Subjects Modules for S1

Semester 1 Year 1

U1.1: Engineering Tools I

Engineering Mathematics (Discrete Math)

Module designation	**Engineering Tools I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.1
Subtitle, if applicable	
Courses, if applicable	**Engineering Mathematics (Discrete Math)**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Mr. Houimli Slim
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	Lecture, 42 hours of Classroom Lecture/ Semester
Workload	Total 77 hours/ Semester (35 hours of Self Study)
Credit points	3
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Basic Mathematics, Preparatory Cycle
Module objectives/intended learning outcomes	**Objectives:** 1. Understand and construct mathematical arguments 2. Prove simple arguments 3. Develop recursive algorithms based on mathematical induction 4. Know basic properties of relations 5. Know essential concepts in graph theory and related algorithms 6. Understand basic concepts in formal languages and computability 7. Apply knowledge about discrete mathematics in problem solving
Content	**Chapter I- Logic and Proofs** **Chapter II- Basic Structures** **Chapter III- Algorithms, the Integers and Matrices** **Chapter IV- Induction and Recursion** **Chapter V- Graphs and its Application** **Chapter VI- Trees and its Application** **Chapter VI- Modelling Computation**

Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) + Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Discrete Mathematics with Applications (3rd edition) by Susanna S. Epp (2003) 2. Discrete Mathematics and its Applications (6th Edition) by Kenneth H. Rosen (McGraw-Hill, Inc., New York, 2007) 3. Discrete Mathematics: An Open Introduction, 5th edition by Oscar Levin (2021)

U1.1: Engineering Tools I

Acquisition and Digital Signal Processing

Module designation	**Engineering Tools I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.1
Subtitle, if applicable	
Courses, if applicable	**Acquisition and digital signal processing**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Faten Ben Abdallah
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	18 hours Classroom Lecture + 3 hours Workshop / Semester
Workload	Total 51 hours/ Semester (30 hours of Self Study)
Credit points	2
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Basic Mathematics
Module objectives/intended learning outcomes	**Objectives:** To introduce students to fundamental data acquisition principles, concepts and methods. In addition, students will study and apply related software and hardware involved in acquiring data from sensors for measurement purposes. **Learning Outcomes:** Students will be able to: 1. Identity a data acquisition system. 2. Prescribe a sensor type to measure a specific environmental change and determine what type of amplifier is needed. 3. Identify different methods of Analog-to-Digital conversion. 4. Define different forms of data transmission.

Content	**General Introduction to Probability & Statistics Theory** **Chapter I. Data Acquisition Overview** 1. Sensor Types Overview 2. Application Areas and Trends **Chapter II. Data Acquisition System Features** 1. System Components 2. Signal Characteristics 3. Signal Conditioning 4. Signal Source and Measurement System Configuration **Chapter III. Analog to Digital Conversion elements** 1. Key analog to digital conversion parameters 2. Measurement Error 3. Triggers **Chapter IV. Laboratory Experiments** **Chapter V. Filters and Amplification** **Chapter VI. Analog to Digital Conversion characteristic** 1. Main characteristics 2. Methods of representation 3. Analog to Digital converter types
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) + Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. 'Labview', Labview User Manual 2009, National Instruments Corporation. 2. Andreas Antoniou, 'Digital Signal Processing – Signal Systems and Filters', McGraw-Hill. Copyright © 2006.

U1.1: Engineering Tools I

Introduction to Artificial Intelligence

Module designation	**Engineering Tools I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.1
Subtitle, if applicable	
Courses, if applicable	**Introduction to Artificial Intelligence**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Zahra Kodia
Language	English
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours Classroom Lecture/ Semester
Workload	Total 51 hours/ Semester (30 hours of Self Study)
Credit points	2
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Logical Mathematics
Module objectives/intended learning outcomes	**Objectives:** Introduction to problem solving in artificial intelligence (with algorithms in the Prolog programming language) **Learning Outcomes:** Students will be able to: 1. Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations. 2. Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning. 3. Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models

