Academic Program Specification Form For The Academic

University: Middle Technical University
College: Electrical Engineering Technical College
Department: Medical Instrumentation Techniques Engineering
Date Of Form Completion : 16/08/2022

Dean's Name

Date : 12 / 10 / 2022
Prof. Dr. Adel A. Obed
Signature

Dean's Assistant For Scientific Affairs

Date : / /
Signature

Head of Department
Date : 16 / 08 / 2022
Name: Sadik Kamel Gharghan
Signature

Quality Assurance And University Performance Manager
Date : 1/9 / 2022
Signature
L.T. Ahmed
Dr. Loay Talib Ahmed

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Programme Title	Medical Instrumentation Techniques Engineering
4. Title of Final Award	Bachelor technique in medical instrumentation techniques engineering
5. Modes of Attendance offered	Weekly (practical + theoretical)
6. Accreditation	ABET
7. Other external influences	There is a close relationship in the labor market that receives our graduates, where the view of the labor market is taken into the educational subjects as well as consideration of the educational subjects in the scientific universities.
8. Date of production/revision of this specification	16/08/2022
9. Aims of the Program	
1- Prepare of application engineers in the field of electrical and electronic technique engineering.	
2- Graduate Students able to know all parts of different medical instrumentations, and they can follow its developments.	

3- Training and development of the the technical enginerring for operation and maintenance of the medical instrumentations.
4- Prepare researches and studies to improve and develop the operation of the medical instrumentations.
5- The students can acquire practical skills that enable them to diagnose the faults in the medical instrumentations.
6- Introduce the suggestions for the alternatives of the medical instrumentations

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A1. Suggest plans and programs of work, especially maintenance of medical devices A2. Supervision of the work implementation A3. Preparation of research and studies to improve the development work of the medical instrumentation A4. Participation in committees related to the activity of medical instrumentations A5. Participate in the analysis of tenders for medical instrumentations and alternative selection
B. Subject-specific skills B1. Training of engineers and technicians on the operation and maintenance of medical instrumentations B2. Installation and operation of medical equipment (supervision and implementation) B3. Presenting the consultation in the field of medical devices B4. Finding alternatives and appropriate solutions
Teaching and Learning Methods
Attendance and online Lectures, Scientific laboratories, presentation (based on data show), Workshops, Seminars, and Scientific exhibitions
Assessment methods
Daily Evaluation, Quarterly Evaluation, Practical Evaluation, Final Evaluation, Progressive Presentation, Daily Attendance, and Weekly Reports
C. Thinking Skills C1. The student presents a scientific projects in the design of circuits for medical devices C2. The student designs an electronic board C3. The student develops plans and ideas for the future, which suits the needs

in the field of medical devices C4. Provides ideas on how to maintain medical Instrumentation
Teaching and Learning Methods
Attendance and online lectures, Scientific laboratories, presentation (based on data show), Workshops, Seminars, and Scientific exhibitions
Assessment methods
Daily Evaluation, Quarterly Evaluation, Practical Evaluation, Final Evaluation, Progressive Presentation, Daily Attendance, and Weekly Reports

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. The graduate can acquire a scientific and applied skills that enable him to diagnose the fault in medical devices D2. The graduate have ability to design and implementation an electronic boards in medical device D3. The graduate able to train technical personnel in the field of medical devices D4. Design of alternative electronic circuits
Teaching and Learning Methods
Attendance and online lectures, Role playing, Brainstorming, Scientific labs, presentation (based on data show), Workshops, Seminars, and Scientific exhibitions
Assessment Methods
Daily Evaluation, Quarterly Evaluation, Practical Evaluation, Final Evaluation, Progressive Presentation, Daily Attendance, and Weekly Reports

11. Program Structure			Credit rating
Level/Year	Course or Module Code	Course or Module Title + units	
1st year		Democracy and Human rights, 4 Mathematics (I), 6 Engineering Drawing, 3 Fundamental of Electrical Engineering, 7 Medical Chemistry, 6 Medical Physics, 6 Mechanics, 4 Computer Applications, 6 Arabic Language, 2 English, 2 Workshops 3	Bachelor Degree Requires (x) credits
2nd year		Mathematics(II), 6 Anatomy & Physiology, 6 Clinical chemistry – Instrumentation & Technology, 6 Electronic Devices & circuits, 7 Digital Techniques, 6 Measurements & medical Transducers, 7 Medical Instrumentation (I), 7 Computer Applications , 4 English , 2 Training -	
3rd year		Medical electronic system, 6 Signal processing, 6 Medical Communication system, 6 Medical Instrumentation (II), 7 Microprocessor & Microcomputer 6 ,Power Electronics, 6 Electrical Technology, 6 Computer Applications 4 English , 2 Training -	
4th year		Medical Instrumentation (III), 7 Control system, 6 Engineering of Radiation Instruments, 6 Medical Laser system, 6 Selective (Advanced logic design), 6 Management, 4 Computer Applications, 4 English , 2 Project 4	

13. Personal Development Planning

Be outside the scope of the study plan
Scientific trips and visit the hospitals and health centers

14. Admission criteria .

- Graduates of the secondary schools, scientific branch (biological + applied)
- Graduates of the first technical institutes (Department of Medical Instrumentation Techniques). Top students only.
- Graduates of industry high school (Department of Medical Instrumentation). Top students only.

15. Key sources of information about the program

Library / Internet / Websites / Virtual Library

Curriculum Skills Map																			
please tick in the relevant boxes where individual Program Learning Outcomes are being assessed																			
				Program Learning Outcomes															
Year / Level	Course Code	Course Title	Core (C) Title or Option(O)	General and Transferable Skills (or) Other skills relevant to employability and personal development				Thinking Skills				Subject-specific skills				Knowledge and understanding			
				D4	D3	D2	D1	C4	C3	C2	C1	B4	B3	B2	B1	A4	A3	A2	A1
1st		Democracy and Human Rights		/			/		/	/	/		/	/			/		/
		Mathematics (I)			/	/		/	/	/			/	/	/		/	/	/
		Engineering Drawing		/	/		/	/		/	/			/		/	/		
		Workshops		/		/	/	/	/			/	/	/	/		/	/	
		Electrical Engineering			/	/	/		/	/	/	/	/	/	/	/		/	/
		Medical chemistry		/		/	/	/	/	/		/	/	/			/	/	/
		Medical Physics			/	/	/	/		/	/			/		/	/	/	
		Mechanics		/		/			/		/			/	/	/	/		/
		English							/										
		Arabic			/	/		/		/			/	/	/		/	/	/

2nd		**Computer Applications**		/			/		/	/	/		/	/			/		/
		Mathematics (II)			/	/		/	/	/		/	/	/		/	/	/

		Clinical chemistry – instrumentations & technology		/	/		/	/			/	/		/			/	/	
		Instrumentation and Measurements		/		/	/	/	/		/	/	/	/			/	/	
		Computer Programming (II)			/	/	/		/	/	/	/	/	/	/			/	/
		Digital techniques		/		/	/	/	/	/		/		/			/	/	/
		Electronic device			/	/	/	/	/		/	/	/			/		/	
		Training		/			/		/		/		/	/	/		/		/
		Medical instrumentation I	/		/	/	/		/	/	/	/	/	/	/		/		/
		Medical Electronic Systems		/		/	/	/	/			/	/	/	/		/	/	
		Medical communication system			/	/	/		/	/	/	/	/	/	/			/	/

