MICROPROCESSORS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE200	**Microprocessors**	1	4	3	6

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Ahmad F. Al-Allaf**
Instructor(s) of the Course Unit	**Dr. Ahmad F. Al-Allaf**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	To familiarize students with architecture, programming, and hardware of microprocessor. The course includes studying the internal architecture of the 8086 processor and the interaction between its components. As well as studying the connection pins of the 8086 processor and the different signals carried by these pins and the basic interface circuits. In addition, the different processor instruction sets are studied.
Contents of the Course Unit:	1- introduction 2- 8085 and 8086 internal architectures and pins descriptions 3- Basic interface circuit 4- 8086 instruction sets

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	**Introduction to Microprocessor:** Introduction and History of Microprocessors, Basic Block Diagram of a Microprocessor, Organization of Microprocessor Based System, Bus Organization, Processing Cycle of a Stored Program Computer.
2	**8085 Microprocessor:** Internal Architecture and Features of 8085 microprocessor, pin description.
3	**8086/8088 Microprocessor:** Internal Architecture and Features of 8086 Microprocessor, components of BIU and EU.
4	**8086 Microprocessor:** Pin descriptions and bus cycles.
5	**8086 Microprocessor:** Pin descriptions and bus cycles.
6	**8086 Microprocessor:** 8284 clock generator and 8288 bus controller circuits
7	**8086 Microprocessor:** Minimum and Maximum configurations, Memory and I/O organization.
8	**8086 programming and instruction sets** 8086 Addressing Modes, instruction groups
9	**8086 instruction sets:** Data Movement instructions
10	**8086 instruction sets:** Arithmetic and logical instructions
11	**8086 instruction sets:** Jump instructions
12	**8086 instruction sets:** String instructions
13	**8086 instruction sets:** Programming examples
14	**Different Microprocessor Architectures:** Register Based and Accumulator Based Architecture, RISC and CISC Architectures, Digital Signal Processors.
15	**Final Exam.**

No.	PRACTICAL PART
1	**Lab 1:** Introduction to debugging program
2	**Lab 2:** 8086 instruction formats
3	**Lab 3:** 8086 addressing modes
4	**Lab 4:** Program examples of Data movement instructions
5	**Lab 5**: Program examples of Arithmetic instructions
6	**Lab 6**: Program examples of Arithmetic instructions (addition and subtraction)
7	**Lab 7**: Program examples of Arithmetic instructions (Multiplication and division)
8	**Lab 8:** Program examples of logical instructions
9	**Lab 9:** Program examples of shift and rotate instructions
10	**Lab 10:** Program examples of timing delay using counters
11	**Lab 11:** Program examples of JMPs instructions
12	**Lab 12:** Program examples of stack instructions
13	**Lab 13:** Program examples of strings instructions
14	**Lab 14:** Program examples of call and return instructions

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	**CTE200 MICROPROCESSOR**		
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	**15**	**2**	**30**
Preliminary & Further Study	NA	NA	NA
Land Surveying	NA	NA	NA
Group Work	NA	NA	NA
Laboratory	**14**	**2**	**28**
Reading	6	1	6
Assignment (Homework)	3	2	6
Project Work	3	4	12
Seminar	**3**	**1**	**3**
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	NA	NA	NA
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	6	3	18
Final Exam	**1**	**3**	**3**
Preparation for the Final Exam	1	20	20
Mid-Term Exam	1		
Preparation for the Mid-Term Exam	1	12	12
Short Exam (Quizzes)	3	2	2
Preparation for the Short Exam	3	3	10
TOTAL WORKLOAD OF THE COURSE UNIT	**50**	**55**	**150**
Workload (h) / 25			**150÷25**
ECTS Credits allocated for the Course Unit			**6**

ANALOG ELECTRONICS FUNDAMENTALS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE201	**Analog Electronics Fundamentals**	1	4	3	5

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Thabat F. Thabet**
Instructor(s) of the Course Unit	**Dr. Thabat F. Thabet**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	• To learn the basics of electronic devices. • Study the structure and the characteristics of electronic devices (diodes and transistors). • To learn the applications of diodes. • Study the principles of binary junction transistors (BJT).
Contents of the Course Unit:	1 – Introduction to electronics. 2 – Application of diodes 3 – Other types of diodes 4 – Transistors

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	**1- Introduction to electronics.** Physics of material, atoms, electrons and energy bands, types of material (insulators, conductors, and semiconductors), N-type and P-type semiconductor.
2	**1- Introduction to electronics.** Diodes, forward bias, reverse bias, V-I characteristics.
3	**2- Application of diodes.** Half-wave rectifier, average value, r.m.s. value, capacitor filter, ripple voltage.
4	**2- Application of diodes.** Full-wave rectifier, average value, r.m.s. value, capacitor filter, ripple voltage.
5	**2- Application of diodes.** Diode limiters, output voltage signal.
6	**2- Application of diodes.** Clampers and Voltage Doubler.
7	**3- Other types of diodes.** Zener diodes, V-I characteristics
8	**3- Other types of diodes.** Voltage regulators using Zener diode (variable input voltage, and variable load).
9	**3- Other types of diodes.** Zener limiters
10	**3- Other types of diodes** Special purpose diodes, Varactor, Light Emitting diode LED, Photo diode, Schottky diode, Tunnel diodes.
11	**4- Transistors** Bipolar junction transistor BJT, current, voltages, and parameters, maximum ratings.
12	**4- Transistors** BJT biasing, cutoff, saturation, operating point.
13	**4- Transistors** Transistor bias circuits, base-bias, voltage divider
14	**4- Transistors** Transistor bias circuits, emitter-bias, collector-feedback..
15	**Final Exam.**

