

## DIGITAL LOGIC Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
<b>CTE100</b>	<b>Digital Logic</b>	1	4	3	7

### GENERAL INFORMATION

Language of Instruction:	<b>English</b>
Level of the Course Unit:	<b>Bachelor's Degree</b>
Type of the Course:	<b>Compulsory</b>
Mode of Delivery of the Course Unit	<b>Face to Face</b>
Coordinator of the Course Unit	<b>Khalis A. Mohammed</b>
Instructor(s) of the Course Unit	<b>Khalis A. Mohammed</b>

### OBJECTIVES AND CONTENTS

<b>Objectives of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1. To learn the basic techniques and methodologies for designing and analyzing digital systems and how to apply these techniques to build specific circuits.</li> <li>2. Define the problem (Inputs and Outputs), write its functions</li> <li>3. Implement functions using Combinational digital circuit.</li> <li>4. Minimize functions using any type of minimizing algorithms (Boolean algebra, Karnaugh-Map or Tabulation Method).</li> <li>5. Have knowledge in analyzing and designing procedures of Combinational digital circuits.</li> </ol>
<b>Contents of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1- Numbers Systems, Operations, and Codes.</li> <li>2- 2- Logic Gates</li> <li>3- Boolean Algebra and Logic Simplification</li> <li>4- Combinational Logic Analysis</li> </ol>

Week	<b>KEY LEARNING OUTCOMES OF THE COURSE UNIT</b> On successful completion of this course unit, students/learners will or will be able to dealing with:
1	<b>1- Numbers Systems, Operations, and Codes:</b> Decimal Numbers, Binary numbers.
2	<b>1- Numbers Systems, Operations, and Codes:</b> Hexadecimal Numbers, Octal numbers.
3	<b>1- Numbers Systems, Operations, and Codes:</b> Data representation ( integer and fraction) using different number systems. Conversion Between Different Numbers Systems .
4	<b>1- Numbers Systems, Operations, and Codes:</b> Arithmetic operations using 9's and 10's Complements of Decimal Numbers. Arithmetic operations using 1's and 2's Complements of Binary Numbers.
5	<b>1- Numbers Systems, Operations, and Codes:</b> Signed Numbers, Arithmetic Operations with Signed Numbers.
6	<b>1- Numbers Systems, Operations, and Codes:</b> Digital Codes (BCD, Excess-3, Parity, Gray ..... etc.).
7	<b>2- Logic Gates:</b> The Inverter (NOT Gate), The AND Gate, The OR Gate.
8	<b>2- Logic Gates:</b> The NAND Gate, The NOR Gate, The Exclusive-OR Gate and Exclusive-NOR Gate.
9	<b>3- Boolean Algebra and Logic Simplification:</b> Boolean Operations and Expressions.
10	<b>3- Boolean Algebra and Logic Simplification:</b> Laws and Rules of Boolean Algebra.
11	<b>3- Boolean Algebra and Logic Simplification</b> Simplification Using Boolean Algebra. DeMorgan's theorems.
12	<b>3- Boolean Algebra and Logic Simplification :</b> The Karnaugh Map ( 1, 2, 3 and 4 variables ) , SOP and POS Minimization.
13	<b>4- Combinational Logic Analysis:</b> Basic Combinational Logic Circuits.

	Implementing Combinational Logic.
14	<b>4- Combinational Logic Analysis:</b> Combinational Logic Using NAND and NOR Gates. Logic Circuit Operation with Pulse Waveform Inputs.
15	<b>Final Exam</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Introduction to digital laboratory kit operation
2	<b>Lab 2:</b> Logic Gates (AND, OR, NOT, NAND, NOR).
3	<b>Lab 3:</b> Logic Gates (XOR, XNOR).
4	<b>Lab 4:</b> Design of (AND, OR, NOT) gates Using NAND gates.
5	<b>Lab 5:</b> Design of (AND, OR, NOT) gates Using NOR gates.
6	<b>Lab 6:</b> Implementation of logic circuits using NAND-gate only.
7	<b>Lab 7:</b> Implementation of logic circuits using NOR-gate only.
8	<b>Lab 8:</b> Implementation of DeMorgan theory, 1st Law
9	<b>Lab 9:</b> Implementation of DeMorgan theory, 2nd Law
10	<b>Lab 10:</b> Design of a combinational logic circuits . Part 1
11	<b>Lab 11:</b> Design of a combinational logic circuits. Part 2
12	<b>Lab 12:</b> Realization of Boolean equation. Part 1
13	<b>Lab 13:</b> Realization of Boolean equation. Part 2
14	<b>Lab 14:</b> Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		CTE100	DIGITAL LOGIC	
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	4	2	8	
Land Surveying	NA	NA	NA	
Group Work	5	1	5	
Laboratory	14	2	28	
Reading	2	3	6	
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	12	
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>86</b>	<b>63</b>	<b>175</b>	
Workload (h) / 25			<b>175÷25</b>	
<b>ECTS Credits allocated for the Course Unit</b>			<b>7</b>	

## FUNDAMENTALS OF ELECTRICAL ENGINEERING      Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
<b>CTE101</b>	<b>Electrical Engineering Fundamentals</b>	1	4	3	7

<b>GENERAL INFORMATION</b>	
Language of Instruction:	<b>English</b>
Level of the Course Unit:	<b>Bachelor's Degree</b>
Type of the Course:	<b>Compulsory</b>
Mode of Delivery of the Course Unit	<b>Face to Face</b>
Coordinator of the Course Unit	<b>Dr.Maysaloon A. Qasim</b>
Instructor(s) of the Course Unit	<b>Dr.Maysaloon A. Qasim</b>

<b>OBJECTIVES AND CONTENTS</b>	
<b>Objectives of the Course Unit:</b>	To provide the fundamental concept of DC electrical circuits.
<b>Contents of the Course Unit:</b>	1-General Electric System. 2- DC circuits. 3- Network Theorems

Week	<b>KEY LEARNING OUTCOMES OF THE COURSE UNIT</b> On successful completion of this course unit, students/learners will or will be able to dealing with:
1	<b>1- General Electric System:</b> Constituent parts of an electrical system (source, load, communication & control), Current flow in a circuit, Electromotive force and potential difference, Electrical units.
2	<b>1- General Electric System:</b> Ohm's law, Resistors, Resistivity, Temperature rise & Temperature coefficient of resistance, Voltage & Current sources
3	<b>2- DC circuits:</b> Series circuits , Parallel circuits.
4	<b>2- DC circuits:</b> Kirchhoff's laws.
5	<b>2- DC circuits:</b> Power and energy .
6	<b>3- Network Theorems:</b> Star-delta & delta-star transformation
7	<b>3- Network Theorems:</b> Sources transformations
8	<b>3- Network Theorems:</b> Mesh analysis.
9	<b>3- Network Theorems:</b> Nodal analysis.
10	<b>3- Network Theorems:</b> Superposition theorem.
11	<b>3- Network Theorems:</b> Thevenin's theorem
12	<b>3- Network Theorems:</b> Norton's theorem
13	<b>3- Network Theorems:</b> Maximum power transfer theorem.
14	<b>3- Network Theorems:</b> Reciprocity theorem
15	<b>Final Exam</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Connection of resistances in series and parallel.
2	<b>Lab 2:</b> Verification of Ohm's law using hardware .
3	<b>Lab 3:</b> Verification of Ohm's law using digital simulation.
4	<b>Lab 4:</b> Verification of Kirchhoff's current law and Voltage law using hardware.
5	<b>Lab 5:</b> Verification of Kirchhoff's current law and Voltage law using digital simulation.
6	Lab 6: Determination of mesh currents using hardware.
7	Lab 7: Determination of mesh currents using digital simulation.
8	<b>Lab 8:</b> Measurement of nodal voltages using hardware and digital simulation.
9	<b>Lab 9:</b> Verification of superposition theorem using hardware .
10	<b>Lab 10:</b> Verification of superposition theorem using digital simulation.
11	<b>Lab 11:</b> Verification of Thevni's theorem using hardware.
12	<b>Lab 12:</b> Verification of Thevni's theorem using hardware.
13	<b>Lab 13:</b> Verification of Nortan's using hardware.
14	<b>Lab 14:</b> Verification of Nortan's using digital simulation.