Year	Course																					
3rd	**Medical instrumentation ii**	/	/		/	/	/	/	/	/		/	/	/	/	/			/	/	/	
	Power Electronics		/	/	/	/	/		/	/	/			/		/						
	Electrical technology	/		/		/		/		/	/	/			/					/	
	Digital Signal	/			/		/	/	/		/	/			/	/	/				
	Computer applications		/	/		/	/	/			/	/	/		/	/	/				
	Microprocessor & microcontroller	/	/		/	/			/	/			/	/							
	Training	/		/	/	/	/			/	/	/	/		/	/					
	English		/	/		/	/	/			/	/	/		/	/	/				
	English		/	/		/	/	/		/	/	/		/	/	/					
4th	**Medical instrumentations iii**	/	/		/	/	/	/	/	/			/	/	/	/			/		
	Advance logic design	/			/	/	/	/			/	/	/	/		/	/				
	Computer Interface Circuits Design		/	/	/		/	/	/	/	/	/	/	/			/	/			
	Control system	/			/	/	/	/		/	/	/			/	/	/				
	Project Management		/	/	/	/	/		/	/	/			/		/					
	Computer applications	/			/		/		/			/	/	/	/		/				
	Medical laser system	/			/		/	/	/		/	/			/			/			
	Engineering of radiation	/			/	/	/	/	/	/	/			/		/			/		

	instruments																			
	Project			/	/			/	/	/			/	/	/			/	/	/
	English			/	/			/	/	/		/		/	/			/	/	/

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Middle Technical University
2. University Department/Centre	Electrical engineering collage
3. Course title/code	Fundamental of electrical engineering
4. Programme(s) to which it contributes	Department of medical engineering techniques
5. Modes of Attendance offered	yearly
6. Semester/Year	year
7. Number of hours tuition (total)	150 hr(60theortical+ 90 practical)
8. Date of production/revision of this specification	7/8/2022
9. Aims of the Course	
1.Preparation of engineers applied in the field of engineering, electrical and electronic technology	
2. Graduation of the request to be able to know the parts of different medical devices and the evolution of what happens in the techniques	
3.Manages the networks of engineering and technical to operate and maintain medical devices	
4. Prepare research and studies to improve and develop medical services	

5.Askab demand scientific skill and diagnosis of the faults in medical devices
6. Develop proposals and alternatives for medical devices

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Knowledge and Understanding

A1. 1- Develop plans and programs of work especially in the maintenance of medical equipment

A2.2 - Supervising the site on the implementation of the work

A3.3 - Preparation of research and studies to improve the development of the work of medical devices

A4. A4 - Participation in committees related to the activity of medical devices

A5. A5 - Participate in the analysis of tenders for medical devices and alternative selection

B. Subject-specific skills

B1. Training of engineers and technicians on the operation and maintenance of medical devices

B2 - Installation and operation of medical devices (supervision and implementation)

B 3- Provide consultation in the field of medical devices

Teaching and Learning Methods

Lectures - scientific laboratory- data show - summer training- workshops- seminars Scientific trade shows.

Assessment methods

Daily evaluations- quarterly evaluations- finally evaluations- practical evaluations- presentation evaluations- attend daily- weekly reports

C. Thinking Skills

C1. Submit scientific projects in the design of circuits for medical devices

C2 - designed electronic board

C3 - sets plans and ideas for the future, which is appropriate to the needs in the field of medical devices

Teaching and Learning Methods

Lectures - scientific laboratory- data show - summer training- workshops- seminars
Scientific trade shows.

Assessment methods
Daily evaluations- quarterly evaluations- finally evaluations- practical evaluations- presentation evaluations- attend daily- weekly reports

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1.The graduate provides scientific and applied skills that enable him to diagnose the resulting malfunctions in medical devices

D 2- the ability of the graduate to work electronic boards in the medical devices

D 3- the ability of the graduate to train technical personnel in the field of medical devices

D4 - Design of alternative electronic circuits

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st ,	2th 3 pr	The student understands the lesson	*Symbols and abbreviations, units, classification of power sources*	Theoretical lecture	Weekly test
2nd	2th 3 pr	understands the lesson	*voltage division rule ,parallel circuit and current division rule*	lecture	test
3rd	2th 3 pr	understands the lesson	*current circuit(KVL-KCL)*	lecture	Weekly test
4th ,	2th 3 pr	understands the lesson	*conversion of resistive circuit .*	lecture	test
5th	2th 3 pr	*Power sources connections and power sources conversion* understands the lesson	*connections and power sources conversion*	lecture	Weekly test
6th , 7th ,8 th	2th 3 pr	understands the lesson	*DC circuit analysis methods*	lecture	test
9th,10th, 11th	2th 3 pr	*DC circuit analysis theorems* understands the lesson	*theorems*	lecture	Weekly test
, 12th	2th 3 pr	understands the lesson	*circuit*	lecture	test
13th	2th 3 pr	understands the lesson	*circuit*	lecture	Weekly test
, 14th,	2th 3 pr	understands the lesson	*alternating currents and waveforms*	lecture	test
15th	2th 3 pr	understands the lesson	*effective values of current and voltage*	lecture	Weekly test
16th ,	2th 3 pr	understands the lesson	*diagram*	lecture	test
17 th	2th 3 pr	understands the lesson	*RLC circuit.*	lecture	Weekly test
18 th	2th 3 pr	*Series-par*	*Series-parallel RLC circuit allel RLC circu*		

				lecture	test
19th		The student understands the lesson	*. RLCΔ-Y and Y-Δ conversion of resistive circuit*	Theoretical lecture	Pretest –post test
20th,21,22	2th 3 pr	understands the lesson	*analysis methods*	lecture	
23th,24th,25th		understands the lesson	*theorems*	lecture	Pret
26th	2th 3 pr	The student understands the lesson	*The instantaneous power and mean power of AC, relative and apparent power*	Theoretical lecture	Pretest –post test
27th ,28th	2th 3 pr	The student understands the lesson	*3-phase system(Y and Δ connection)*	Theoretical lecture	Weekly test
29th ,30th	2th 3 pr	The student understands the lesson	*The power in balanced three phase circuit*	Theoretical lecture	Pretest –post test

12. Infrastructure	
Required reading: · Electronic Instrumentation and Measurement Techniques. W.D.Cooper& A.D. Helfrick Electronic Measurement and Instrumentation J.B.Gupta	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	development of laboratory measuring devices so as to enhance student understanding.