No.	Practical Part
1	**Lab 1:** Introduction to the Electronic Laboratory
2	**Lab 2:** Diode characteristics
3	**Lab 3**: Half-wave rectifiers
4	**Lab 4:** Full-wave rectifiers
5	**Lab 5:** Filter for Half-wave rectifiers
6	**Lab 6:** Filter for Full-wave rectifiers
7	**Lab 7:** Clipping Circuits
8	**Lab 8:** Clamper and Voltage Doubler
9	**Lab 9:** Zener diode characteristics
10	**Lab 10:** Voltage regulators using Zener diode
11	**Lab 11:** Transistor Characteristics
12	**Lab 12:** Transistor Biasing (part 1)
13	**Lab 13:** Transistor Biasing (part 2)
14	**Lab 14:** Review

Workload & ECTS Credits of The Course Unit :	**CTE201** Analog Electronics Fundamentals		
Workload For Learning & Teaching Activities			
Type of the Learning Activities	Learning Activities (# of week)	Duration (hours, h)	Workload (h)
Lecture & In-Class Activities	14	2	28
Preliminary & Further Study	2	2	4
Land Surveying	NA	NA	NA
Group Work	3	1	3
Laboratory	14	2	28
Reading	3	1	3
Assignment (Homework)	6	1	6
Project Work	1	3	3
Seminar	3	1	3
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	2	2	4
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	5	2	10
Final Exam	1	3	3
Preparation for the Final Exam	1	10	10
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	10	10
Short Exam (Quizzes)	4	0.5	2
Preparation for the Short Exam	4	1.5	6
Total Workload of the Course Unit	**65**	**44**	**125**
Workload (h) / 25			**125÷25**
ECTS Credits allocated for the Course Unit			**5**

OBJECT ORIENTED PROGRAMMING Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE202	**Object Oriented Programming**	1	4	3	5

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Anmar Burhan Mohammed Salih**
Instructor(s) of the Course Unit	**Dr. Anmar Burhan Mohammed Salih**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	To provide students with hands-on experience and practical skills to understand the theoretical parts of Introduction to C++ and OOP Basics.
Contents of the Course Unit:	1- Introduction to Object-Oriented Programming (OOP) 2- C++ Syntax and Basics 3- Classes and Objects 4- Inheritance and Polymorphism 5- Encapsulation and Data Hiding 6- Operator Overloading: 7- Templates 8- Exception Handling: 9- Advanced OOP Concepts

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	Introduction to C++ and OOP Basics • Introduction to C++ programming language • Basic syntax, variables, and data types • Functions and control structures • Introduction to object-oriented programming (OOP) concepts: classes, objects, and methods
2	Classes and Objects • Defining and declaring classes • Creating objects and using constructors • Encapsulation and access modifiers (public, private, protected) • Member functions and data members
3	Inheritance and Polymorphism • Inheritance hierarchy and base/derived classes • Single inheritance and multiple inheritance • Polymorphism and function overriding • Abstract classes and pure virtual functions asses
4	Dynamic Memory Allocation and Pointers • Dynamic memory allocation with new and delete • Introduction to pointers and references • Memory management and deallocation • Object lifetime and scope
5	Operator Overloading • Overloading unary and binary operators • Overloading comparison and assignment operators • Friend functions and operator overloading • Best practices and guidelines for operator overloading
6	Templates and Generic Programming • Introduction to templates and generic programming • Function templates and class templates • Template specialization • Standard Template Library (STL) containers and algorithms

7	Exception Handling • Introduction to exception handling • try-catch blocks and handling exceptions • Throwing and catching exceptions • Exception specifications and best practices
8	• Midterm exam
9	File Handling and Streams • Input/output streams and file handling • Reading from and writing to files • Error handling and file status flags • Working with text and binary files
10	Advanced OOP Concepts • Polymorphism and virtual functions • Virtual base classes and diamond problem • Type casting and runtime type identification (RTTI) • Object slicing and dynamic casting
11	Standard Library Algorithms • Overview of the standard library algorithms • Sorting and searching algorithms • Numeric algorithms and iterators • Practical applications and usage examples
12	Memory Management • Smart pointers: unique_ptr, shared_ptr, weak_ptr • Memory management strategies and pitfalls • Resource Acquisition Is Initialization (RAII) • Memory leaks and debugging techniques
13	Namespaces and Organizing Code • Using namespaces for code organization • Creating and managing namespaces • Namespace conflicts and resolutions • Best practices for code modularization
14	Namespaces and Organizing Code • Using namespaces for code organization • Creating and managing namespaces • Namespace conflicts and resolutions • Best practices for code modularization
15	Final Exam