Content	**Chapter I. Introduction to Artificial Intelligence** 1. History of AI 2. Systems and intelligent agents **Chapter II. Problem solving using search** 1. Blind search 2. Heuristic search 3. Adversarial search (games) 4. Constraint satisfaction problems **Chapter III. Predicate logic** 1. Elements 2. Substitution and unification 3. Inference in predicate logic 4. The equality predicate 5. Algorithms for inference **Chapter IV. Logic programming (Prolog)** **Chapter V. Knowledge representation and reasoning** **Chapter VI. Learning, decision trees, neural networks.**
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) + Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Russell, S. y Norvig, P.: "Artificial Intelligence, a modern approach", Ed. Prentice Hall, 1995 2. Nathanael B., "Introduction to Artificial I*n*telligence", © Springer International Publishing, 2017

U1.2: Programming I

Algorithmics and Data Structures

Module designation	**Programming I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.2
Subtitle, if applicable	
Courses, if applicable	**Algorithmics and Data Structures**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Kadria Ezzine
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	42 hours Classroom Lecture/ Semester
Workload	Total 77 hours/ Semester (35 hours of Self Study)
Credit points	3
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Logical Mathematics Basic algorithmic concepts Fundamentals of procedural programming
Module objectives/intended learning outcomes	**Objectives:** - Have the necessary skills for understanding and analysing problems - Have a solid base to access more advanced programming languages **Learning Outcomes:** Students will be able to: - understand the categories of Data Structure - understand applications of different categories of Data Structure - understand the Static and dynamic Memory Allocation - analyse, decompose and solve complex problems
Content	**Chapter 1: THE BASICS** 1. Characteristics of algorithms 2. Problem solving steps 3. Structure of an algorithm 4. Types of Data 5. Structures and File 6. Expressions

	7. Sequential treatment - elementary operators 8. Conditional treatment 9. The iterative treatment 10. Recursion **Chapter 2: LINEAR DATA STRUCTURE** 1. Arrays 2. Queues 3. Stacks 4. Linked lists 5. Memory Allocation **Chapter 3: NON-LINEAR DATA STRUCTURE** 1. Graphs 2. Binary Tree 3. Special Forms of Binary Trees 4. AVL Trees 5. Binary Search Tree (BST) **Chapter 4: SORTING AND SEARCHING TECHNIQUES** 1. Bubble sort 2. Selection sort 3. Insertion sort 4. Quick sort 5. Merge sort 6. Heap sort 7. Linear and binary search methods 8. Hashing techniques and hash functions **Chapter 5: Algorithms Design Techniques** 1. Backtracking 2. Greedy Algorithms 3. Divide and Conquer Algorithms 4. Dynamic Programming
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) +Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Narasimha Karumanchi, Data Structures and Algorithms Made Easy: Data Structures and Algorithmic Puzzles, 5th Edition, 2020 2. Robert Sedgewick and Kevin Wayne, Algorithms, 4th Edition, 2014.

U1.2: Programming I

C Programming Workshop

Module designation	**Programming I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.2
Subtitle, if applicable	
Courses, if applicable	**C Programming Workshop**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Kadria Ezzine
Language	English
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours practical workshop in Lab/ semester 21 hours of Supervised projects on Campus/ semester
Workload	Total 77 hours/ Semester (35 hours of Self Study)
Credit points	3
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Logical Mathematics Basic Algorithmics
Module objectives/intended learning outcomes	**Objectives:** 1. The objective of the course is to: 2. Imbibe thorough knowledge in advanced C programming concepts. Have proficiency in applying advanced C programming concepts to solve any real-world problem. **Learning Outcomes:** By the end of the course, the student will be able to: 1. Define advanced C programming concepts like pointers, data structures. 2. Apply the knowledge of advanced C programming concepts to implement given requirement specification or to solve real world problem. 3. Analyze different data structures and use suitable data structure to implement requirement specification. 4. Implement, interpret, debug and test any given advanced C program. **5.** Develop software product using advanced C programming concepts to solve real world problem