Minimum number of students	40
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of electrical Engineering Technique.
2. University Department/Center	Medical Instrument Department
3. Course title/code	Mathematics 1
4. Program(s) to which it contributes	
5. Modes of Attendance offered	Weakly / theoretical
6. Semester/Year	2023-2022
7. Number of hours tuition (total)	hour's 90
Date of production/revision of this .8 specification	9-8-2022

Aims of the Course: .9

1. Introduce the students to the essential concepts in Calculus which contribute in all field of Maths and its applications in engineering fields.
2Teach students the importance of maths

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Learning Outcomes, Teaching ,Learning and Assessment Methode ·10

A-   Knowledge and Understanding
B-   A1.Give students the ability to recognize general theories and principles in the subject through cognitive awareness.
C-   A2. Having a future plan to link the knowledge that the student has got to his daily   life.
D-   A 3- Self-reliance in the achievement of mathematics
E-   A4- Practicing different types of mathematical proofs
F-
G-

   B. Subject-specific skills
     B1.Skills objectives of the course.
     B2. Thinking skill
     B3. Conclusion and evaluation skill
     B4. Analytical skill
     B5. Observational skill
     More about this source text

Teaching and Learning Methods

1 .
1.1.Providing students with the basics and additional topics related to the thinking outputs of calculus analysis
  2. Forming discussion groups during the lectures to discuss the topics of calculus and integration
  3. Ask students a set of thinking questions during the lectures such as what, how, when and why for specific topics
4. Giving students homework that requires subjective explanations in causal ways
5. The use of e-learning in teaching according to the available capabilities

Assessment methods

Theoretical semesters exams
Weakly exams
Quick exams. And after& before exams

   C. Thinking Skills
     C1. The student should make every effort to understand the mathematical principles
     C2. Supporting and expressing views and discussing seriously
     C3. That the student solves with self-confidence
     C4. The students are clam and cares about the system of the class   .

Teaching and Learning Methods

Discussions and speaks with the students

Assessment methods
A questionnaire, seminars, and discussion topics

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1.To take short tests to measure the extent of the student's level of understanding

Course Structure .11

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Introduce student to Limits and theory of derivative. Derivative of trigonometric function.	Limits and theory of derivative. Derivative of trigonometric function.	White board and Data show	**Home works, Daily, Monthly and final exams**
2	3	Introduce student to Chain rules, applications of the derivatives.	Chain rules, applications of the derivatives.	=	=
3	3	Introduce student to Derivatives of the inverse trigonometric function.	Derivatives of the inverse trigonometric function.	=	=
4	3	Introduce student to Exponential function and logarithmic function.	Exponential function and logarithmic function.	=	=
5	3	Introduce student to Plane analytical geometry, parabola & ellipse, hyperbola.	Plane analytical geometry, parabola & ellipse, hyperbola.	=	=

6	3	Continue on Plane analytical geometry, parabola & ellipse, hyperbola.	Plane analytical geometry, parabola & ellipse, hyperbola.	=	=
7	3	Introduce student to Polar coordinates.	Polar coordinates.	=	=
8	3	Introduce student to Theory of integrations.	Theory of integrations.	=	=
9	3	Introduce student to The definite and indefinite intregration	The definite and indefinite intregration	=	=
10	3	Introduce student to Integral of trigonometric and inverse of trigonometric function, integral of exponential a	Integral of trigonometric and inverse of trigonometric function, integral of exponential and logarithmic functions.	=	=
11	3	Continue on Integral of trigonometric and inverse of trigonometric function, integral of exponential and logarithmic functions.	Integral of trigonometric and inverse of trigonometric function, integral of exponential and logarithmic functions.	=	=
12	3	Continue on Integral of trigonometric and inverse of trigonometric function, integral of exponential and logarithmic functions.	Integral of trigonometric and inverse of trigonometric function, integral of exponential and logarithmic functions.	=	=
13	3	Introduce student to Transcendental functions, the trigonometric functions, and inverse trigonometric functions, derivatives of trigonometric and inverse functions, derivatives of the exponential and natural logarithms	Transcendental functions, the trigonometric functions, and inverse trigonometric functions, derivatives of trigonometric and inverse functions, derivatives of the exponential and natural	=	=

		functions.	logarithms functions.		
14	**3**	Introduce student to Transcendental functions, the trigonometric functions, and inverse trigonometric functions, derivatives of trigonometric and inverse functions, derivatives of the exponential and natural logarithms functions.	Transcendental functions, the trigonometric functions, and inverse trigonometric functions, derivatives of trigonometric and inverse functions, derivatives of the exponential and natural logarithms functions.	=	=
15	**3**	Introduce student to Transcendental functions, the trigonometric functions, and inverse trigonometric functions, derivatives of trigonometric and inverse functions, derivatives of the exponential and natural logarithms functions.	Transcendental functions, the trigonometric functions, and inverse trigonometric functions, derivatives of trigonometric and inverse functions, derivatives of the exponential and natural logarithms functions.	=	=
16	3	Introduce student to Hyperbolic and inverse hyperbolic functions with derivatives	Hyperbolic and inverse hyperbolic functions with derivatives	=	=
17	3	Introduce student to Method of integration and numerical integration application of the definite integral.	Method of integration and numerical integration application of the definite integral.	=	=
18	3	Introduce student to Area of surface.	Area of surface.	=	=
19	3	Introduce student to Volume of revolution.	Volume of revolution.	=	=
20	3	Introduce student to Length of plane curve.	Length of plane curve.	=	=

21	3	Introduce student to Determinants, Properties of determinants, solution of	Determinants, Properties of determinants, solution of	=	=
22	3	Introduce student to Linear equations by gramers's rule.	Linear equations by gramers's rule.	=	=
23	3	Introduce student to Linear equations by gramers's rule.	Linear equations by gramers's rule.	=	=
24	3	Continue on Linear equations by gramers's rule.	Linear equations by gramers's rule.	=	=
25	3	Introduce student to Matrices, Inverse of matrix, solution of homogeneous matrices.	Matrices, Inverse of matrix, solution of homogeneous matrices.	=	=
26	3	Continue on Matrices, Inverse of matrix, solution of homogeneous matrices.	Matrices, Inverse of matrix, solution of homogeneous matrices.	=	=
27	3	Introduce student to Eigenvalues.	Eigenvalues.	=	=
28	3	Introduce student to Eigenvectors.	Eigenvectors.	=	=
29	3	Introduce student to Vectors analysis, dot products, cross products	Vectors analysis, dot products, cross products	=	=

Infrastructure .12

Required reading: · CORE TEXTS · COURSE MATERIALS OTHER ·	
Special requirements (include for example workshops, periodicals, IT software, websites)	

Community-based facilities (include for example, guest Lectures , internship , field (studies	

Admissions .13	
Pre-requisites	
Minimum number of students	40
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Device Technologies
3. Course title/code	English language
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (theoretical)
6. Semester/Year	2021-2022
7. Number of hours tuition (total)	30 Hr.(theoretical)
8. Date of production/revision of this specification	2022
9. Aims of the Course	
1-The student is acquainted with the basics of the English language for mastery in the future	
2-Understands the basic structures of English sentences	
3-Learns the basic vocabulary for any school stage	
4-Listens and understands simple words and sentences in English	

10· Learning Outcomes, Teaching ,Learning and Assessment Methods

B- Knowledge and Understanding
A1. Understands the meanings of synonyms in English
A2. Expresses himself orally using simple English
A3. Reads and understands words and phrases written in English
A4. Writes sentences and phrases in English
A5. He talks to his colleague in English
A6. They appreciate the importance of the English language as an international language of communication to benefit from the achievements of other cultures

B. Subject-specific skills
B1. Expresses ideas clearly and confidently in speech (verbal communication)
B2. Work confidently with group (Team work)
B3. Uses the steps of the method of collecting information in a systematic and scientific manner, especially within his competence
B4. Writes and analyzes findings on medical device techniques.