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT : CTE101 ELECTRICAL ENGINEERING FUNDAMENTALS</b>			
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
<b>Lecture &amp; In-Class Activities</b>	15	2	30
<b>Preliminary &amp; Further Study</b>	4	2	8
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	5	1	5
<b>Laboratory</b>	14	2	28
<b>Reading</b>	2	3	6
<b>Assignment (Homework)</b>	8	1	8
<b>Project Work</b>	1	3	3
<b>Seminar</b>	3	1	3
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	1	5	5
<b>Web Based Learning</b>	5	2	10
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	8	2	16
<b>Final Exam</b>	1	3	3
<b>Preparation for the Final Exam</b>	1	20	20
<b>Mid-Term Exam</b>	1	2	2
<b>Preparation for the Mid-Term Exam</b>	1	12	12
<b>Short Exam (Quizzes)</b>	8	0.5	4
<b>Preparation for the Short Exam</b>	8	1.5	12
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>86</b>	<b>63</b>	<b>175</b>
<b>Workload (h) / 25</b>			<b>175÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>7</b>

## COMPUTER ORGANIZATION Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE102	Computer Organization	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	Mohammed G. Ayoub
Instructor(s) of the Course Unit	Mohammed G. Ayoub

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	<p><b>At the end of this course, following learning objectives are expected to be achieved:</b></p> <ul style="list-style-type: none"> <li>- To understand principles of computer organization and the basic architectural concepts.</li> <li>- To understand the structure, function and characteristics of computer systems.</li> <li>- To understand how the various components of Computer Systems fit together and interact.</li> <li>- To explain the function of each element of a memory hierarchy.</li> </ul>
<b>Contents of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1- Computer Architecture</li> <li>2- Memory Hierarchy</li> <li>3- CPU and GPU</li> <li>4- Computer Bus</li> <li>5- Semiconductor Memory - Read and Write Operations in Memory</li> <li>6- Assembly Programming</li> <li>7- Intel Microprocessors</li> </ol>

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	<b>Introduction to Computer Systems:</b> Computer Characteristics, Software and Computers Categories
2	<b>Introduction to Computer Architecture:</b> Von Neumann and Harvard Architectures
3	<b>The Memory Hierarchy:</b> Registers, Caches, Main Memory, Hard Disk and Auxiliary Storage
4	<b>Average Memory Access Time (AMAT):</b> Computing AMAT, Cache Miss and Cache Hit
5	<b>Types of CPU Register and their Functions:</b> Operations of CPU Registers, Types and Functions
6	<b>Computer Bus   Types and Functions:</b> Data Bus, Address Bus, Control Bus, Internal and External Buses
7	<b>Basics of Semiconductor Memory   Types &amp; Technologies Part I:</b> Memory Array, Memory Address, Memory Capacity, Read and Write Operations in Memory
8	<b>Basics of Semiconductor Memory   Types &amp; Technologies Part II:</b> SRAM, DRAM, RAM Family, ROM Family
9	<b>Basics of Semiconductor Memory   Types &amp; Technologies Part III:</b> Flash Memory, Magnetic Storage, Optical Storage and Cloud Storage System
10	<b>Basic Operation of Processors:</b> Fetch/Execute Cycle, Pipelining and Processor Elements
11	<b>Levels of Programming Languages:</b> Assembly Language and Machine Language
12-14	<b>Introduction to the Intel Microprocessors:</b> 4004,8080/8085,8086/8086 80386,80486 and Multicore
15	<b>Final Exam.</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Introduction to Computer System Parts
2	<b>Lab 2:</b> Peripherals Devices
3	<b>Lab 3:</b> Computer Monitors
4	<b>Lab 4:</b> Computer Cables
5	<b>Lab 5:</b> Types of Microprocessors
6	<b>Lab 6:</b> Types of Memory in Computer System
7	<b>Lab 7:</b> Storage in Computer System
8	<b>Lab 8:</b> Motherboards and Graphics Card
9	<b>Lab 9:</b> Types of Computer Ports
10	<b>Lab 10:</b> Computer Software Part I
11	<b>Lab 11:</b> Computer Software Part II
12	<b>Lab 12:</b> Programming Languages
13	<b>Lab 13:</b> Computer Networks
14	<b>Lab 14:</b> Review

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT :</b>			
	<b>CTE102</b>	<b>COMPUTER ORGANIZATION</b>	
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
<b>Lecture &amp; In-Class Activities</b>	<b>15</b>	<b>2</b>	<b>30</b>
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	<b>14</b>	<b>2</b>	<b>28</b>
<b>Reading</b>	NA	NA	NA
<b>Assignment (Homework)</b>	<b>6</b>	<b>2</b>	<b>12</b>
<b>Project Work</b>	NA	NA	NA
<b>Seminar</b>	NA	NA	NA
<b>Seminar Preparation</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	NA	NA	NA
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	<b>5</b>	<b>1</b>	<b>5</b>
<b>Final Exam</b>	<b>1</b>	<b>3</b>	<b>3</b>
<b>Preparation for the Final Exam</b>	<b>1</b>	<b>6</b>	<b>6</b>
<b>Mid-Term Exam</b>	<b>1</b>	<b>2</b>	<b>2</b>
<b>Preparation for the Mid-Term Exam</b>	<b>1</b>	<b>3</b>	<b>3</b>
<b>Short Exam (Quizzes)</b>	<b>8</b>		
<b>Preparation for the Short Exam</b>	<b>8</b>	<b>0.5</b>	<b>4</b>
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>60</b>	<b>21.5</b>	<b>100</b>
<b>Workload (h) / 25</b>			<b>100÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>4</b>

## ENGINEERING DRAWING Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
<b>CTE103</b>	<b>Engineering Drawing</b>	1	3	2	3

<b>GENERAL INFORMATION</b>	
Language of Instruction:	<b>English</b>
Level of the Course Unit:	<b>Bachelor's Degree</b>
Type of the Course:	<b>Compulsory</b>
Mode of Delivery of the Course Unit	<b>Face to Face</b>
Coordinator of the Course Unit	<b>Naqaa L. Mohammed</b>
Instructor(s) of the Course Unit	<b>Naqaa L. Mohammed</b>