No.	PRACTICAL PART
1	**Lab 1:** Introduction to C++ • Basic syntax, variables, and data types•Functions and control structures
2	**Lab 2:** Classes and Objects • classes, objects, and methods document analysis
3	**Lab 3:** •Encapsulation and access modifiers (public, private, protected)•Member functions and data member
4	**Lab 4:** •Introduction to templates and generic programming •Function templates and class templates
5	**Lab 5:**•Template specialization •Standard Template Library (STL) containers and algorithms
6	**Lab 6:** •Introduction to exception handling • try-catch blocks and handling exceptions
7	**Lab 7:** •Introduction to exception handling • try-catch blocks and handling exceptions
8	**Lab 8:** Midterm
9	**Lab 9:** •OLID principles: Single Responsibility, Open-Closed, Liskov Substitution, Interface Segregation, Dependency Inversion
10	**Lab 10**: Design patterns: overview and examples
11	**Lab 11**: •Multithreading and concurrency in C++
12	**Lab 12**: **Assignment**
13	**Lab 13**: Applying design principles to real-world scenarios •Code refactoring and improvement
14	**Lab 14**: Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE202	OBJECT ORIENTED PROGRAMMING	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	14	2	28
Preliminary & Further Study	2	2	4
Land Surveying	NA	NA	NA
Group Work	3	1	3
Laboratory	14	2	28
Reading	3	1	3
Assignment (Homework)	6	1	6
Project Work	1	3	3
Seminar	3	1	3
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	2	2	4
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	5	2	10
Final Exam	1	3	3
Preparation for the Final Exam	1	10	10
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	10	10
Short Exam (Quizzes)	4	0.5	2
Preparation for the Short Exam	4	1.5	6
TOTAL WORKLOAD OF THE COURSE UNIT	**65**	**44**	**125**
Workload (h) / 25			**125÷25**
ECTS Credits allocated for the Course Unit			**5**

APPLIED MATHEMATICS Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE203	**Applied Mathematics**	1	3	3	4

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Ayhan Ahmed Khaleel**
Instructor(s) of the Course Unit	**Ayhan Ahmed Khaleel**

OBJECTIVES AND CONTENTS	Introduce students to mathematics through the laws and issues necessary for the purpose of assisting them in their studies in their field of specialization .
Objectives of the Course Unit:	To learn the
Contents of the Course Unit:	1- Matrices and systems of equations 2- Differential equations 3- Infinite Series

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	Review of matrices and their properties
2	Complex matrices, Hermitian, skew-Hermitian and unitary matrices
3	Inverse matrices and elementary row operation
4	Gaussian and Gauss-Jordan elimination.
5	rank of a matrix
6	Eigen values and Eigenvectors.
7	First order differential equations, variable separable, homogeneous
8	linear first order and exact differential equations
9	Non-homogeneous second order with constant coefficients
10	Convergence and the Divergence tests-part1
11	Convergence and the Divergence tests-part2
12	Alternating series ,Absolute and conditional convergence
13	Power series
14	Taylor and Maclaurin series
15	**Final Exam**

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE203	APPLIED MATHEMATICS	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	**15**	**3**	**45**
Tutorial	**13**	**1**	**13**
Preliminary & Further Study	NA	NA	NA
Land Surveying	NA	NA	NA
Group Work	NA	NA	NA
Laboratory	NA	NA	NA
Reading	NA	NA	NA
Assignment (Homework)	4	1	4
Project Work	NA	NA	NA
Seminar	NA	NA	NA
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	NA	NA	NA
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	NA	NA	NA
Final Exam	1	3	3
Preparation for the Final Exam	1	15	15
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	8	8
Short Exam (Quizzes)	4	0.5	2
Preparation for the Short Exam	4	2	8
TOTAL WORKLOAD OF THE COURSE UNIT	**44**	**34.5**	**100**
Workload (h) / 25			**100÷25**
ECTS Credits allocated for the Course Unit			**4**

DATA STRUCTURES Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE204	Data Structures	1	4	3	4

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr.Mohand L. Ahmed**
Instructor(s) of the Course Unit	**Dr.Mohand L. Ahmed**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	Provide the knowledge of basic data structures and their implementations, understand importance of data structures in context of writing efficient programs and develop skills to apply appropriate data structures in problem solving.
Contents of the Course Unit:	1- Introduction to the data structures and course objectives 2- Linear data structures 3- Algorithm Analysis. 4- Recursive and back tracking technique 5- Link list 6- Tree 7- Sorting algorithm

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	**General introduction to data structures:** Introduce to the Basic types of Data Structures and the common algorithm
2	**Linear data structures:** What is linear data structure, characteristics of linear data structure and types of linear data structure.
3	**Algorithm Analysis:** Algorithm Analysis types and methods,experimental of analysis algorithm
4	**Recursion:** Introduction to recursion, some problems that solved by recursion and the difference between recursion and iteration
5	**Back tracking technique**: Introduction to back tracking technique ,general method of back tracking technique ,when to use a Backtracking algorithm and How does Backtracking work.
6	**Linked Lists**: Introduction linked lists data structures ,comparison between linked lists and array .
7	**Linked Lists**: basic operations on linked lists(Insertion, Deletion and traversing).
8	**Types of linked lists:** Doubly linked lists,circular linked lists,memory -efficient doubly linked list,unrolled linked lists
9	**Stacks:** What is a Stack,how stacks are used and stack applications and implementations.
10	**Queue:** What is queue ,how are queues used and queue exceptions and implementations
11	**Tree :** What is tree,binary trees and types of binary trees and properties of binary trees.
12	**Tree:** Binary tree traverals,generic trees(N-ary trees) and threaded binary tree traversals.
13	**Sorting algorith:** What is sorting ,why is sorting necessary and classification of sorting algorithms.
14	**Sorting algorith:** Classification of sorting algorithm types:bubble sort, selection sort, insertion sort,shell sort,merge sort ,quick sort and tree sort.
15	**Final Exam.**