Teaching and Learning Methods

Theoretical lectures

Assessment methods

Daily / quarterly tests
Practical activities or public activities

C. Thinking Skills
C1 - To listen attentively to the student to explain the stadium
Student.
C2- To familiarize the student with the impact of the English language course on life
C3- The student should describe the importance of speaking, reading, listening and writing for expression in the English language
C4- That the student cares about calmness and the order of the class

Teaching and Learning Methods

Seminars - Educational guidance

Assessment methods

Discuss the stadium with the student - discuss the student with his colleague

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1 - Office skills outside the scientific subject
D2 - the student's ability to scientific research
D3 - the student's ability to speaking with another students.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1TH	The student understands the lesson	Introductions: Grammar, Vocabulary	Theoretical lecture	Pretest-post test
2-3	2TH	The student understands the lesson	Countries, Questions & answers	Theoretical lecture	Pretest-post test
4-5	2TH	The student understands the lesson	All about you: jobs, reading & listening	Theoretical lecture	Pretest-post test
6	1TH	The student understands the lesson	Family and Friends: reading & writing	Theoretical lecture	Pretest-post test
7-8	2TH	The student understands the lesson	The way I live: vocabulary & pronunciation	Theoretical lecture	Pretest-post test
9-10	2TH	The student understands the lesson	Every day: Present Simple	Theoretical lecture	Pretest-post test
11-12	2TH	The student understands the lesson	My favorites: WW Questions, prepositions & possessives	Theoretical lecture	Pretest-post test
13-14	2TH	The student understands the lesson	Rooms and Furniture & Times past	Theoretical lecture	Pretest-post test
15-16	2TH	The student understands the lesson	Past simple: regular and irregular	Theoretical lecture	Pretest-post test
17-18	2TH	The student understands the lesson	Making conversation, questions &negatives	Theoretical lecture	Pretest-post test
19-20	2TH	The student understands the lesson	Request & offers, adverb, adjective	Theoretical lecture	Pretest-post test
21-22-23	3TH	The student understands the lesson	Offering things: I'd like	Theoretical lecture	Pretest-post test
24-25	2TH	The student understands the lesson	Colors and clothes, present continuous &opposite verb	Theoretical lecture	Pretest-post test
26-27	2TH	The student understands the lesson	Future plans & grammar revision Grammar reference & word list	Theoretical lecture	Pretest-post test
28-29	2TH	The student understands the lesson	Improve your : writing skills, reading, spelling	Theoretical lecture	Pretest-post test
30	1TH	The student understands the lesson	Improve your: vocabulary, test, learning library	Theoretical lecture	Pretest-post test

12. Infrastructure

Required reading: New headway plus by: John and liz Soars

Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

TEMPLATE FOR COURSE SPECIFICATION

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Course title/code	**Engineering Drawing**
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (practical)
6. Semester/Year	2021-2022
7. Number of hours tuition (total)	practical (120 h)

8. Date of production/revision of this specification	9/8/2022

9. Aims of the Course
- Introducing the student to the importance of engineering tools and methods of use in the drawing of engineering landscapes and projections
- Training the student to read the electrical maps and the design of electrical maps containing electrical switches and integrated circuits and electric motors for buildings and laboratories.

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

C- Knowledge and Understanding
A1 - The student learns the basic concepts of engineering drawing
A2 - Recognizes how AutoCAD works and includes key elements such as menus, toolbars and command prompt
A3- Recognize the rules of the process of placing the dimensions on the drawings performed in the usual engineering drawing as well as the preparation and setting the dimensions on the drawings in AutoCAD
A4 - Identify the utilities provided by the AutoCAD program, which are the most widely used and useful for the field of engineering drawing
A5- The student explains the orthogonal projection in the usual geometry and the rules for the establishment of the three orthogonal projections of the stereogram and the subject of orthogonal projection in AutoCAD

B. Subject-specific skills
B1 - AutoCAD drawing program is used to implement simple drawings.
B2 - Using the computer to display engineering designs.
B3 - Using the Internet to search for engineering subjects and designs.
B4 - Using the Internet to obtain lectures and assignments and to communicate with the subject's teacher.

Teaching and Learning Methods

1- Theory of lectures / electronic experiments
2- Office skills
3- Virtual Library

Assessment methods

- Written quarterly examinations
- Practical Quarterly Examinations
- Weekly Tests (Oral / Written)
- Quizzes
- pre- test and post-test

C. Thinking Skills
C1 - The student listens to the explanation
C2 - The student should describe the importance of learning the subject of Engineering Drawing
C3 - The student is concerned with quietly and the class system

Teaching and Learning Methods

Discussion and dialogue with students

Assessment methods

Questionnaire, Seminars, Discussion Hubs

D. General and Transferable Skills (other skills relevant to employability and
   personal development)
   D1. Sports activities
   D2. Technical activities
   D3. Literary activities

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st -2nd	Practical (8)	The student understands the lesson	Introduction.	Theory and practical	Direct questions and Quiz
3rd	Practical (4)	The student understands the lesson	Use of drawing instruments — Drawing of straight, inclined and curved lines.	practical	Direct questions and Quiz
4th-6th	Practical (12)	The student understands the lesson	Exercise on line and angular measurements, TYPES of lines and application	practical	Direct questions and Quiz
7th	Practical (4)	The student understan	Geometrical construction of rectangle, circles,	practical	Direct questions

		ds the lesson	square		and Quiz
8th -10th	Practical (12)	The student understands the lesson	Geometrical construction polygon ellipse, parabola and hyperbola	practical	Direct questions and Quiz
11th -13th	Practical (12)	The student understands the lesson	Free hand sketching of simple geometrical solids, cube, cone, cylinder,	practical	Direct questions and Quiz
14th	Practical (4)	The student understands the lesson	Simple dimensioning technique, size and location, dimensions of pans, holes, angles, taper, screw etc	practical	Direct questions and Quiz
15th	Practical (4)	The student understan	Application & Test	practical	Direct questions

		ds the lesson			and Quiz
1st -3nd	Practical (12)	The student understands the lesson	Introduction	practical	Direct questions and Quiz
4th , 6th	Practical (12)	The student understands the lesson	Pictorial drawings, isometric drawings of simple geometrical solids.	practical	Direct questions and Quiz
7th – 9th	Practical (12)	The student understands the lesson	oblique/orthographic projection of simple geometrical solid	practical	Direct questions and Quiz
10th-13th	Practical (16)	The student understands the	Orthographic drawings: Application of both the first angle and third angle Isometric	practical	Direct questions and Quiz

		lesson	drawing of simple machined and casting block, hand tools and measuring tools.		
14th -15th	Practical (8)	The student understands the lesson	Application & Test	practical	Direct questions and Quiz

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	\
Special requirements (include for example workshops, periodicals, IT software, websites)	\
Community-based facilities (include for example, guest Lectures , internship , field studies)	\

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	50

TEMPLATE FOR COURSE SPECIFICATION

<table>
<tr><td colspan="2">HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW</td></tr>
<tr><td colspan="2">This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.</td></tr>
</table>

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Course title/code	**Medical Chemistry**
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (practical + theoretical) On line theoretical lectures and lab by student's attendance.
6. Semester/Year	Year

7. Number of hours tuition (total)	Theory (60 h) and practical (60 h)
8. Date of production/revision of this specification	20/6/2021
9. Aims of the Course	

1- Training student how to deal with chemicals.
2- Training student to perform experiments by classical methods.
3- Preparing engineer who test instruments by operating system and calibrate by performing analytical experiments manual and by instruments and statistical treatment of results.