<b>OBJECTIVES AND CONTENTS</b>	
<b>Objectives of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1. Define engineering drawing material, its uses and Engineering drawing tools</li> <li>2. Introduction to Engineering drawing through AutoCAD software</li> <li>3. Developing the student's mental and abilities in drawing simple and complex shapes</li> </ol> <p>Decomposes 3D shapes into binary projections</p>
<b>Contents of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1- Introduction to AutoCAD software</li> <li>2- Draw menu</li> <li>3- modify menu</li> <li>4- Layers and properties</li> <li>5- projection</li> <li>6- stereoscopic shapes</li> </ol>

Week	<b>KEY LEARNING OUTCOMES OF THE COURSE UNIT</b> <b>On successful completion of this course unit, students/learners will or will be able to dealing with:</b>
1	-Get a quick introduction to AutoCAD -Drawing Setup in AutoCAD -Use precision drawing tools such as Grid, Object Snap, and Limits to create accurate measurements in drawings.
2	Coordinate method (Direct distance method, Absolute coordinate, Relative coordinate, Polar coordinate)
3	Draw menu (line, poly line, polygon, rectangle).
4	Drawing objects of Pentagonal, hexagonal and octagonal shapes
5	Draw menu ( arc, circle, ellipse, point and text).
6	Draw several shapes containing circles and texts
7	Modify menu (erase, copy, mirror, move offset, )
8	Modify menu (rotate, trim, extend, explode)
9	Properties and Layers in AutoCAD and dimension
10	Orthographic projection
11	Draw the three projection(front, side and top) of some shapes
12	Basics of drawing stereoscopic shapes
13	Draw stereoscopic shape
14	Printing the graphic
15	<b>Final Exam</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Definition of AutoCAD interface
2	<b>Lab 2:</b> Applications of Coordinate method
3	<b>Lab 3:</b> Draw figures of lines, polygons and rectangle
4	<b>Lab 4:</b> Drawing objects of Pentagonal, hexagonal and octagonal shapes
5	<b>Lab 5:</b> Drawing figures of circles and ellipse
6	<b>Lab 6:</b> Draw several shapes containing circles and texts
7	<b>Lab 7:</b> Applications of some order in modify menu
8	<b>Lab 8:</b> Applications of other order in modify menu
9	<b>Lab 9:</b> Practicing of using layers
10	<b>Lab 10:</b> Practicing of projection of simple figure
11	<b>Lab 11:</b> Draw three projection of figure
12	<b>Lab 12:</b> Practicing of drawing stereoscopic shapes
13	<b>Lab 13:</b> Draw stereoscopic shape
14	<b>Lab 14:</b> Practicing of Printing the graphic

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		CTE103 ENGINEERING DRAWING	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
<b>Lecture &amp; In-Class Activities</b>	14	1	14
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	14	2	28
<b>Reading</b>	NA	NA	NA
<b>Assignment (Homework)</b>	5	1	5
<b>Project Work</b>	1	1	1
<b>Seminar</b>	NA	NA	NA
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	NA	NA	NA
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	NA	NA	NA
<b>Final Exam</b>	1	3	3
<b>Preparation for the Final Exam</b>	1	10	10
<b>Mid-Term Exam</b>	1	2	2
<b>Preparation for the Mid-Term Exam</b>	1	5	5
<b>Short Exam (Quizzes)</b>	4	1	4
<b>Preparation for the Short Exam</b>	3	1	3
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>45</b>	<b>27</b>	<b>75</b>
<b>Workload (h) / 25</b>			<b>75÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>3</b>

## DEMOCRACY AND HUMAN RIGHTS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
<b>NTU100</b>	<b>Democracy and Human Rights</b>	1	2	2	2

GENERAL INFORMATION	
Language of Instruction:	Arabic
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 .Eesha I. Mohammed
Instructor(s) of the Course Unit	Dr .Eesha I. Mohammed

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	أهداف مادة حقوق الانسان والديمقراطية: تعريف الطالب بحقوق الانسان والديمقراطية ومضامينها وتصنيف الحريات العامة
<b>Contents of the Course Unit:</b>	المحتويات: تعريف الطالب على مفهوم الحقوق والديمقراطية على الصعيد الوطني والاقليمي والعالمي

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	حقوق الانسان ، تعريفها ، اهدافها حقوق الانسان في الحضارات القديمة وخصوصا حضارة وادي الرافدين
2	حقوق الانسان في الشرائع السماوية مع التركيز على حقوق الانسان في الاسلام
3	حقوق الانسان في التاريخ المعاصر والحديث : الاعتراف الدولي بحقوق الانسان منذ الحرب العالمية الأولى وعصبة الامم المتحدة
4	الاعتراف الاقليمي بحقوق الانسان : الاتفاقية الاوروبية لحقوق الانسان 1950 ، الاتفاقية الامريكية لحقوق الانسان 1969 ، الميثاق الافريقي لحقوق الانسان 1981 ، الميثاق العربي لحقوق الانسان 1994
5	حقوق الانسان الحديثة : الحقائق في التنمية ، الحق في البيئة النظيفة ، الحق في التضامن ، الحق في الدين حقوق الانسان ، المنظمات الوطنية لحقوق الانسان (
6	حقوق الانسان في الدساتير العراقية بين النظرية والواقع
7	حقوق الانسان الاقتصادية والاجتماعية والثقافية و حقوق الانسان المدنية والسياسية
8	حقوق الانسان الحديثة : الحقائق في التنمية ، الحق في البيئة النظيفة ، الحق في التضامن ، الحق في الدين
9	ضمانات احترام وحماية حقوق الانسان على الصعيد الوطني ، الضمانات في الدستور والقوانين. الضمانات في الرقابة الدستورية ، الضمانات في حرية الصحافة والرأي العام ، دور المنظمات غير الحكومية في احترام وحماية حقوق الانسان
10	ضمانات واحترام وحماية حقوق الانسان على الصعيد الدولي : - دور الأمم المتحدة ووكالاتها المتخصصة في توفير الضمانات - دور المنظمات الاقليمية ( الجامعة العربية ، الاتحاد الأوروبي ، الاتحاد الافريقي ، منظمة الدول الأمريكية ، منظمة آسيان ) دور المنظمات الدولية الاقليمية غير الحكومية والرأي العام في احترام وحماية حقوق الانسان
11	مصطلح الديمقراطية ، نشأته ، دلالاته ، تاريخ الديمقراطية.
12	الاسلام والديمقراطية ومساوئ الحكم الاستبدادي .
13	الانتقادات الموجهة للديمقراطية، ومحاسن النظام الديمقراطي.
14	الأنظمة الديمقراطية في العالم/الديمقراطية في العالم الثالث/ المشاكل التي تواجه البلدان العربية في التحول الديمقراطي
15	الامتحان النهائي