No.	PRACTICAL PART
1	**Lab 1:** function declaration and function expression
2	**Lab 2:** pointer declaration and initialization.
3	**Lab 3**:user defined data structures
4	**Lab 4**: Implementation problems using iteration/recursion problems
5	**Lab 5**: implementation of back tracking method
6	**Lab 6:**how to define a linked list node and programming traversal operation.
7	**Lab 7:**programming a linked list insertion operation.
8	**Lab 8:** programming a linked list deletion operation.
9	**Lab 9:** Implementation of push and pop operation on stack
10	**Lab 10:** Programming some application using stack.
11	**Lab11:** Programming the queue to store some of data
12	**Lab 12:** Programming a storing data as tree structure and implementation of various traversal techniques
13	**Lab 13:** Programming a storing data as graph structure and implementation of various traversal technique
14	**Lab 14:** Programming a bubble sort, selection sort and insertion sort algorithms
15	**Lab 15:** Programming a shell sort,merge sort ,quick sort and tree sort algorithms

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE204	DATA STRUCTURES	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	**15**	**2**	**30**
Preliminary & Further Study	NA	NA	NA
Land Surveying	NA	NA	NA
Group Work	NA	NA	NA
Laboratory	**14**	**2**	**28**
Reading	NA	NA	NA
Assignment (Homework)	**6**	**2**	**12**
Project Work	NA	NA	NA
Seminar	NA	NA	NA
Seminar Preparation	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	NA	NA	NA
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	**5**	**1**	**5**
Final Exam	**1**	**3**	**3**
Preparation for the Final Exam	**1**	**6**	**6**
Mid-Term Exam	**1**	**2**	**2**
Preparation for the Mid-Term Exam	**1**	**3**	**3**
Short Exam (Quizzes)	**8**		
Preparation for the Short Exam	**8**	**0.5**	**4**
TOTAL WORKLOAD OF THE COURSE UNIT	**60**	**21.5**	**100**
Workload (h) / 25			**100÷25**
ECTS Credits allocated for the Course Unit			**4**

MEASUREMENTS & SENSORS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE205	Measurements & Sensors	1	3	3	2

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Ahmed Waled Kasim**
Instructor(s) of the Course Unit	**Ahmed Waled Kasim**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	• Explain the basic working principle of various electronic measurement instruments used to measure electrical parameters like current, voltage, power etc. • Understand and describe the specifications, features, characteristics, error and the performance of an instrument. • Learn about various types AC bridges and their applications in measurements of capacitance, frequency, inductance etc. • Gain knowledge about the functional blocks of a CRO and do analysis, measurements of waveform display. • Explain working of various types of sensors, transducers and their applications.
Contents of the Course Unit:	• Definition of Measurements and Errors. As well as the types of errors. • Identify and design the Electromechanical Indicting Instruments both types DC and AC. • Studying the DC and AC Bridges as well as their Applications. • Introduction to Oscilloscopes. • Hall Effect Theory and its applications. • Introduction to Signal Generation. • Analogue and Digital Data Acquisition System. • Computer – Controlled Test System.

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	**Measurement and Errors.**
2	**Electromechanical Indicting Instruments.**
3	**Electromechanical Indicting Instruments.**
4	**Electromechanical Indicting Instruments.**
5	**Bridges and their Applications.**
6	**Bridges and their Applications.**
7	**Oscilloscopes.**
8	**1- Theory of Hall Effect, Hall Effect Sensors, Basic Hall Effect Sensors.** **2- Analogue output Sensors.**
9	**Mid-Term Exam.**
10	**1- Digital output Sensors.** **2- Some Examples about Hall Effect Sensors.**
11	**Signal Generation.**
12	**Analogue and Digital Data Acquisition System.**
13	**Computer – Controlled Test System.**
14	**Preparatory Week.**
15	**Final Exam.**

No.	PRACTICAL PART
1	Lab1: Measurements of DC current.
2	Lab2: Measurements of DC voltage.
3	Lab 3: Loading effect on Voltmeter.
4	Lab 4: Series type Ohmmeter.
5	Lab 5: AC Voltmeter using half wave rectifier.
6	Lab 6: AC Voltmeter using full wave rectifier.
7	Lab 7: DC Bridges (Wheatstone bridge).
8	Lab 8: Comparison bridges.
9	Lab 9: Maxwell and Hay bridges.
10	Lab 10: Measurements of frequency.
11	Lab 11: Measurements of phase angle using Lissajous method.
12	Lab 12: Calibration of Thermocouple.
13	Lab 13: Photosensitive.
14	Lab 14: Review.

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE205	MEASUREMENTS & SENSORS	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	**15**	**1**	**15**
Preliminary & Further Study	NA	NA	NA
Land Surveying	NA	NA	NA
Group Work	NA	NA	NA
Laboratory	**14**	**1**	**14**
Reading	NA	NA	NA
Assignment (Homework)	3	1	3
Project Work	NA	NA	NA
Seminar	NA	NA	NA
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	NA	NA	NA
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	NA	NA	NA
Final Exam	**1**	**3**	**3**
Preparation for the Final Exam	1	8	8
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	4	4
Short Exam (Quizzes)	4		
Preparation for the Short Exam	4	1	1
TOTAL WORKLOAD OF THE COURSE UNIT	**34**	**21**	**50**
Workload (h) / 25			**50÷25**
ECTS Credits allocated for the Course Unit			**2**

COMPUTER ARCHITECTURE Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE206	**Computer Architecture**	2	4	3	6