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

D- Knowledge and Understanding

A1 – establishing scientific background in chemical field.

A2 – the possibility to suggest other option of medical and lab instruments.

A3 - The student recognizes the types of chemicals.

A4- Understanding the theoretical principles of instruments work.

B. Subject-specific skills
B1 – Gain skills of laboratory work and performing experiments.
B2 – finding of common language between engineer and analyst or operator.
B3 - Students acquire practical skills to learn about chemicals.
B4- prepare engineer who can prepare, maintain, understand working principles of instruments.

Assessment methods
- Written quarterly examinations   - Practical Quarterly Examinations   - Weekly Tests (Oral / Written)
D. General and Transferable Skills (other skills relevant to employability and personal development) D1. Sports activities D2. Technical activities D3. Literary activities
Chemistry C4. The student is quietly concerned with the grade system.
Teaching and Learning Methods
Discussion and dialogue with students
Assessment methods
Questionnaire, Seminars, Discussion Hubs

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st 2nd	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Introduction to analytical chemistry Systems of units and units' conversion.* *Introduction to lab of qualitative analysis. First steps in making analysis.*	Theory and practical	Direct questions
3rd , 4th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Precipitation reaction , the PH- scale .* *Gravimetric analysis*	Theory and practical	Quiz
5th , 6th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Calculations solubility product constant of precipitations.*	Theory and practical	Direct questions
7th , 8th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Methods of Expressing analytical concentrations:* *Normality, Formality , Molarity, molality, mole ratio, ppm, ppb, wt.and vol. percent ratio.*	Theory and practical	Quiz
9th , 10th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Mole fraction, Mill equivalent .* *Volumetric analysis :*	Theory and practical	Direct questions

			principles , standard , solution		
11th , 12th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Classification of volumetric method* *Acid-Base indicators, buffer solution .*	Theory and practical	Quiz
13th, 14th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	*Errors & statistical treatment of analytical data , sources of errors , types of errors, treatment of systematic errors ,confidence limits, variance , median, average mode , range , relative standard deviation, accuracy, precision, detection limits, Gausian distribution, repeatability, reducibility.*	Theory and practical	Direct questions
15th	**Theoretical (2)** **Practical (2)**	The student understands the lesson	*Absolute error , relative error , rejecting of experimental result .*	Theory and practical	Quiz
16th	**Theoretical (2)** **Practical (2)**	The student understands the lesson	*Thermodynamic : Zero and First law of thermodynamic .*	Theory and practical	Direct questions

17th, 18th	**Theoretical (4) Practical (4)**	The student understands the lesson	*Heat capacities, adiabatic and isothermal processes*	Theory and practical	Quiz
19th , 20th ,21st	**Theoretical (6) Practical (6)**	The student understands the lesson	*Second law of thermodynamic : spontaneous processes*	Theory and practical	Direct questions
22nd , 23rd ,24th	**Theoretical (6) Practical (6)**	The student understands the lesson	*Entropy* *Electrochemistry : electrochemical cells , types of electrodes , electrolytes .*	Theory and practical	Direct questions
25th , 26th	**Theoretical (4) Practical (4)**	The student understands the lesson	*Electromotive force* *Redox reactions and balancing chemical equations Nernst equation , cell potential .*	Theory and practical	Direct questions
27th , 28th , 29th	**Theoretical (6) Practical (6)**	The student understands the lesson	*Photochemistry (spectrophotometer analysis) .* *Regions of electromagnetic spectrum . Absorption and emission of electromagnetic spectrum Beer - Lambert law*	Theory and practical	Quiz

			instrumentation . Components of spectrophotometer . Analysis IR , HNMR, and mass analysis.		
30th	Theoretical (2) Practical (2)	The student understands the lesson	Nuclear chemistry in diagnosis and treatment of diseases	Theory and practical	Quiz

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Chemical principles- Zumdahl- 4th editionEssentials of general chemistry- Edding, Gammon, and Ragsdale
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	50

TEMPLATE FOR COURSE SPECIFICATION

<table>
<tr><td colspan="2">HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW</td></tr>
<tr><td colspan="2">This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.</td></tr>
<tr><td>1. Teaching Institution</td><td>Electrical Engineering Technical College</td></tr>
<tr><td>2. University Department/Centre</td><td>Medical Instrumentation Techniques Engineering</td></tr>
<tr><td></td><td></td></tr>
<tr><td>3. Course title/code</td><td>workshops</td></tr>
<tr><td>4. Programme(s) to which it contributes</td><td>Weekly</td></tr>
<tr><td>5. Modes of Attendance offered</td><td> workshops and labs</td></tr>
<tr><td>6. Semester/Year</td><td>2022-2023</td></tr>
<tr><td>7. Number of hours tuition (total)</td><td>120</td></tr>
</table>

8. Date of production/revision of this specification	8-8-2022

9. Aims of the Course
1- Providing the student with manual experience and scientific proficiency in dealing with tools,
devices and electrical equipment
2- Learn about the safe handling of devices, equipment and industrial security.
3- Recognize electronic components.
4- Electronic components are used to build and solder simple circuits.
5- Examines electronic circuits and their components.
6- Recognize the methods of cold and work on the lathe.
7- It cuts metal with cutting and punching bales.
8- Install some simple structures.

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

E- Knowledge and Understanding
  A1- Familiarize yourself with engineering devices and equipment
  A2- Learn about electronic components
  A3- Understand the principles of electrical appliances
A4- Learn the methods of welding, cutting and perforating metals and mechanical
 turning
A 5- He learns the techniques of safe handling in the work environment and industrial safety.