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT :</b>		<b>NTU100</b>	<b>DEMOCRACY AND HUMAN RIGHTS</b>	
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>				
<b>TYPE OF THE LEARNING ACTIVITIES</b>	<b>LEARNING ACTIVITIES (# OF WEEK)</b>	<b>DURATION (HOURS, H)</b>	<b>WORKLOAD (H)</b>	
<b>Lecture &amp; In-Class Activities</b>	14	2	28	
<b>Preliminary &amp; Further Study</b>	NA	NA	NA	
<b>Land Surveying</b>	NA	NA	NA	
<b>Group Work</b>	NA	NA	NA	
<b>Laboratory</b>	NA	NA	NA	
<b>Reading</b>	6	0.5	3	
<b>Assignment (Homework)</b>	NA	NA	NA	
<b>Project Work</b>	NA	NA	NA	
<b>Seminar</b>	NA	NA	NA	
<b>Internship</b>	NA	NA	NA	
<b>Technical Visit</b>	NA	NA	NA	
<b>Web Based Learning</b>	NA	NA	NA	
<b>Implementation/Application/Practice</b>	NA	NA	NA	
<b>Practice at a workplace</b>	NA	NA	NA	
<b>Occupational Activity</b>	NA	NA	NA	
<b>Social Activity</b>	NA	NA	NA	
<b>Thesis Work</b>	NA	NA	NA	
<b>Field Study</b>	NA	NA	NA	
<b>Report Writing</b>	NA	NA	NA	
<b>Final Exam</b>	1	3	3	
<b>Preparation for the Final Exam</b>	1	10	10	
<b>Mid-Term Exam</b>	1	2	2	
<b>Preparation for the Mid-Term Exam</b>	1	5	5	
<b>Short Exam (Quizzes)</b>	3	0.5	1.5	
<b>Preparation for the Short Exam</b>	3	0.5	1.5	
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>30</b>	<b>23.5</b>	<b>54</b>	
<b>Workload (h) / 25</b>			<b>54÷25</b>	
<b>ECTS Credits allocated for the Course Unit</b>			<b>2</b>	

## ENGLISH LANGUAGE Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
NTU101	English Language	2	2	2	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. Younis Anas Younis
Instructor(s) of the Course Unit	Dr. Younis Anas Younis

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	Introduce the student to general English through reading, writing, listening, and speaking.
<b>Contents of the Course Unit:</b>	Grammar, Vocabulary, Reading, Speaking, Listening, and Everyday English

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	<b>Grammar:</b> Tenses, Questions, Questions words <b>Vocabulary:</b> Using a bilingual dictionary, Parts of speech, and Words with more than one meaning. <b>Everyday English:</b> Social expressions.
2	<b>Reading:</b> the many ways we communicate <b>Speaking:</b> Information gap <b>Listening:</b> Neighbors
3	<b>Grammar:</b> Present tenses: Present Simple, Present Continuous, have/have got <b>Vocabulary:</b> Describing countries, Collocation <b>Everyday English:</b> Making conversation
4	<b>Reading:</b> three people talk about their experiences <b>Speaking:</b> people's lifestyles <b>Listening:</b> what annoys you about the people in your life?
5	<b>Grammar:</b> Past tenses: Past Simple, Past Continuous <b>Vocabulary:</b> Irregular verbs, making connections, Nouns, verbs, and adjectives, Making negatives. <b>Everyday English:</b> Time expressions
6	<b>Reading:</b> Newspaper stories <b>Speaking:</b> Telling stories <b>Listening:</b> A radio drama
7	<b>Grammar:</b> Quantity, Articles <b>Vocabulary:</b> Buying things <b>Everyday English:</b> Prices and shopping
8	<b>Reading:</b> 'The best shopping street in the world' <b>Speaking:</b> Town survey, attitudes to shopping <b>Listening:</b> Buying things
9	<b>Grammar:</b> Verb patterns 1, Future intentions <b>Vocabulary:</b> Hot verbs <b>Everyday English:</b> How do you feel?
10	<b>Reading:</b> Hollywood kids <b>Speaking:</b> Being a teenager <b>Listening:</b> You've got a friend
11	<b>Grammar:</b> Comparative and superlative adjectives <b>Vocabulary:</b> Synonyms and antonyms <b>Everyday English:</b> Directions
12	<b>Reading:</b> 'A Tale of two millionaires' <b>Speaking:</b> comparing cities <b>Listening:</b> Living in another country
13	<b>Grammar:</b> Present Perfect and Past Simple <b>Vocabulary:</b> Past participles, Adverbs, Word pairs <b>Everyday English:</b> Short answers
14	<b>Reading:</b> Celebrity interview <b>Speaking:</b> Roleplay <b>Listening:</b> An interview with the band

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT :</b>		<b>NTU101 ENGLISH LANGUAGE</b>	
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>			
<b>TYPE OF THE LEARNING ACTIVITIES</b>	<b>LEARNING ACTIVITIES (# OF WEEK)</b>	<b>DURATION (HOURS, H)</b>	<b>WORKLOAD (H)</b>
<b>Lecture &amp; In-Class Activities</b>	14	2	28
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	2	1	2
<b>Laboratory</b>	NA	NA	NA
<b>Reading</b>	NA	NA	NA
<b>Assignment (Homework)</b>	2	1	2
<b>Project Work</b>	NA	NA	NA
<b>Seminar</b>	2	1	2
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	1	1	1
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	2	1	2
<b>Final Exam</b>	1	3	3
<b>Preparation for the Final Exam</b>	1	3	3
<b>Mid-Term Exam</b>	1	2	2
<b>Preparation for the Mid-Term Exam</b>	1	2	2
<b>Short Exam (Quizzes)</b>	2	0.5	1
<b>Preparation for the Short Exam</b>	2	1	2
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>31</b>	<b>18.5</b>	<b>50</b>
<b>Workload (h) / 25</b>			<b>50÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>2</b>

## MATHEMATICS Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
TECCAI100	Mathematics	1	3	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	Ayhan Ahmed Khaleel
Instructor(s) of the Course Unit	Ayhan Ahmed Khaleel

<b>OBJECTIVES AND CONTENTS</b>	Help the student to understand the laws and issues necessary for the purpose of solving simple and complex electrical circuits.
<b>Objectives of the Course Unit:</b>	To learn the
<b>Contents of the Course Unit:</b>	1- Matrix and Determinants 2- Review of Functions 3- Derivatives 4- Integration

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	Matrix, properties, and operations
2	Determinants and properties of determinants Inverse of square matrix by determinants
3	Solving linear System equations using the inverse of the coefficient matrix and Cramer's rule
4	Algebraic functions
5	Review of natural logarithm, the exponential function, trigonometric functions
6	inverse trigonometric functions and hyperbolic functions
7	Derivatives formula and chain rule.
8	Derivatives of natural logarithm, the exponential function, trigonometric functions
9	inverse trigonometric functions and hyperbolic functions.
10	Applications of differentiation.
11	Review of Integration, Indefinite and Definite Integral
12	Integration method
13	Integration method
14	Applications of integration, approximation(trapezoidal rule, Simpson's rule ) Area between curves
15	<b>Final Exam</b>