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Ahmad F. Al-Allaf**
Instructor(s) of the Course Unit	**Dr. Ahmad F. Al-Allaf**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	This course introduces the principles of computer organization and the basic architecture concepts. The course emphasizes memory technolog, memory hierarchy, memory organization, memory interfacing and I/O systems. Also study the hardware and software interrupts and their applications.
Contents of the Course Unit:	1 – Basic computer organization 2 – Internal and external memories 3 – ROMs and RAMs 4 – Memory interface to the 8088/8086 microprocessor 5 – Memory interfacing to 32-bit microprocessor 5 – I/O system design and interfacing 6 – Software and hardware interrupts

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	• **Basic computer architecture:** Computer organization, Primary and secondary memories, Memory hierarchy, types of ROMs and RAMs
2	• **Primary memory architecture:** Internal structure and operation of ROMs, and RAMs
3	• **Memory address decoder:** Simple address decode, 2-4 and 3-8 address decoders. Use programmable logic devices (PLDs) to decode memory addresses.
4	• **Memory interfacing:** Interfacing ROM and SRAM to the 8088 microprocessor, Expanding memory in size and words.
5	• **Memory interfacing:** Interfacing ROM and SRAM to the 8086 microprocessor.
6	• **Memory interfacing:** Interfacing ROM and SRAM to the 32-bit microprocessor.
7	• **Memory interfacing:.** Memory interfacing Design examples
8	• **I/O system:** The I/O Instructions, Isolated and Memory-Mapped I/O, Basic Input and Output Interfaces
9	• **I/O system interfacing:** Interfacing simple devices (LEDs and switches) to the 8088/8086 microprocessor
10	• **I/O system interfacing:** Interfacing ADC and DAC to the 8088/8086 microprocessor,
11	• **I/O system interfacing** Interfacing Keyboard and 7-segment displays to the 8088/8086 microprocessor
12	• **Interrupts:** Basic Interrupt Processing, Interrupt Instructions, Interrupt Vector, Hardware Interrupts.
13	• **Interrupts:** Expanding the Interrupt Structure, Using the 74ALS244 to Expand Interrupts, Daisy-Chained Interrupt.
14	• **Interrupts:** Interrupt Examples, Real-Time Clock, Interrupt-Processed Keyboard
15	• **Final Exam.**

No.	Practical Part
1	**Lab 1:** Introduction to **Proteus** simulator for digital systems
2	**Lab 2:** Introduction to Memory type and organization
3	**Lab 3:** Address decoders
4	**Lab 4:** SRAM interfacing
5	**Lab 5**: ROM interfacing
6	**Lab 6:** Expanding ROM and RAM
7	**Lab 7:** Interfacing LEDs and switches to the microprocessor
8	**Lab 8:** Interfacing Keyboard to the microprocessor
9	**Lab 9:** Interfacing 7-segment display to the microprocessor
10	**Lab 10:** Interfacing ADC to the microprocessor
11	**Lab 11:** Interfacing DAC to the microprocessor
12	**Lab 12:** Expanding the Interrupt Structure using the 74ALS244
13	**Lab 13:** Interrupt design example
14	**Lab 14:** Review

Workload & ECTS Credits of The Course Unit :	**CTE206 Computer Architecture**		
Workload For Learning & Teaching Activities			
Type of the Learning Activates	Learning Activities (# of week)	Duration (hours, h)	Workload (h)
Lecture & In-Class Activities	15	2	30
Preliminary & Further Study	2	2	4
Land Surveying	NA	NA	NA
Group Work	4	1	4
Laboratory	14	2	28
Reading	NA	NA	NA
Assignment (Homework)	8	1	8
Project Work	1	2	2
Seminar	3	1	3
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	5	2	10
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	5	2	10
Final Exam	1	3	3
Preparation for the Final Exam	1	20	20
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	12	12
Short Exam (Quizzes)	4	0.5	2
Preparation for the Short Exam	8	1.5	12
Total Workload of the Course Unit	**73**	**54**	**150**
Workload (h) / 25			**150÷25**
ECTS Credits allocated for the Course Unit			**6**

ELECTRONIC CIRCUITS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE207	**Electronic Circuits**	2	4	3	6

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Thabat F. Thabet**
Instructor(s) of the Course Unit	**Dr. Thabat F. Thabet**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	• To learn the applications of BJT . • Study the types of BJT amplifiers (Common Emitter, Common Collector, and Common Base). • Study the Frequency response of amplifiers. • Differential and Operational Amplifiers • Study the family of Field Effect Transistors (FET).
Contents of the Course Unit:	1 – BJT Applications. 2 – BJT Amplifiers 3 – Frequency Response 4 – Differential and Operational Amplifiers 5 – Field Effect Transistors (FET).

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	**1- <u>BJT Applications</u>.** BJT as a Switch (cutoff and saturation).
2	**1- <u>BJT Applications</u>.** Linear operation and DC load line.
3	**2- <u>BJT Amplifiers</u>.** Common Emitter CE.
4	**2- <u>BJT Amplifiers</u>.** Common Collector CC.
5	**2- <u>BJT Amplifiers</u>.** Common Base CB.
6	**3- <u>Frequency Response</u>.** The Decibel.
7	**3- <u>Frequency Response</u>.** Low Frequency Amplifier Response (Effect of the external capacitors)
8	**3- <u>Frequency Response</u>.** High Frequency Amplifier Response (Effect of the internal capacitors)
9	**3- <u>Frequency Response</u>.** Total Frequency Response (Bode Plot)
10	**4- <u>Differential and Operational Amplifiers</u>** Differential and Operational Amplifiers.
11	**4- <u>Differential and Operational Amplifiers</u>** Negative Feed-back (Inverting and Non-inverting Amplifiers).
12	**4- <u>Differential and Operational Amplifiers</u>** Applications of Operational Amplifiers.
13	**5- <u>Field Effect Transistors (FET).</u>** Junction Field Effect Transistors (JFET).
14	**5- <u>Field Effect Transistors (FET).</u>** Metal Oxide Semiconductor Field Effect Transistors (MOSFET).
15	**Final Exam.**