Content	**Unit I The C Language** C Program Compilation Execution Process Tokens of C Program C Instructions Constants, Variables Identifiers and Keywords Primitive Data Types Structures – The Definition Structures – Declaration & Type **Unit II Arrays** Arrays Multidimensional arrays Pointers Pointers for inter function communication Pointers to pointers **Unit III Pointer Applications:** Arrays and pointers, pointer arithmetic and arrays, passing an array to a function, memory allocation functions, array of pointers, Examples. Data Structures, Data structure Operations, Stacks: Definition, Stack Operations, Array Representation of Stacks. **Unit IV Stacks and Queues:** Stacks using Dynamic Arrays, Stack Applications: Queues: Definition, Array Representation, Queue Operations. **Unit IV Linked Lists:** Linked Lists: Definition, Representation of linked lists in Memory, Linked list operations: Traversing, Searching, Insertion, and Deletion. Applications of Linked lists. Implementation of stack and queue using linked list.
Study and examination requirements and forms of examination	Continuous Assessment 40% Semester Workshop Exam 60 % (Report for each workshop required)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Data Structures: A Pseudocode approach with C, Gil-berg&Foro uzan, Cengage Learning 2nd Edition, 2014 2. Data Structures using C, Reema Thareja, Oxford press 3rd Edition, 2012 3. An Introduction to Data Structures with Applications, Jean-Paul Tremblay & Paul G., McGraw-Hill 2nd Edition, 2013

U1.2: Programming I

Web Development I

Module designation	**Programming I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.2
Subtitle, if applicable	
Courses, if applicable	**Web Development I**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Jihen Hedhli
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours practical workshop in Lab/ semester 21 hours of Supervised projects on Campus/ semester
Workload	Total 77 hours/ Semester (35 hours of Self Study)
Credit points	3
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	
Module objectives/intended learning outcomes	**Objectives:** In this module, you will learn basic introduction to web development. The fundamental technology used to define the structure of a webpage. **Learning Outcomes:** By the end of the course, the student will be able to: - Create HTML5 documents and add content using HTML5 semantic elements and e hyperlinks. - Create CSS3 stylesheets. - Lay out HTML elements using CSS margin and padding. - Implement program logic using JavaScript. - Implement HTML5 APIs using JavaScript. - Add advanced functionality to web applications using jQuery, AngularJS, Bootstrap, TypeScript or Sass
Content	**Unit 1.** Introduction to HTML5 • Introduction to HTML and HTML tags • HTML5 Management & Support, Scripting • HTML5 tags and structural elements • HTML5 Input Elements and data Attributes

	Unit 2. Introduction to CSS3 • Getting Started with Simple Styling • Advanced Styling • Psuedo-classes, Pseudo-elements, Transitions, and Positioning **Unit 3.** Coding a Static Site **Unit 4.** Introduction to Javascript • JavaScript Overview • JavaScript Variables and Control Statements • JavaScript Functions and APIs • Client-side JavaScript, DOM objects **Unit 5.** Using Javascript to Build Web Applications **List of Projects is proposed for each group**
Study and examination requirements and forms of examination	Continuous Assessment 50% + Evaluation of the final report of project (50%) (Report for each workshop/ Project required)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Programming in HTML5 with JavaScript and CSS3 by Glenn Johnson, Microsoft Press, 2013. 2. HTML5, CSS3, and JavaScript: 15 Years of Experience in Your Hand (Web Development Crash Course) by Neo D. Truman, 2022.

U1.3: Network & Architecture I

Introduction to Networks (CCNA Certification Level 1)

Module designation	**Network & Architecture I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.3
Subtitle, if applicable	
Courses, if applicable	**Introduction to Networks (CCNA Certification Level 1)**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Mr. Jamel Eddine Belmadhkour
Language	English
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours practical workshop in Lab/ semester 21 hours of Supervised projects on Campus/ semester
Workload	Total 56 hours/ Semester (14 hours of Self Study)
Credit points	2
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	
Module objectives/intended learning outcomes	**Objectives:** This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. **Learning Outcomes:** At the end of the program the trainees will be able to: 1. Understand and describe the devices and services used to support communications in data networks and the Internet 2. Understand and describe the role of protocol layers in data networks 3. Understand and describe the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments 4. Design, calculate, and apply subnet masks and

	addresses to fulfill given requirements in IPv4 and IPv6 networks 5. Explain fundamental Ethernet concepts, such as media, services, and operations 6. Build a simple Ethernet network using routers and switches 7. Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations 8. Utilize common network utilities to verify small network operations and analyze data traffic
Content	I. Explore the Network II. Configure a Network Operating System III. Network Protocols and Communications IV. Network Access V. Ethernet VI. Network Layer VII. IP Addressing VIII. Subnetting IP Networks IX. Transport Layer X. Application Layer XI. Build a Small Network
Study and examination requirements and forms of examination	Continuous Assessment (50%) + Project (50%) (Report for each workshop/Project required)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection Online materials to be downloaded from the QU Cisco website https://www.netacad.com/courses/networking/ccna-introduction-networks
Reading list	https://www.netacad.com/courses/networking/ccna-introduction-networks