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT :</b>		<b>TECCAI100</b>	<b>MATHEMATICS</b>
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>			
<b>TYPE OF THE LEARNING ACTIVITIES</b>	<b>LEARNING ACTIVITIES (# OF WEEK)</b>	<b>DURATION (HOURS, H)</b>	<b>WORKLOAD (H)</b>
<b>Lecture &amp; In-Class Activities</b>	15	3	45
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	NA	NA	NA
<b>Reading</b>	NA	NA	NA
<b>Assignment (Homework)</b>	13	1	13
<b>Project Work</b>	NA	NA	NA
<b>Seminar</b>	NA	NA	NA
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	5	2	10
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	NA	NA	NA
<b>Final Exam</b>	1	3	3
<b>Preparation for the Final Exam</b>	1	20	20
<b>Mid-Term Exam</b>	1	2	2
<b>Preparation for the Mid-Term Exam</b>	1	16	16
<b>Short Exam (Quizzes)</b>	8	0.5	4
<b>Preparation for the Short Exam</b>	8	1.5	12
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>53</b>	<b>49</b>	<b>125</b>
<b>Workload (h) / 25</b>			<b>125÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>5</b>

## DIGITAL CIRCUITS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
<b>CTE104</b>	<b>Digital Circuits</b>	2	4	3	6

### GENERAL INFORMATION

Language of Instruction:	<b>English</b>
Level of the Course Unit:	<b>Bachelor's Degree</b>
Type of the Course:	<b>Compulsory</b>
Mode of Delivery of the Course Unit	<b>Face to Face</b>
Coordinator of the Course Unit	<b>Khalis A. Mohammed</b>
Instructor(s) of the Course Unit	<b>Khalis A. Mohammed</b>

### OBJECTIVES AND CONTENTS

<b>Objectives of the Course Unit:</b>	<ul style="list-style-type: none"> <li>To learn the basic techniques and methodologies for designing and analyzing digital circuits such as Adder – subtractor circuits.</li> <li>To learn the Decoder and Encoder circuits.</li> <li>To learn the Comparator, Multiplexer and Demultiplexer circuits.</li> <li>To learn and analysis sequential circuits such as flip-flop circuits and Registers.</li> <li>To learn the types of counters.</li> </ul>
<b>Contents of the Course Unit:</b>	1 – Functions of Combinational Logic. 2 – Latches, Flip-Flops, and Timers. 3 – Counters 4 – Shift Registers

Week	<b>KEY LEARNING OUTCOMES OF THE COURSE UNIT</b> On successful completion of this course unit, students/learners will or will be able to dealing with:
1	<b>1- Functions of Combinational Logic.</b> Basic Adders; Half and Full Adders.
2	<b>1- Functions of Combinational Logic.</b> Basic Subtractors; Half and Full Subtractors.
3	<b>1- Functions of Combinational Logic.</b> Parallel Binary Adders and Subtractors. 1's, 2's Complement Subtractors, 2's Complement Adder-Subtractor, BCD Adder, etc.
4	<b>1- Functions of Combinational Logic.</b> Comparators, Code converters.
5	<b>1- Functions of Combinational Logic.</b> Decoders, Encoders.
6	<b>1- Functions of Combinational Logic.</b> Multiplexers (Data Selectors), Demultiplexer.
7	<b>2- Latches, Flip-Flops, and Timers.</b> Latches
8	<b>2- Latches, Flip-Flops, and Timers.</b> Edge-Triggered Flip-Flops.
9	<b>2- Latches, Flip-Flops, and Timers.</b> Flip-Flop operating ( R-S, T, J-K, D)
10	<b>3- Counters</b> Synchronous Counters.
11	<b>3- Counters</b> Asynchronous Counters.
12	<b>3- Counters</b> Design of Counters.
13	<b>4- Shift Registers</b> Basic Operations, Serial In/Serial out Shift Registers, Serial In/Parallel out Shift Registers.
14	<b>4- Shift Registers</b> Parallel In/Serial Out Shift Registers, Parallel In/parallel Out Shift Registers, Bidirectional Shift Registers.
15	<b>Final Exam.</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Half Binary Adder
2	<b>Lab 2:</b> Full Binary Adder
3	<b>Lab 3:</b> Half Binary Subtractor
4	<b>Lab 4:</b> Full Binary Subtractor
5	<b>Lab 5:</b> 2's Complement Adder-Subtractor
6	<b>Lab 6:</b> Binary Comparator
7	<b>Lab 7:</b> Digital Multiplexer
8	<b>Lab 8:</b> DeMultiplexer.
9	<b>Lab 9:</b> Decoders
10	<b>Lab 10:</b> Encoders
11	<b>Lab 11:</b> D Flip-Flop
12	<b>Lab 12:</b> JK- Flip-Flop
13	<b>Lab 13:</b> T- Flip-Flop
14	<b>Lab 14:</b> Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		CTE104 DIGITAL CIRCUITS	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
<b>Lecture &amp; In-Class Activities</b>	<b>15</b>	<b>2</b>	<b>30</b>
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	<b>14</b>	<b>2</b>	<b>28</b>
<b>Reading</b>	6	1	6
<b>Assignment (Homework)</b>	3	2	6
<b>Project Work</b>	3	4	12
<b>Seminar</b>	<b>3</b>	<b>1</b>	<b>3</b>
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	NA	NA	NA
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	6	3	18
<b>Final Exam</b>	<b>1</b>	<b>3</b>	<b>3</b>
<b>Preparation for the Final Exam</b>	1	20	20
<b>Mid-Term Exam</b>	1		
<b>Preparation for the Mid-Term Exam</b>	1	12	12
<b>Short Exam (Quizzes)</b>	3	2	2
<b>Preparation for the Short Exam</b>	3	3	10
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>50</b>	<b>55</b>	<b>150</b>
<b>Workload (h) / 25</b>			<b>150÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>6</b>

## ENGINEERING MATHEMATICS Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE105	Engineering Mathematics	2	3	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	Ayhan Ahmed Khaleel
Instructor(s) of the Course Unit	Ayhan Ahmed Khaleel

<b>OBJECTIVES AND CONTENTS</b>	introduce students to mathematics through the laws and issues necessary for the purpose of assisting them in their studies in their field of specialization.
<b>Objectives of the Course Unit:</b>	To learn the
<b>Contents of the Course Unit:</b>	1- Complex numbers 2- Multivariable functions and partial derivatives 3- Vector and analytic geometry in space 4- Vector valued functions 5- Multiple Integrals

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	Complex numbers in Cartesian coordinates and polar form
2	linear algebra for complex number in polar and Cartesian Euler's formula.
3	DeMoivre's theorem to find powers and the nth roots of given complex numbers
4	Functions of several variables
5	Partial differentiation and the chain rule
6	Functions of a complex variable, Cauchy-Riemann equations
7	Cartesian coordinates and vectors in space, Dot product and Cross product
8	Lines and planes in space, Tangent and normal in the plane
9	The two-dimensional Coordinate system, The three dimensional Coordinate .
10	Directional derivatives, Gradient vectors
11	Divergence, curl and the laplacian
12	Double Integral in rectangular and polar form, Areas and volumes
13	Triple integrals in rectangular coordinates
14	Applications (Surface Area, Green's theorem and Stokes' theorem)
15	<b>Final Exam</b>