No.	PRACTICAL PART
1	**Lab 1:** Review of Transistor Biasing (operating point)
2	**Lab 2:** BJT as a Switch (cutoff and saturation).
3	**Lab 3**: Linear operation and DC load line.
4	**Lab 4:** Common Emitter Amplifiers
5	**Lab 5:** Common Collector Amplifiers
6	**Lab 6:** Common Base Amplifiers
7	**Lab 7:** Frequency response of OPAMP
8	**Lab 8:** Inverting and Non-inverting OPAMPs
9	**Lab 9:** Analogue Comparator
10	**Lab 10:** The Integrator Circuit
11	**Lab 11:** The Differentiator Circuit
12	**Lab 12:** FET
13	**Lab 13:** FET Amplifier
14	**Lab 14:** Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE207	ELECTRONIC CIRCUITS	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVATES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	14	2	28
Preliminary & Further Study	3	2	6
Land Surveying	NA	NA	NA
Group Work	4	1	4
Laboratory	14	2	28
Reading	5	1	5
Assignment (Homework)	8	1	8
Project Work	1	3	3
Seminar	3	1	3
Internship	NA	NA	NA
Technical Visit	1	5	5
Web Based Learning	1	5	5
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	5	2	10
Final Exam	1	3	3
Preparation for the Final Exam	1	20	20
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	12	12
Short Exam (Quizzes)	4	0.5	2
Preparation for the Short Exam	4	1.5	6
TOTAL WORKLOAD OF THE COURSE UNIT	**71**	**64**	**150**
Workload (h) / 25			**150÷25**
ECTS Credits allocated for the Course Unit			**6**

COMMUNICATION FUNDAMENTALS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE208	**Communication Fundamentals**	1	4	3	7

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Emad A. Mohammed**
Instructor(s) of the Course Unit	**Dr. Emad A. Mohammed**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	• To learn the fundamentals of communication system and the main structure of the system including transmitters, receivers and channels. • To learn the basic techniques used in signal representation, modulation and demodulation
Contents of the Course Unit:	1 – Introduction to signals and systems 2 – Signal representation in frequency domain 3 – Modulation techniques 4 – Transmission channels

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	Signals and system definition, periodic signals, non-periodic signal, deterministic and non-deterministic signals
2	Linear systems and nonlinear systems, filters
3	Fourier series, signal harmonics
4	Fourier transform, Frequency domain, exponential and trigonometric Fourier transform
5	Properties of Fourier Transform, application of Fourier transform
6	Baseband signal transmission, line coding, polar code, bipolar code, Manchester code
7	Analogue modulation Techniques, AM, FM, PM
8	Pulse modulation techniques, PAM, PPM, PWM
9	Digital modulation Techniques ASK, PSK, FSK
10	Multilevel modulation, QAM
11	Wireless channels, Shannon equation, channel capacity
12	Transmission lines and their equivalent circuits, TL characteristics
13	Incident wave, reflected wave
14	Smith Chart, matching techniques
15	**Final Exam.**

No.	PRACTICAL PART
1	**Lab 1:** Signals properties
2	**Lab 2:** Linear systems and nonlinear systems, filters
3	**Lab 3**: Harmonics determination
4	**Lab 4:** Fourier transform, Spectrum analysis
5	**Lab 5:** Fourier transform properties
6	**Lab 6:** Types of Baseband signals
7	**Lab 7:** Amplitude and phase modulation
8	**Lab 8:** Frequency modulation
9	**Lab 9:** PPM, PAM, PWM
10	**Lab 10:** ASK
11	**Lab 11:** FSK
12	**Lab 12:** PSK
13	**Lab 13:** QAM
14	**Lab 14:** Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE208	COMMUNICATION FUNDAMENTALS	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVATES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	15	2	30
Preliminary & Further Study	4	2	8
Land Surveying	NA	NA	NA
Group Work	5	1	5
Laboratory	14	2	28
Reading	2	2	4
Assignment (Homework)	8	1	8
Project Work	1	3	3
Seminar	3	1	3
Internship	NA	NA	NA
Technical Visit	1	5	5
Web Based Learning	5	2	10
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	8	2	16
Final Exam	1	3	3
Preparation for the Final Exam	1	20	20
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	12	12
Short Exam (Quizzes)	8	0.5	4
Preparation for the Short Exam	8	1.5	14
TOTAL WORKLOAD OF THE COURSE UNIT	**86**	**62**	**175**
Workload (h) / 25			**175÷25**
ECTS Credits allocated for the Course Unit			**7**

COMPUTER APPLICATIONS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE209	**Computer Applications**	2	3	2	4

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Shaima Miqdad Mohamed Najeeb**
Instructor(s) of the Course Unit	**Shaima Miqdad Mohamed Najeeb**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	The main objective of this course is to provide a foundation in programming for engineering problem solving using the MATLAB software package. Students will develop the skills analyze and break down a program and solve it . Learn the capabilities and applications supported by the MATLAB program, implement them, and use them to solve various problems.
Contents of the Course Unit:	1- General introduction to matlab programming 2- An introduction to the MATLAB programming environment 3- Programming in MATLAB 4- Function in matlab. 5- Plotting in matlab 6- Matlab simulink 7- MATLAB GUI.