B. Subject-specific skills B1 - Able to install simple structures for medical devices and equipment B2 - Design of simple electrical circuits B3 - Be able to check electronic circuits B4- Safe operation and handling of mechanical equipment
Teaching and Learning Methods

Practical experiments - manufacturing primary structures - workshops - laboratories

Assessment methods

11. The course structure of the mechanical workshop

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st	4	The student understands the lesson	Lathe workshop: various measuring devices and how to use them.	Practical lab workshop	Weekly theory and practical exams
2nd	4	The student understands the lesson	How to operate the lathe and use different tools and cutting tools.	Practical lab workshop	Weekly theory and practical exams
3rd	4+4+4	The student understands the lesson	How to install a pole on the lathe, making a straight lathe.	Practical lab workshop	Weekly theory and practical exams
4th and 5th	4+4	The student understands the lesson	Training on the use of the lathe in the work of different forms.	Practical lab workshop	Weekly theory and practical exams
6th	4	The student understands the lesson	Barrel workshop: the different types of files, saws ,and different measuring equipment and their	Practical lab workshop	Weekly theory and practical exams

				uses.		
7th	4	The student understands the lesson	Practicing the plumbing and simple filing.	Practical lab workshop	Weekly theory and practical exams
8th	4	The student understands the lesson	An exercise in cutting with a saw, training in the process of drilling and burring, and a simple exercise on it.	Practical lab workshop	Weekly theory and practical exams
9th	4	The student understands the lesson	Welding and gas welding , familiarization with the devices and equipment used	Practical lab workshop	Weekly theory and practical exams
10th	4	The student understands the lesson	Lathe workshop: various measuring devices and how to use them.	Practical lab workshop	Weekly theory and practical exams
11th	4	The student understands the lesson	How to operate the lathe and use different tools and cutting tools.	Practical lab workshop	Weekly theory and practical exams
12th	4	The student understands the lesson	How to install a pole on the lathe, making a straight lathe.	Practical lab workshop	Weekly theory and practical exams
13th	4	The student understands the lesson	Training on the use of the lathe in the work of different forms.	Practical lab workshop	Weekly theory and practical exams
14th	4	The student	Training in the use of	Practical lab	Weekly theory

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st	4	The student understands the lesson	Principles of industrial safety inside electrical workshops - protection from electric shocks - identification of the tools used inside the electrical workshop - sources of power -training in the use of the oven, the micrometer to measure the wires used in the coil.	Practical lab workshop	Weekly theory and practical exams
2nd	4	The student understands the lesson	Method of using different types of soldering irons (different pans) blister soldering irons.	Practical lab workshop	Weekly theory and practical exams
3rd	4+4+4	The student understands the lesson	Electrical transformers - their types - magnetic circuit - electrical circuits - opening transformers - taking information from the old transformer for primary and secondary	Practical lab workshop	Weekly theory and practical exams

11. The course structure for the electrical workshop

			coils - measuring the wire diameters of the transformer - measuring the plastic coil mold - rewinding the primary and secondary coils.		
4th and 5th	4+4	The student understands the lesson	Types of electric motors) one and three phases (Example - shaded pole motor (small water pump motor) Motor work - disassemble it Take information - make mold - winding coils - put insulators - connect terminals - banding - varnish insulation -inspection and testing -faults that can occur in the engine (electrical and mechanical).	Practical lab workshop	Weekly theory and practical exams
6th	4	The student understands the lesson	Electrical installations, their types (virtual) - burial inside pipes - semni-establishment -drawing of a circuit for establishing lamps with a control circuit - a practical exercise on establishing the circuit.	Practical lab workshop	Weekly theory and practical exams

7th 8th 9th	4 4 4	The student understands the lesson	Draw a circuit for establishing two lamps in parallel with a switch with a socket. Application of the circuit in practice – Drawing of the internal connection of the fluorescent lamp circuit- Replacing one of the two lamps with a fluorescent lamp	Practical lab workshop	Weekly theory and practical exams
10th	4	The student understands the lesson	Drawing a circuit for establishing (the lamp ladder) two roads using a two-way switch - a practical application of the circuit.	Practical lab workshop	Weekly theory and practical exams
11th	4	The student understands the lesson	Identifying electrical collectors - their types - their use - thermal follow-ups- time position.	Practical lab workshop	Weekly theory and practical exams
12th	4	The student understands the lesson	Single-sided motor operation by pneumatic pickup with push-button.	Practical lab workshop	Weekly theory and practical exams
13th	4	The student understands the lesson	Starting a motor and changing the direction of rotations of a single-phase motor using the pickups and the time	Practical lab workshop	Weekly theory and practical exams

11. The course structure for the electronic workshop

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st	4	The student understands the lesson	How to use the different measuring devices in the workshop (such as an ovometer, oscilloscope , power supply, ...).	Practical lab workshop	Weekly theory and practical exams
2nd	4	The student understands the lesson	How to use caustics - types of caustics used in the workshop - caustic welding training.	Practical lab workshop	Weekly theory and practical exams
3rd	4	The student understands the lesson	Types of solder used - auxiliary materials for soldering - soldering some wires with each other and with some components.	Practical lab workshop	Weekly theory and practical exams
4th	4	The student understands the lesson	How to use soldering iron - soldering absorbent kit such as (Solder Sucker) soldering absorbent (Solder Remover) , training on some electronic components	Practical lab workshop	Weekly theory and practical exams

			and lifting them from the printed board.		
5th	4	The student understands the lesson	Various printed electronic circuits, identifying how to install them and the installation of various electronic components on them.	Practical lab workshop	Weekly theory and practical exams
6th and 7th	4+4	The student understands the lesson	The different types of resistors in terms of the material the resistors are made of, the capacity they can withstand / each resistor How to read the values of the resistors in different ways Variable and special resistors (VDR-PYC-NTC) How to check them.	Practical lab workshop	Weekly theory and practical exams
8th and 9th	4+4	The student understands the lesson	Make a circuit to connect the resistors in series, make a circuit to connect the resistors in parallel, make a circuit to connect the resistors in series and parallel, check the circuit.	Practical lab workshop	Weekly theory and practical exams

10th	4	The student understands the lesson	The different types of capacitors in terms of the type of insulator used between the capacitor plates , the voltage that the capacitor bears, reading the values of the capacitors using the different methods used in coding. How to check the amplifiers and ways to switch them.	Practical lab workshop	Weekly theory and practical exams
11th	4	The student understands the lesson	Making circles to connect the capacitors in parallel ,series and mixed on the printed board with the examination. .	Practical lab workshop	Weekly theory and practical exams
12th	4	The student understands the lesson	The different types of switches used in electronic devices and their examination methods, the current that each switch bears, the use of each type.	Practical lab workshop	Weekly theory and practical exams
13th and 14th	4+4	The student understands the lesson	Types of fuses used in electronic circuits, types and diameters of used wires and	Practical lab workshop	Weekly theory and practical exams

			diameters of wires used in fuses, current that each type bears, how to repair fuses.		
15th	4	The student understands the lesson	Coils types, methods of checking, electrical transformers, types , checking, autotransformer , the difference between autotransformer and normal	Practical lab workshop	Weekly theory and practical exams
16th	4	The student understands the lesson	Types of semiconductor diode, transistor, finding rewards	Practical lab workshop	Weekly theory and practical exams
17th	4	The student understands the lesson	Semiconductor check, diode check, transistor check	Practical lab workshop	Weekly theory and practical exams
18th	4	The student understands the lesson	Integrated electronic circuits, identify the types of these circuits	Practical lab workshop	Weekly theory and practical exams
19th	4	The student understands the lesson	Cautery for soldering integrated circuits, the correct method of soldering integrated circuits, removing solder from circuits for the purpose of lifting and replacing	Practical lab workshop	Weekly theory and practical exams