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT : CTE105 ENGINEERING MATHEMATICS</b>			
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>			
<b>TYPE OF THE LEARNING ACTIVITIES</b>	<b>LEARNING ACTIVITIES (# OF WEEK)</b>	<b>DURATION (HOURS, H)</b>	<b>WORKLOAD (H)</b>
<b>Lecture &amp; In-Class Activities</b>	15	3	45
<b>Tutorial</b>	<b>13</b>	<b>1</b>	<b>13</b>
<b>Preliminary &amp; Further Study</b>	5	3	15
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	NA	NA	NA
<b>Reading</b>	NA	NA	NA
<b>Assignment (Homework)</b>	8	1	8
<b>Project Work</b>	NA	NA	NA
<b>Seminar</b>	NA	NA	NA
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	NA	NA	NA
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	NA	NA	NA
<b>Final Exam</b>	1	3	3
<b>Preparation for the Final Exam</b>	1	18	18
<b>Mid-Term Exam</b>	1	2	2
<b>Preparation for the Mid-Term Exam</b>	1	11	11
<b>Short Exam (Quizzes)</b>	4		
<b>Preparation for the Short Exam</b>	4	2.5	10
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>53</b>	<b>41.5</b>	<b>125</b>
<b>Workload (h) / 25</b>			<b>125÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>5</b>

## ELECTRICAL CIRCUITS Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
<b>CTE106</b>	<b>Electrical Circuits</b>	2	2+2	3	6

GENERAL INFORMATION	
Language of Instruction:	<b>English</b>
Level of the Course Unit:	<b>Bachelor's Degree</b>
Type of the Course:	<b>Compulsory</b>
Mode of Delivery of the Course Unit	<b>Face to Face</b>
Coordinator of the Course Unit	<b>Dr. Maysaloon A. Qasim</b>
Instructor(s) of the Course Unit	<b>Dr. Maysaloon A. Qasim</b>

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	<ul style="list-style-type: none"> <li>To teach the fundamental concept of AC &amp; 3-phase electrical circuits.</li> <li>To teach fundamentals of Electric Circuits, their components and the mathematical Tools used to represent and analyze AC electrical circuits including resistors, capacitors, and inductors, dependent and independent sources.</li> </ul>
<b>Contents of the Course Unit:</b>	1 – Inductance & Capacitance in Electric circuits. 2 – Alternating Quantities. 3 – Single-phase AC Circuits. 4 – Power in AC Circuits. 5- Three-Phase Circuit Analysis.

We ek	<b>KEY LEARNING OUTCOMES OF THE COURSE UNIT</b> On successful completion of this course unit, students/learners will or will be able to dealing with:
1	<b>1- Inductance &amp; Capacitance in Electric circuits.</b> 1-General concept of capacitance (charge and voltage, capacitors in series and parallel) 2- General concept of inductance (inductive and non-inductive circuits, capacitors in series and parallel)
2	<b>2- Alternating Quantities.</b> Ac systems, waveforms, terms and definitions.
3	<b>2- Alternating Quantities.</b> Average and R.M.S values of current and voltage.
4	<b>2- Alternating Quantities.</b> Phasor diagram
5	<b>3- Single - phase of AC Circuits.</b> AC in resistive circuits , current and voltage in inductive circuits, current and voltage in capacitive circuits.
6	<b>3- Single - phase of AC Circuits.</b> Concept of complex impedance and admittance , AC series and parallel circuits .
7	<b>3- Single - phase of AC Circuits.</b> RL , RC and RLC circuit analysis and phasor representation.
8	<b>4- Power in AC circuits.</b> Power in resistive circuits ,power in inductive and capacitive circuits ,power in circuit with resistance and reactance.
9	<b>4- Power in AC circuits.</b> Power factor ,its practical importance , improvement of power factor , measurement of power in a single – phase AC circuits.
10	<b>5- Three – phase circuit analysis.</b> Basic concept and advantages of three – phase circuit.
11	<b>5- Three – phase circuit analysis.</b> Phasor representation of star and delta connection.
12	<b>5- Three – phase circuit analysis.</b> Phase and line quantities.
13	<b>5- Three – phase circuit analysis.</b> Voltage and current computation in 3-phase balance and unbalance circuits.
14	<b>5- Three – phase circuit analysis.</b> Real and Reactive power computation , measurement of power and power factor in 3-phase system.
15	<b>Final Exam.</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Measurement amplitude, frequency and time with oscilloscope using hardware and digital simulation.
	<b>Lab 2:</b> Examine phase relation in RL & RC circuit using hardware and digital simulation.
2	<b>Lab 3:</b> Calculate & verify average and RMS value,
3	<b>Lab 4:</b> Impedance of series RL and RC circuit using digital simulation..
4	<b>Lab 5:</b> Impedance of series RLC circuit using digital simulation..
5	<b>Lab 6:</b> Determination of average value, RMS value, form factor, peak factor of sinusoidal wave using digital simulation.
6	<b>Lab 7:</b> Measure currents and voltages in three-phase balanced AC circuits
7	<b>Lab 8:</b> Prove Y- $\Delta$ transformation, <b>Lab 9:</b> Exercise on phasor diagrams for three-phase circuits
8	<b>Lab 10:</b> Measurement of voltage, current & power in a three-phase circuit
9	<b>Lab 11:</b> Ohm's LAW, KVL AND KCL in AC circuits using digital simulation..
10	<b>Lab 12:</b> Determination of mesh currents in AC circuits using digital simulation.
11	<b>Lab 13:</b> Measurement of nodal voltages in AC circuits using digital simulation.
14	<b>Lab 14:</b> Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		CTE106 ELECTRICAL CIRCUITS	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
<b>Lecture &amp; In-Class Activities</b>	<b>15</b>	<b>2</b>	<b>30</b>
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	<b>14</b>	<b>2</b>	<b>28</b>
<b>Reading</b>	6	1	6
<b>Assignment (Homework)</b>	3	2	6
<b>Project Work</b>	3	4	12
<b>Seminar</b>	<b>3</b>	<b>1</b>	<b>3</b>
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	NA	NA	NA
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	6	3	18
<b>Final Exam</b>	<b>1</b>	<b>3</b>	<b>3</b>
<b>Preparation for the Final Exam</b>	1	20	20
<b>Mid-Term Exam</b>	1		
<b>Preparation for the Mid-Term Exam</b>	1	12	12
<b>Short Exam (Quizzes)</b>	3	2	2
<b>Preparation for the Short Exam</b>	3	3	10
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>50</b>	<b>55</b>	<b>150</b>
<b>Workload (h) / 25</b>			<b>150÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>6</b>

## ELECTRONIC WORKSHOP Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
CTE107	Electronic Workshop	2	2	1	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	Dr. Thabat F. Thabet
Instructor(s) of the Course Unit	Dr. Thabat F. Thabet

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	<ul style="list-style-type: none"> <li>• To learn the basics of electrical elements (Symbols and Abbreviations, Units).</li> <li>• To learn how to use measurement devices for DC and AC</li> <li>• How to measure electrical elements by using measurement devices</li> <li>• To learn the basics of electronic devices</li> <li>• How to test electronic devices by using measurement devices</li> <li>• How to use Oscilloscope (CRO)</li> <li>• How to use Function Generator</li> </ul>
<b>Contents of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1 - Electrical elements (Resistors, Capacitors)</li> <li>2 - Measurement devices (AVO-meters).</li> <li>3 - How to measure Direct Current DC and Alternative current AC.</li> <li>3 - Electronic Devices (Diodes and Transistors)</li> <li>4 - Oscilloscope (CRO)</li> <li>5 - Function Generator</li> </ol>