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	**General introduction to matlab programming:** Basic of programming in general and programming MATLAB® in particular Environment and Settings, Preferences and settings, platform differences, adding hardware and optional features
2	**Programming in MATLAB:** Introduction to matrices and vectors , creating a Matlab Matrix, referencing the Elements of a Matrix, deleting a Row or a Column in a Matrix.
3	**Programming in MATLAB:** Arithmetic ,logical and bitwise operations.
4	**Programming in MATLAB:** Writing MATLAB scripts and functions, a custom-made Matlab functions.
5	**Programming in MATLAB** : Loops and control flow (for-loops, if-statements)
6	**Function in MATLAB** : Declare function name, inputs, and outputs(syntax) with examples.
7	**Plotting in matlab:** Overview of MATLAB Plotting, Plotting Process graph components,figure tools,selecting plot types
8	**Plotting in matlab:** Basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).
9	**Plotting in matlab:** Mesh and surface plots, visualizing functions of two variables .
10	**Plotting in matlab:** Handle graphics: Work with graphics objects and set object properties. Animations: Create moving graphics
11	**Matlab simulink:** Simulink Concepts, simulink environment,basic elements,simulink librarys
12	**Matlab simulink:** Block Libraries,modifying the blocks ,interactive model editing,programmatic model editing and running simulation .
13	**MATLAB GUI:** Creating Graphical User Interfaces, introduces GUIDE, the MATLAB graphical user interface design environment, Laying out a GUI,
14	**3D Computer Graphics Operations:** Programming a GUI, introduces callbacks to define behavior of the GUI components, Menu-driven programs, Controls: uimenu and uicontrol.
15	**Final Exam.**

No.	PRACTICAL PART
1	**Lab 1:** Introduction to MATLAB .
2	**Lab 2:** Basic commands
3	**Lab 3**: Working with matrices part(I)
4	**Lab 4:** Working with matrices part(II)
5	**Lab 5:** Relational ,logical bitwise operations
6	**Lab 6:** Input and output commands in a script file.
7	**Lab 7:** Flow control(if and switch-case) statements
8	**Lab 8:** Loop(for,while,break,continue)statements
9	**Lab 9:** M-file functions
10	**Lab 10:** 2D Plotting functions
11	**Lab 11:** 3D Plotting functions
12	**Lab 12:** Basics of Matlab simulink
13	**Lab 13:**Graphical user interface part(I)
14	**Lab 14:** Graphical user interface part(II)

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	**CTE209 COMPUTER APPLICATIONS**		
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVATES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	14	1	14
Preliminary & Further Study	3	1	3
Land Surveying	NA	NA	NA
Group Work	4	1	4
Laboratory	14	2	28
Reading	NA	NA	NA
Assignment (Homework)	5	2	10
Project Work	1	1	1
Seminar	1	2	2
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	5	2	10
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	2	2	4
Final Exam	1	3	3
Preparation for the Final Exam	1	10	10
Mid-Term Exam	1	2	2
Preparation for the Mid-Term Exam	1	5	5
Short Exam (Quizzes)	4	0.5	2
Preparation for the Short Exam	4	0.5	2
TOTAL WORKLOAD OF THE COURSE UNIT	**61**	**35**	**100**
Workload (h) / 25			**100÷25**
ECTS Credits allocated for the Course Unit			**4**

WEBSITE DESIGN Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE210	**Website Design**	2	3	2	3

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Nawar Ali Ibrahim Al_Obaidy**
Instructor(s) of the Course Unit	**Nawar Ali Ibrahim Al_Obaidy**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	The main objective of this course is to help students to create professional websites of all kinds with the help of modern systems and programs and experience in the field of websites. In addition to obtaining skills that enable them to fill a job efficiently in the same field and provide funds for their institutions, as well as the possibility of entering the world of e-commerce without programming and complexity and in a short time.
Contents of the Course Unit:	1- Introduction to Website Building. 2- The Website and Its Future. 3- The Language of the Web: HTML5. 4- Structuring the content of a web page. 5- Style Sheets: CSS3. 6- Design and Creation a Website.

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students/learners will or will be able to dealing with:
1	Background and Phases of Evolution of the Web.
2	Web application architecture.
3	Choosing a Domain Name and Hosting
4	Installing WordPress and Account Setup
5	WordPress Admin Dashboard and the Features
6	Structure of an HTML5 document.
7	CSS3 Overview.
8	Process of creating a website.
9	Different website types and ergonomics the website
10	New Theme Installation
11	Header and Landing Page Top Design
12	How to Insert Logo, Site Title, and Setup Search Box on a Website
13	Explanation of Post Screen Option and its Use
14	Footer Design of a Website and Adding Social Media Link
15	Final Exam.

No.	PRACTICAL PART
1	**Lab 1:** Step-by-Step Guide to Registering Domain Name.
2	**Lab 2:** Structure of an HTML5 web page.
3	**Lab 3**: How to Design the Menu Items.
4	**Lab 4:** Simple Forms and Table Formatting.
5	**Lab 5:** How to Add Search on the Website.
6	**Lab 6:** How to Change Website Title and Description
7	**Lab 7:** Steps in Adding Gallery to a Website using Gallery Widget Option.
8	**Lab 8:** How to Place Slider on the Website.
9	**Lab 9:** How to Publish with Post Tool.
10	**Lab 10:** How to insert Page Break (Block) in a Post.
11	**Lab 11:** How to Hyperlink in a Post.
12	**Lab 12:** Inserting Image/Photo in the Post or Pages.
13	**Lab 13:** Creating a template model.
14	**Lab 14:** Creating a website from A to Z.