U1.3: Network & Architecture I

Computer Architectures & Microprocessors

Module designation	**Network & Architecture I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.3
Subtitle, if applicable	
Courses, if applicable	**Computer Architectures & Microprocessors**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Faten Ben Abdallah
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours Lecture/ semester
Workload	Total 51 hours/ Semester (30 hours of Self Study)
Credit points	2
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	
Module objectives/intended learning outcomes	**Objectives:** - This course proposes to answer the question "what is a computer? by answering the question "how does a computer work?" - Indeed, the Computer Architecture course exposes the operating principles of computers. The aim is to understand, at a low level, the organization of these machines, and thereby that of all those derived from them (gateways, routers, etc.). - We rely on the detailed study of the architecture of the PC, of which we study the processor and its machine language, the basic functions of its operating system (BIOS), and its communication mechanisms with the outside (entries exits). The different current architectures (CISC and RISC processors, workstations etc.) will also be detailed, as well as the different existing buses.
Content	**I. Components of a personal computer (PC)** 1- Configuration example 2- Elements of a motherboard 3- Main peripherals 4- Computer software links

	II. Computer system: definitions 1- Concept of computer system 2- Concept of microcomputer 3- Concept of microprocessor and micro-controller 4- Levels of integration of a computer system **III. Elementary architecture of a microprocessor** 1- Processor operating reference cycle 2- Basic elements of the internal architecture of a processor 3- Programming a processor 4- Notions of inputs outputs 5- Notion of interruption 6- Overall characteristics and evolution of processors 7- Intel 8051 microcontroller examples **IV. Operating system** 1- Organization of single-task systems 2- Technologies and organization of mass memory devices 3- Multitasking systems 4- Memory management 5- Entry/exit management 6- Relationship between tasks 7- Real time systems 8- Real time system **V. Advanced processor architectures** 1- Field of use 2- Limitation of non-Neumann architecture 3- Basic elements of advanced architectures 4- RISC Architectures **VI. Internal and external links of a computer system** 1- Main connections of a computer system 2- general characteristics of input/output buses 3- USB bus characteristic elements 4- Characteristic elements of the PCI Express bus **VII. RS232 serial link** 1- Main of a serial link 2- Flow control 3- RS 232 standard 4- Synchronization of exchanges 5- Realization of an interface **VIII. USB bus** 1- Field of application 2- Main characteristics 3- Topology, signals and architecture 4- Organization of exchanges 5- Realization of a USB interface **IX. Processor architecture** 1- Communication models 2- DSP Architecture
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) +Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection

Reading list	1. Tanenbaum. “Architecture de l’ordinateur ” (4ème Edition) Interedition. 2. J.-j. Schwarz “architecture des Ordinateurs” Eyrolles 3. W. Stallings “organisation et architecture de l’ordinateur”, Pearson Education 4. d. Patterson J. Hennessy “organisation et conception des ordinateurs”, Dunod.

U1.4: System & Database

Operating Systems Fundamentals

Module designation	**System & Database**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.4
Subtitle, if applicable	
Courses, if applicable	**Operating Systems Fundamentals**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Mr. Imed Ben Boukhatem
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours Lecture/ semester 21 hours for practices Workshop
Workload	Total 56 hours/ Semester (14 hours of Self Study)
Credit points	2
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	
Module objectives/intended learning outcomes	**Objectives:** - Upon completion of the module, a student will be able to interact with an operating system using the bash scripting language. In detail, - **Learning Outcomes:** at the end of the module, a student: - Describe need and role of operating system. - Understand OS components such a scheduler, memory manager, file system handlers and I/O device managers. - Analyze and criticize techniques used in OS components - Demonstrate and simulate algorithms used in OS components - Identify algorithms and techniques used in different components of Linux

Content	**Chapter 1 Operating System Structures** **Chapter 2 Process management, concurrency and synchronization** **Chapter 3 Memory management** **Chapter 4 File systems** **Chapter 5 I/O System** **Chapter 6 Linux case study** **Chapter 7 SHELL** ***Practice Workshops are included in each Chapter***
Study and examination requirements and forms of examination	Written Mid-term Exam (25%) + Practical Exam (25%) + Practical Final Exam (50%) (Report for each workshop required)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Operating System Concepts, Avi Silberschatz & Peter Galvin, 2. Operating Systems: Internals and Design Principles, William Stallings. 3. UNIX- The Complete Reference, Ken Rosen & James Farber.