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:
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No.	PRACTICAL PART
1	<b>Lab 1:</b> Basic information
2	<b>Lab 2:</b> Color of resistance
3	<b>Lab 3:</b> Capacitors values
4	<b>Lab 4:</b> Measurement devices
5	<b>Lab 5:</b> How to measure resistors and capacitors values
6	<b>Lab 6:</b> How to measure DC and AC values
7	<b>Lab 7:</b> Diodes
8	<b>Lab 8:</b> Transistors.
9	<b>Lab 9:</b> Operating of Oscilloscope (CRO)
10	<b>Lab 10:</b> Function Generator
11	<b>Lab 11:</b> DC circuit
12	<b>Lab 12:</b> AC circuit
13	<b>Lab 13:</b> Electric circuit schematic diagram
14	<b>Lab 14:</b> Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		CTE107 ELECTRONIC WORKSHIP	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
Lecture & In-Class Activities	NA	NA	NA
Preliminary & Further Study	1	2	2
Land Surveying	NA	NA	NA
Group Work	4	1	4
Laboratory	14	2	28
Reading	NA	NA	NA
Assignment (Homework)	4	1	4
Project Work	1	5	5
Seminar	NA	NA	NA
Internship	NA	NA	NA
Technical Visit	NA	NA	NA
Web Based Learning	2	1	2
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	4	3	12
Final Exam	NA	NA	NA
Preparation for the Final Exam	NA	NA	NA
Mid-Term Exam	NA	NA	NA
Preparation for the Mid-Term Exam	NA	NA	NA
Short Exam (Quizzes)	6		
Preparation for the Short Exam	6	3	18
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>42</b>	<b>18</b>	<b>75</b>
Workload (h) / 25			75÷25
<b>ECTS Credits allocated for the Course Unit</b>			<b>3</b>

## COMPUTER PRINCIPLES Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
NTU102	Computer Principles	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	A.L. Zaid A.Abdulrazzaq
Instructor(s) of the Course Unit	A.L. Zaid A.Abdulrazzaq

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	<ol style="list-style-type: none"> <li>1. Studying computer principles.</li> <li>2. Defining keyboards and mice.</li> <li>3. Presenting principles of memories.</li> <li>4. Explaining disc drives.</li> <li>5. Explaining principles of windows.</li> </ol>
<b>Contents of the Course Unit:</b>	<ul style="list-style-type: none"> <li>• Computer types of: digital, analogues and hybrid.</li> <li>• Different memory types of: RAM, ROM, PROM, EPROM and EEPROM.</li> <li>• Different drives types of: magnetic and optical.</li> </ul> <p>Windows facilities of: Notepad, Wordpad, Paint, Accessories and others.</p>

We ek	KEY LEARNING OUTCOMES OF THE COURSE UNIT
	<b>On successful completion of this course unit, students/learners will or will be able to dealing with:</b>
1	<b>Introducing to the Computer System Including: What is Computer? Computer System, Functions of Computer Input Storage Process &amp; Output, Classification of Computers and Computer Units</b>
2	<b>Explaining Types of Computer Keyboards and Types of Keyboard Keys</b>
3	<b>Explaining Types of Computer Keyboards and Types of Keyboard Keys</b>
4	<b>Explaining Types of Computer Keyboards and Types of Keyboard Keys</b>
5	<b>Explaining Types of Computer Mice and Mouse Functions</b>
6	<b>Explaining Different Plugs and Ports for Some Computer Parts</b>
7	<b>Illustrating Computer Discs and Drives</b>
8	<b>Illustrating RAM, Non-Volatile and Cache Memories</b>
9	<b>Demonstrating Computer Hardware Parts and Definitions</b>
10	<b>Demonstrating Computer Hardware Parts and Definitions</b>
11	<b>Demonstrating Computer Hardware Parts and Definitions</b>
12	<b>Presenting Windows, Windows Desktop and Windows Taskbar</b>
13	<b>Presenting Windows, Windows Desktop and Windows Taskbar</b>
14	<b>Illustrating Start Menu and Windows Accessories</b>
15	<b>Final Exam</b>

No.	PRACTICAL PART
1	Lab 1: Computer System
2	Lab 2: Input and Output Storage
3	Lab 3: Types of Computer Keyboards
4	Lab 4: Types of Keyboard Keys
5	Lab 5: Computer Mice and Mouse Functions
6	Lab 6: Different Plugs and Ports for Some Computer Parts
7	Lab 7: Computer Discs and Drives
8	Lab 8: RAM, Non-Volatile and Cache Memories
9	Lab 9: Windows Desktop
10	Lab 10: Windows Taskbar
11	Lab 11: Windows Taskbar
12	Lab 12: Start Menu
13	Lab 13: Windows Accessories
14	Lab 14: Exam

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		NTU102 COMPUTER PRINCIPLES	
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	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-Term Exam	1	2	2
Short Exam (Quizzes)	2	1	
Preparation for the Short Exam	2	1	
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>44</b>	<b>16</b>	<b>75</b>
Workload (h) / 25			75÷25
<b>ECTS Credits allocated for the Course Unit</b>			<b>3</b>

## ARABIC LANGUAGE Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
NTU103	Arabic Language	2	2	2	2

GENERAL INFORMATION	
Language of Instruction:	Arabic
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 .Eesha I. Mohammed
Instructor(s) of the Course Unit	Dr .Eesha I. Mohammed

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	<p style="text-align: center;"><b>أهداف مادة اللغة العربية :</b></p> <p>ينشأ الطالب على حب اللغة العربية لغة القرآن الكريم. التعرف على مواطن الجمال في اللغة العربية وآدابها، وأن يكتسب الطالب القدرة على دراسة فروع اللغة العربية. تعريف الطالب بألفاظ اللغة العربية الصحيحة وتراكيبها وأساليبها السليمة بطريقة مشوقة وجذابة. أن يستغل الطالب وقت فراغه بالقراءة والاطلاع والرجوع إلى المكتبة. تمكين الطالب من القراءة الصحيحة، وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتصال مع الآخرين؛ كالسرعة وجودة الإلقاء وحسن التعبير، وتعويد حسن الاستماع لما يسمع مما يبسر له أموره ويعينه على قضاء حوائجه. تنمية الذوق الأدبي لدى الطالب حتى يدرك النواحي الجمالية في أساليب الكلام ومعانيه وصوره. تعويد الطالب التعبيرات السليمة الواضحة عن أفكاره وما يقع تحت حواسه نطقاً وكتابة وحسن استخدام علامات الترقيم. تنمية قدرة ومهارة الطالب الإملائية والخطية بحيث يستطيع الكتابة الصحيحة من جميع النواحي. إيقاظ وعي الطالب لإدراك شرف الكلمة وتوجيهه؛ للمحافظة على طهارتها ونقاها حتى لا تستعمل إلا في الخير. مساعدة الطالب على فهم التراكيب المعقدة والأساليب الغامضة .</p>
<b>Contents of the Course Unit:</b>	<p style="text-align: center;"><b>ملخص المحتويات :</b></p> <p>تتلخص المحتويات على مواضيع تمنع الطالب من الوقوع في الاخطاء فضلا عن الكتابة بلغة سليمة.</p>