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT:	**CTE210** WEBSITE DESIGN		
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES(# OF WEEK)	DURATION(HOURS,H)	WORKLOAD(H)
Lecture & In-Class Activities	**51**	**1**	**15**
Preliminary & Further Study	NA	NA	NA
Land Surveying	NA	NA	NA
Group Work	NA	NA	NA
Laboratory	**14**	**2**	**28**
Reading	NA	NA	NA
Assignment (Homework)	2	2	4
Project Work	NA	NA	NA
Seminar	NA	NA	NA
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	NA	NA	NA
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	8	2	16
Final Exam	1	3	3
Preparation for the Final Exam	1	5	5
Mid-Term Exam	1	2	2
Preparation for the Mid-TermExam	1	2	2
Short Exam (Quizzes)	2	1	
Preparation for the Short Exam	2	1	
TOTAL WORKLOAD OF THE COURSE UNIT	**44**	**16**	**75**
Workload (h) / 25			**75÷25**
ECTS Credits allocated for the Course Unit			**3**

SUMMER TRAINING 1 Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE211	**Summer Training 1**	2	2	1	2

GENERAL INFORMATION	
Language of Instruction:	**English**
Level of the Course Unit:	**Bachelor's Degree**
Type of the Course:	**Compulsory**
Mode of Delivery of the Course Unit	**Face to Face**
Coordinator of the Course Unit	**Dr. Basma MohammedKamal Younis**
Instructor(s) of the Course Unit	**Dr. Basma MohammedKamal Younis**

OBJECTIVES AND CONTENTS	
Objectives of the Course Unit:	1- القدرة على ربط المعرفة المكتسبة من الطالب خلال دراسته االاكاديمية بالمشاكل الحقيقة على ارض الواقع 2- اكتشاف بيئة العمل واحتياجاتها وقيودها 3- القدرة على تحديد المتطلبات المطلوبة لايجاد حلول مناسبة وفعالة للمشاكل الحقيقية على ارض الواقع مع وجود قيود فنية مختلفة 4- القدرة على تكوين رؤية واضحة حول الاهداف والمعوقات والعمل بشكل فعال 5- ايجاد الطالب استقالاليته باكتسابه لمهارات جديدة مع اشراف بسيط من قبل جهة التدريب . 6- القدرة على ايجاد حلول مناسبة في حال حدوث اي تغيير في متطلبات العمل وقيوده 7- القدرة على التواصل مع الكثير من االشخاص المتواجدين في المجال العملي . 8- تعلم المسؤوليات الاخلاقية والاحترافية.
Contents of the Course Unit:	- تشغيل وصيانة الحاسبات - بعض البرامج المستخدمة في صيانة الحاسوب - التعرف على الاعطال الشائعة في الحاسبات

WEEK	KEY LEARNING OUTCOMES OF THE COURSE UNIT : PRACTICAL PART
1	- تعريف الطالب على اقسام وشعب الموقع التدريبي مع اعطاء نبذة مختصرة عن اجزاء الحاسبة وكيفية عملها وامكانية صيانة بعض اجزائها.
2	- التعرف على اجزاء القرص الصلب وكيفية تقسيمه وطريقة خزن البيانات ومقارنته مع قرص SSDو M2 والطرق المستخدمة لتصفير القرص (NTFS,FAT16,FAT32)
3	- التعرف الاعطال الشائعة في الاقراص الصلبة وكيفية معالجتها والبرامج المستخدمة في عملية اصلاح الاقراص الصلبة واسترجاع المعلومات المحذوفة او المفقودة بعد عملية الاصلاح
4	- اعطاء نبذة مختصرة عن انواع الطابعات الالكترونية والاعطال التي تواجه هذه الطابعات وكيفية معالجتها. - التعرف على طبيعة الاجهزة المسيطر عليها حاسوبياً وكيفية عملها في حال توفرها في الموقع التدريبي
5	**Final Exam**

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :	CTE211 SUMMER TRAINING 1		
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVATES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	NA	NA	NA
Preliminary & Further Study	NA	NA	NA
Land Surveying	NA	NA	NA
Group Work	5	1	5
Laboratory	4	5	20
Reading	NA	NA	NA
Assignment (Homework)	8	1	8
Project Work	NA	NA	NA
Seminar	2	1	2
Internship	NA	NA	NA
Technical Visit	4	2	8
Web Based Learning	NA	NA	NA
Implementation/Application/Practice	NA	NA	NA
Practice at a workplace	NA	NA	NA
Occupational Activity	NA	NA	NA
Social Activity	NA	NA	NA
Thesis Work	NA	NA	NA
Field Study	NA	NA	NA
Report Writing	2	2	4
Final Exam	1	1	1
Preparation for the Final Exam	1	2	2
Mid-Term Exam	NA	NA	NA
Preparation for the Mid-Term Exam	NA	NA	NA
Short Exam (Quizzes)	NA	NA	NA
Preparation for the Short Exam	NA	NA	NA
TOTAL WORKLOAD OF THE COURSE UNIT	27	15	50
Workload (h) / 25			**50÷25**
ECTS Credits allocated for the Course Unit			**2**