U1.4: System & Database

Database Fundamentals

Module designation	**System & Database**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.4
Subtitle, if applicable	
Courses, if applicable	**Database Fundamentals**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Sarra Lasmer
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours Lecture/ semester 21 hours practical workshop in Lab/ semester
Workload	Total 77 hours/ Semester (35 hours of Self Study)
Credit points	3
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	
Module objectives/intended learning outcomes	**Objectives:** The objective of the course is to present an introduction to database and its applications. SQL (Structure Query Language), the language of relational database systems is practiced, concepts are reinforced, and students gain proficiency in using SQL to code and maintain data in relational tables with an emphasis on how to organize, maintain and retrieve – efficiently. **Learning Outcomes:** Upon completion of this course, students will be able to: 1. Design relational databases. 2. Understand normal forms and perform normalization. 3. Design and develop a relational database system with appropriate functionality to process the data and with constraints to maintain data integrity and avoid data redundancy.

Content	**Chapter 1: Introduction to data, databases and database management systems.** **Chapter 2: Data models, the relational data model.** **Chapter 3: Entity-Relationship Modeling, mapping ER models to relational model.** **Chapter 4: The Relational Data Model and relational database constraints.** **Chapter 5: Relational Algebra operations.** **Chapter 6: Introduction to SQL.** **Chapter 7: Data modeling, anomalies, redundancy, normal forms based on functional dependencies.** **Chapter 8: Boyce-Codd Normal Form, problems with normalization.** **Chapter 9: Relational database design algorithms, multivalued dependencies and fourth normal form.** **Chapter 10: Algorithms for query processing and optimization.**
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) +Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1. Elmarsi & Navathe, Fundamentals of Database, 6th Edition, Addison-Wesley, 2010. 2. Database Administration Fundamentals, Microsoft Official Academic Course in Database Fundamentals, Exam 98-364 3. Christopher Date, Introduction to Database Systems, 8th edition, Addison-Wesley, 2004

U1.5: Languages & Communication I

Communication Techniques

Module designation	**Languages & Communication I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.5
Subtitle, if applicable	
Courses, if applicable	**Communication Techniques**
Semester(s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Sameh Ben Ammar
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours Lecture/ semester
Workload	Total 42 hours/ Semester (21 hours of Self Study)
Credit points	1.5
Requirements according to the examination regulations	- Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	- Know the elements of a communication situation as well as the basic of the act of communication.
Module objectives/intended learning outcomes	**Objectives:** - Give appropriate techniques to facilitate exchange in the context of collaborative work. - Make students aware of the communication aspects of life in a group and within the framework of a common project. - **Learning Outcomes:** at the end of the module, a student: -

Content	**I- Chapter 1: Personal assessment and self-assessment** 1- Self-knowledge 2 - Self-esteem **II- Chapter 2: Written communication** 1- Writing the CV and cover letter 2- Writing a professional email **III- Chapter 3: Group communication** 1- Meeting facilitation and collaboration 2- Debates **IV- Chapter 4: the job interview** 1- Candidate profile 2- Profile of the recruiter **• Applications: the NASA game, the dove clinic, the collegial decision**
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) +Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online(Moodle ULT) Video projection
Reading list	1- DELMOTTE Axel, DUHAME Sabine, *Le grand livre du CV*, Studyrama, 2010. 2- DUTERME Claude*, La communication interne en entreprise : l'approche de Palo Alto et l'analyse des organisations,* Deboeck, Bruxelles, 2002. 3- GUITTET André*, L'entretien : techniques et pratiques*, Armand Colin, Paris, 2008.