20th	4	The student understands the lesson	Presentation of a scientific film on the manufacture of electronic omponents)resistors, capacitors , semiconductors, etc.)	Practical lab workshop	Weekly theory and practical exams
21th	4	The student understands the lesson	How to read the electronic map, how to track faults on the electronic map	Practical lab workshop	Weekly theory and practical exams
22th	4	The student understands the lesson	Introduce the student to how to design electronic circuits on the printed board	Practical lab workshop	Weekly theory and practical exams
23th	4	The student understands the lesson	How to install and solder electronic components on the printed board autotransformer and normal	Practical lab workshop	Weekly theory and practical exams
24th	4	The student understands the lesson	Implementation of a simple electronic circuit on the printed board	Practical lab workshop	Weekly theory and practical exams
25th to 30th	4+4+4+ 4+4+4	The student understands the lesson	A field visit to one of the electronic manufacturing laboratories	Practical lab workshop	Weekly theory and practical exams

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Workshop lectures
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	10
Maximum number of students	15

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Programme Title	**Medical physics**
4. Title of Final Award	Bachelor technique in medical instrumentation techniques engineering
5. Modes of Attendance offered	yearly
6. Accreditation	ABET
7. Other external influences	There is a close relationship in the labor market that receives our graduates, where the view of

	the labor market is taken into the educational subjects as well as consideration of the educational subjects in the scientific universities.
8. Date of production/revision of this specification	August 2022

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st 2nd	**Theoretical (4)** **Practical (4)**	The student understands the lesson	FORCES ON AND IN THE BODY	Theory and practical	Direct questions
3rd , 4th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	PHYSICS OF THE SKELETON	Theory and practical	Quiz
5th , 6th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	HEAT AND COLD IN MEDICINE	Theory and practical	Direct questions
7th , 8th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	ENERGY, WORK AND POWER OF THE BODY	Theory and practical	Quiz
9th , 10th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	PRESSURE IN BODY ORGANS	Theory and practical	Direct questions
11th , 12th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	PHYSICS OF THE LUNGS AND BREATHING	Theory and practical	Quiz
13th, 14th	**Theoretical (4)** **Practical (4)**	The student understands the lesson	ELECTRICITY WITHIN THE BODY	Theory and practical	Direct questions
15th	**Theoretical (2)** **Practical (2)**	The student understands the lesson	APPLICATIONSOF ELECTRICITY AND MAGNETISM IN MEDICINE	Theory and practical	Quiz
16th 17th, 18th	**Theoretical (2)** **Practical (2)**	The student understands the lesson	SOUND IN MEDICINE	Theory and practical	Direct questions
19th , 20th ,21st	**Theoretical (4)** **Practical (4)**	The student understands the lesson	LIGHT IN MEDICINE	Theory and practical	Quiz

22nd , 23rd ,24th	**Theoretical (6) Practical (6)**	The student understands the lesson	LASER IN MEDICINE	Theory and practical	Direct questions
25th , 26th 27th ,	**Theoretical (6) Practical (6)**	The student understands the lesson	PHYSICS OF THE CARDIOVASCULAR SYSTEM	Theory and practical	Direct questions
28th , 29th 30th	**Theoretical (4) Practical (4)**	The student understands the lesson	PHYSICS OF NUCLEAR MEDICINE	Theory and practical	Direct questions

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions

Pre-requisites	
Minimum number of students	30
Maximum number of students	50

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of electrical Engineering Technique.
2. University Department/Center	Medical Instrument Department
3. Course title/code	Mechanics
4. Program(s) to which it contributes	Medical Instrument Department
5. Modes of Attendance offered	Weakly / theoretical and practical
6. Semester/Year	2023-2022
7. Number of hours tuition (total)	2h / weakly

8. Date of production/revision of this specification	10-8-2022
9. Aims of the Course: study of	
- Preparation technical engineering have experience in mechanical design of medical instrumentation	
- Preparation technical engineering have experience in maintenance of medical instrumentation	
- Preparation technical engineering have experience in mechanical motion of medical instrumentation	
-Preparation technical engineering have experience in worked of medical instrumentation	

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

F- Knowledge and Understanding
A1. Preparation technical engineering have experience in mechanical design of medical instrumentation
A2.   Preparation technical engineering have experience in maintenance of medical instrumentation
A3. Preparation technical engineering have experience in mechanical motion of medical instrumentation .
A4.
A5.
A6.

B. Subject-specific skills
B1. Preparation technical engineering have experience in worked of medical instrumentation
B2. Preparation technical engineering have experience in maintenance of medical instrumentation

B3. B4.
Teaching and Learning Methods
Theoretical lectures - data show(symbol) – presentation
Assessment methods
Daily evaluations- monthly evaluations- finally evaluations- practical evaluations- presentation evaluations- weekly reports

C. Thinking Skills
  C1. The student listen to the lecture with attention
  C2. The student recognizes the impact of science and scientist in life.
  C3. The students describe the importance of mechanics and its applications.
  C4.

Teaching and Learning Methods
Theoretical lectures - data show(symbol) – presentation
Assessment methods
Daily evaluations- monthly evaluations- finally evaluations- practical evaluations- presentation evaluations- weekly reports
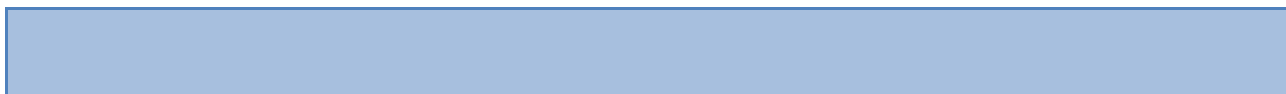
11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1,2	2h, theoretical	The student understands the lesson	Introduction of forces	theory	Direct questions
3,4	2h, theoretical	The student understands the lesson	Result of forces	theory	Direct questions
5,6,7	2h, theoretical	The student understands the lesson	Moment of forces	theory	Quick quiz
8,9,10	2h, theoretical	The student understands the lesson	Equilibrium force system	theory	Direct questions
11,12	2h, theoretical	The student understands the lesson	Stress, Strain	theory	Quick quiz
13,14	2h, theoretical	The student understands the lesson	Simple strain	theory	Direct questions
15,16	2h, theoretical	The student understands the lesson	Variable stress	theory	Quick quiz
17	2h, theoretical	The student understands the	Friction	theory	Direct questions

			lesson		
18,19	2h, theoretical	The student understands the lesson	Materials properties	theory	Quick quiz
20,21	2h, theoretical	The student understands the lesson	Rivet and weld connection	theory	Direct questions
22,23	2h, theoretical	The student understands the lesson	Beams and bending	theory	Direct questions
24,25,26,27	Theory 4 + practical 4	The student understands the lesson	Analysis of structure	theory	Quick quiz
28,29,30	Theory 4 + practical 4	The student understands the lesson	Centroid	theory	Direct questions

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	– Engineering Mechanic's Statics, 12th Edition by R. C. Nibbler, 1995. – Engineering

	Mechanic's Statics, 7th Edition by James, L. Meriam, L. G Kraige, 1995.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

TEMPLATE FOR COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	*Electrical engineering technical college*
2. University Department/Centre	*Medical device technology engineering*
3. Course title/code	**Arabic language**
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	electronic
6. Semester/Year	Chapter one and two
7. Number of hours tuition (total)	30 hour
8. Date of production/revision of this specification	23/8/2022

9. Aims of the Course
1..Introducing the student to the concept of linguistic errors and their types
2..Introducing the student to the basic rules of the Arabic language
3.Teaching the concept of the Arabic language as a tool and a means of communication between individuals
4.Introducing the student to the features and components of the administrative

discourse
.5.Teaching scientific and formal methods in writing administrative discourse
6.The student acquires a skill in overcoming common mistakes in the Arabic language

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

G- Knowledge and Understanding
A1. Enabling students to know the concept and importance of the Arabic language and its general rules.
A2. Preparing students and preparing them to deal with common grammatical errors.
A3. Preparing students to design a linguistically integrated administrative letter.
A4. Enriching students with adequate academic information to understand the rules of the Arabic language in terms of the formulation of sentences and its syntax.

