Governance	21	0	0	21	1,5		1,5	
U5.5	Advanced Databases	Database Administration	21	21	0	21	2	4	2	4
		NoSQL Databases	21	21	0	21	2		2	
U5.6	Entrepreneurship and Marketing	Entrepreneurship and innovation	21	0	0	10,5	1,5	3	1,5	3
		Digital Marketing	21	0	0	10,5	1,5		1,5	
			168	168	105	343	30	30	30	30
Total Semester Workload			784							

One semester of study length is 14 weeks and 1 week for exams
The Total Semester ECTS Credits = 30

Computer Engineering Year 3 (Semester 6)				
Code	UNIT	Credit Hours	COEFFICIENT	ECTS Credits
U 6.1	Graduation Research Project (4-6 months)	560	20	20
U 6.2	Internship 1 (1-2 months)	140	5	5
U 6.3	Internship 2 (1-2 months)	140	5	5
Total Semester Workload		840	30	30

The Average Workload during Internship is 35H/Week
The Total Semester ECTS Credits = 3