Week	KEY LEARNING OUTCOMES OF THE COURSE UNIT On successful completion of this course unit, students will be able to dealing with:
1	مقدمة عن الأخطاء اللغوية
2	التاء المربوطة والتاء المفتوحة
3	همزة الوصل والقطع
4	الهمزة المتوسطة والمتطرفة
5	قواعد كتابة الالف الممدودة والمقصورة
6	الحروف الشمسية والقمرية
7	الضاد والطاء
8	العدد
9	المفاعيل
10	أقسام الكلام
11	معاني حروف الجر
12	تطبيقات الأخطاء اللغوية الشائعة
13	النون والتنوين
14	مقدمة عن الأخطاء اللغوية
15	الامتحان النهائي

<b>WORKLOAD &amp; ECTS CREDITS OF THE COURSE UNIT :</b>		<b>NTU103</b>	<b>ARABIC LANGUAGE</b>
<b>WORKLOAD FOR LEARNING &amp; TEACHING ACTIVITIES</b>			
<b>TYPE OF THE LEARNING ACTIVITIES</b>	<b>LEARNING ACTIVITIES (# OF WEEK)</b>	<b>DURATION (HOURS, H)</b>	<b>WORKLOAD (H)</b>
<b>Lecture &amp; In-Class Activities</b>	<b>15</b>	<b>2</b>	<b>30</b>
<b>Preliminary &amp; Further Study</b>	NA	NA	NA
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	NA	NA	NA
<b>Reading</b>	<b>10</b>	<b>1</b>	<b>10</b>
<b>Assignment (Homework)</b>	NA	NA	NA
<b>Project Work</b>	NA	NA	NA
<b>Seminar</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	NA	NA	NA
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Final Exam</b>	<b>1</b>	<b>3</b>	<b>3</b>
<b>Preparation for the Final Exam</b>	<b>1</b>	<b>3</b>	<b>3</b>
<b>Mid-Term Exam</b>	<b>1</b>		
<b>Preparation for the Mid-Term Exam</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Short Exam (Quizzes)</b>	<b>1</b>		
<b>Preparation for the Short Exam</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>33</b>	<b>13</b>	<b>50</b>
<b>Workload (h) / 25</b>			<b>50÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>2</b>

## PROGRAMMING PRINCIPLES Programme Course Description

CODE	NAME OF THE COURSE UNIT	SEMESTER	IN-CLASS HOURS (T+P)	CREDIT	ECTS CREDIT
TECCAI101	Programming Principles	2	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	Najwan Z. Waisi
Instructor(s) of the Course Unit	Najwan Z. Waisi

OBJECTIVES AND CONTENTS	
<b>Objectives of the Course Unit:</b>	Introduce the students with computer programming techniques using C++ language, and how it can be used to solve problems related to their specialization.
<b>Contents of the Course Unit:</b>	To learn the 1- Introduction to C++. 2- Operators & Making Decisions 3- Looping & Arrays 4- Pointers & Functions.

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++ (Structure of a program)
2	Variables, Data Types, Declaration of variables, Scope of variables, Initialization of variables, Expressions and Basic Input/Output.
3	Operators (Assignment, Arithmetic operators, Compound assignment, Increase and decrease, Relational and equality operators, Conditional operator)
4	Making Decisions (if...else and switch).
5	Looping (while loop and for loop).
6	Bitwise Operators and Explicit type casting operator
7	Arrays (Single Dimensional arrays, Arrays as parameters)
8	Arrays (two Dimensional arrays, Arrays as parameters)
9	Character Sequences and String handling.
10	Structure
11	Pointers (Reference operator, dereference operator, Declaring variables of pointer types,)
12	Pointers and arrays, Pointers to pointers, void pointers and Pointers to functions
13	Functions (Local and global variables, Arguments passed by value and by reference, Default values in parameters)
14	Overloaded functions and Recursive functions.
15	<b>Final Exam</b>

No.	PRACTICAL PART
1	<b>Lab 1:</b> Introduction to C++ program using visual studio .
2	<b>Lab 2:</b> my first program and how solve a problem.
3	<b>Lab 3:</b> if...else and switch programs
4	<b>Lab 4:</b> while loop and for loop programs
5	<b>Lab 5:</b> Bitwise Operators programs
6	<b>Lab 6:</b> Single Dimensional arrays
7	<b>Lab 7:</b> two Dimensional arrays ..part1
8	<b>Lab 8:</b> two Dimensional arrays..part2
9	<b>Lab 9:</b> Character and String programs
10	<b>Lab 10:</b> how implement a Structure
11	<b>Lab 11:</b> Pointers and arrays
12	<b>Lab 12:</b> Functions..part1
13	<b>Lab 13:</b> Functions..part2
14	<b>Lab 14:</b> Review

WORKLOAD & ECTS CREDITS OF THE COURSE UNIT :		TECCAI101 PROGRAMMING PRINCIPLES	
WORKLOAD FOR LEARNING & TEACHING ACTIVITIES			
TYPE OF THE LEARNING ACTIVITIES	LEARNING ACTIVITIES (# OF WEEK)	DURATION (HOURS, H)	WORKLOAD (H)
<b>Lecture &amp; In-Class Activities</b>	<b>15</b>	<b>2</b>	<b>30</b>
<b>Preliminary &amp; Further Study</b>	2	2	4
<b>Land Surveying</b>	NA	NA	NA
<b>Group Work</b>	NA	NA	NA
<b>Laboratory</b>	<b>14</b>	<b>2</b>	<b>28</b>
<b>Reading</b>	NA	NA	NA
<b>Assignment (Homework)</b>	6	2	12
<b>Project Work</b>	1	2	2
<b>Seminar</b>	1	1	1
<b>Internship</b>	NA	NA	NA
<b>Technical Visit</b>	NA	NA	NA
<b>Web Based Learning</b>	4	2	8
<b>Implementation/Application/Practice</b>	NA	NA	NA
<b>Practice at a workplace</b>	NA	NA	NA
<b>Occupational Activity</b>	NA	NA	NA
<b>Social Activity</b>	NA	NA	NA
<b>Thesis Work</b>	NA	NA	NA
<b>Field Study</b>	NA	NA	NA
<b>Report Writing</b>	5	2	10
<b>Final Exam</b>	1	3	3
<b>Preparation for the Final Exam</b>	1	10	10
<b>Mid-Term Exam</b>	1	2	2
<b>Preparation for the Mid-Term Exam</b>	1	10	10
<b>Short Exam (Quizzes)</b>	5		
<b>Preparation for the Short Exam</b>	5	1	5
<b>TOTAL WORKLOAD OF THE COURSE UNIT</b>	<b>62</b>	<b>41</b>	<b>125</b>
<b>Workload (h) / 25</b>			<b>125÷25</b>
<b>ECTS Credits allocated for the Course Unit</b>			<b>5</b>