U1.5: Languages & Communication I

Technical English 1

Module designation	**Languages & Communications I**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.5
Subtitle, if applicable	
Courses, if applicable	**Technical English 1**
Semester (s) in which the module is taught	Semester 1
Person responsible for the module	Dept. Head
Lecturer	Ms. Nadia Zardi
Language	English
Relation to curriculum	Integrated course module
Type of teaching, contact hours	21 hours Classroom Lecture/ semester
Workload	Total 42 hours/semester (21 hours of Self-Study/semester)
Credit points	1.5 credits
Requirements according to the examination regulations	Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Students do not have to have prerequisites concerning English as a subject.
Module objectives/intended learning outcomes	**Objectives:** **1.** To Provide ESP instruction to enhance students' reading and writing to provide practice and interest in the language. **2.** To prepare students to sit for assessments and evaluations such as tests and quizzes to test and revise proper acquisition of the English language. **3**. To build students' confidence and motivation through exposure to facts, figures, quotations, and the latest technological innovations so to generate interest in the language from an ESP perspective. **4.** To allow students to gain key strategies and expressions for communicating with professionals and non-specialists **Learning Outcomes:** Students will be able to: **1.** Learn verbal and non-verbal communication skills **2.** Understand Business and Technical terminology **3.** Write formal and informal emails **4.** Be able to give a presentation

Content	**Classroom Lecture** **Chapter 1. General English** 1. Grammar Review 2. Sharing and discussing ideas 3. Practicing dialogues **Chapter 2. Business English** 1. Practicing vocabulary related the workplace 2. Using prepositions in Business English 3. Writing formal and informal e-mails 4. Introducing oneself 5. Presenting one's domain
Study and examination requirements and forms of examination	Written Mid-Term Exam (40%) + Written Final Exam (60%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online (Moodle ULT) Video projection
Reading list	1- Cambridge English for Engineering

U1.6: Project

Supervised Project 1

Module designation	**Project**
Module level, if applicable	Year 1, Semester 1
Code, if applicable	U1.6
Subtitle, if applicable	
Courses, if applicable	**Supervised Project 1**
Semester (s) in which the module is taught	Semester 1
Person responsible for the module	Dept Head
Lecturer	Ms. Salma Bouazizi
Language	French
Relation to curriculum	Compulsory module
Type of teaching, contact hours	21 hours of Supervision on Campus/ semester
Workload	Total 51 hours/semester (30 hours of Self-Study/semester)
Credit points	2 credits
Requirements according to the examination regulations	Minimum attendance rate: 80% of the total contact hours >20 % of nonattendance = elimination for exams
Recommended prerequisites	Embedded System-Electrical and mechanical design
Module objectives/intended learning outcomes	This exercise will help student to apply knowledges and Skills to work and present a basic project. **Objectives:** 1. Sizing and choice of solution 2. Project studies: functional and structural analysis, design (preparation of technical files) 3. Design Simulation using appropriate software & tools 4. Write a project report and do a presentation **Learning Outcomes:** Students will be able to: 1. Know how to manipulate a project through his steps. 2. Cooperate and work in teams.

Content	**List of Projects 2023-2024** **Development of Applications** **Project 1**: **Niche Social Media Platform** Build a small-scale social network for users to connect based on shared hobbies (e.g., photography, sports, reading). **Project 2: Online Event Ticketing System** Develop a web application where users can browse, book, and purchase tickets for events (concerts, theatre, sports). **Project 3: Streaming Platform for Indie Creators** Build a lightweight streaming service focusing on independent content creators (films, podcasts, short videos). **Project 4: Service Marketplace Platform** Create an online marketplace where freelancers can offer services (e.g., graphic design, tutoring, coding help). **Project 5: Business Intelligence Dashboard for Retail** Build a BI web application for retail companies to track sales, customer behavior, and product performance through dashboards. **Project 6: Verifiable Diploma Management System Using Blockchain** Develop an application for universities that generates electronic diplomas and allows public verification through a private blockchain network
Study and examination requirements and forms of examination	Work carried out during the year (20%) + Prototype realization (30%) + Evaluation of the final report of project (50%)
Media employed	Course Material (Hard/ Soft copy) for Classroom & Online (Moodle ULT) Video projection
Reading list	Document and references are given by supervisors depending on each project