B. Subject-specific skills
B1. Students acquire a skill in correct linguistic writing in administrative and literary discourse.
B2. Students acquire the skill of choosing formulas in the opening and closing sentences and the body when editing administrative letters.
B3. The student acquires the skill of placing appropriate punctuation marks in sentences to facilitate and clarify reading.
B4. The student acquires a skill in grammar, syntax and syntax in the Arabic language.

Teaching and Learning Methods

.1- Explanation and clarification of the scientific contents of the Arabic grammar.
.2- Discussing students' inquiries and opinions on correct linguistic writing.
3- Training students to think, write and read, overcome linguistic errors, and create an integrated model for editing correct administrative messages that include administrative correspondence from top to bottom and vice versa according to sound administrative formulas.

Assessment methods

.1- Ask the students questions about the topic of the lecture.
.2- Giving daily grades to the students who interact and participate in the lecture.
.3- Conducting daily, monthly and quarterly tests for students.

C. Thinking Skills
C1. Developing students' mental abilities in the subject of the Arabic language.
C2. Developing awareness of the importance of studying the Arabic language as it is included in all fields of scientific and human sciences and institutional work, where without it, our ideas and knowledge cannot reach except by employing its vocabulary to communicate with others.
C3. Pushing students to participate in forming a team for poetic talents and prose writing, as it is one of the rhetorical arts that requires linguistic skill.
C4. Identifying the main important roles in the fields of employing the Arabic language in science, arts, literature and poetry.

Teaching and Learning Methods

.1- Explanation, explanation and clarification.
2- Training on the rules, preparation and writing of the Arabic language through .existing models and examples.
3- Students' participation in solving models and exercises in the curriculum and giving illustrative examples.

Assessment methods

1- Setting daily scores for the participants in the explanation, discussion and .solving study exercises.
.2- Conducting periodic and daily tests for students.
3- Giving questions during the lecture and awarding grades to the participating .students by solving the questions.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Students acquire the skill of verbal and verbal expression.
D2. Acquisition of writing skill in the field of specialized scientific research in the Arabic language.
D3. Acquiring the skill of preparation and editing in administrative discourses.
D4. Acquiring the skill of reading, following up and training in Arabic language topics.
.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	One hour	The acquisition of knowledge	Grammar for writing the ta' marbouta and open	Explanation and discussion	Awarding of grades to participating students
2	One hour	skill acquisition	solar and lunar letters	explanation and clarification	Awarding of grades to participating students
3	One hour	The acquisition of knowledge	Rules for writing the elongated alef and the compartment	Explanation and discussion	Awarding of grades to participating students
4	One hour	The acquisition of knowledge	Rules for writing the light and the light	Explanation and discussion	Awarding of grades to participating students
5	One hour	The acquisition of knowledge	Rules for writing hamzat al-wasl and cutting	Explanation and discussion	Awarding of grades to participating students
6	One hour	The acquisition of knowledge	The rules of writing the middle hamza	Explanation and discussion	Awarding of grades to participating students
7	One hour	The acquisition of knowledge	Extreme hamza writing rules	Explanation and discussion	Awarding of grades to participating students
8	One hour	skill acquisition	Punctuation marks in a sentence	explanation and clarification	Awarding of grades to participating students
9	One hour	The acquisition of knowledge	Noun and verb and the difference between them	explanation and clarification	Awarding of grades to participating students
10	One hour	The acquisition of knowledge	Effects and its types	Explanation and discussion	Awarding of grades to participating students
11	One hour	The acquisition of knowledge	Absolute object and object	Explanation and discussion	Awarding of grades to participating students
12	One hour	The acquisition of knowledge	The object is for him, the object is for him, and the object is with him	Explanation and discussion	Awarding of grades to participating students
13	One hour	The acquisition of knowledge	Number and its distinction in the Arabic language	Explanation and discussion	Awarding of grades to participating students
14	One hour	The acquisition of knowledge	Rules for writing Alif Alf, Noun and	Explanation and discussion	Awarding of grades to participating

			Tanween		students
15	One hour	Knowledge measurement	quarterly exam	Questions and tests	Application of scientific test standards
1	One hour	The acquisition of knowledge	The Arabic language is a means of communication	explanation and clarification	Awarding of grades to participating students
2	One hour	skill acquisition	The concept of linguistic errors and its types	explanation and clarification	Awarding of grades to participating students
3	One hour	skill acquisition	Administrative discourse: its features and components	Explanation and discussion	Awarding of grades to participating students
4	One hour	The acquisition of knowledge	The meanings of the prepositions	explanation and clarification	Awarding of grades to participating students
5	One hour	skill acquisition	Formal aspects of administrative discourse	Explanation and discussion	Awarding of grades to participating students
6	One hour	The acquisition of knowledge	Basic rules for writing an administrative letter	Explanation and discussion	Awarding of grades to participating students
7	One hour	The acquisition of knowledge	The language of administrative discourse	explanation and clarification	Awarding of grades to participating students
8	One hour	skill acquisition	Forms used in editing administrative speech	Explanation and discussion	Awarding of grades to participating students
9	One hour	skill acquisition	Editing administrative messages	Explanation and discussion	Awarding of grades to participating students
10	One hour	The acquisition of knowledge	The sentence in the Arabic language	explanation and clarification	Awarding of grades to participating students
11	One hour	skill acquisition	common grammatical errors	Explanation and discussion	Awarding of grades to participating students
12	One hour	skill acquisition	grammatical errors (1)	Explanation and discussion	Awarding of grades to participating students
13	One hour	skill acquisition	common mistakes apps (2)	Explanation and discussion	Awarding of grades to participating students
14	One hour	skill acquisition	Common errors and their correction (3)	Explanation and discussion	Awarding of grades to participating students

15	One hour	Knowledge measurement	quarterly exam	Questions and tests	Application of scientific test standards

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	100
Maximum number of students	150

TEMPLATE FOR COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Engineering Techniques
3. Course title/code	Measurements &Medical Transducers
4. Programme(s) to which it contribute	2022
5. Modes of Attendance offered	Lecture \ laboratory
6. Semester/Year	Year
7. Number of hours tuition (total)	120
8. Date of production/revision of this specification	2022-8-24

9. Aims of the Course
1. knowledge and measurement units for electrical engineering physical quantities
2. knowledge of measurement devices for basic electrical transactions
3. knowledge of the special electronic measurement devices
4. knowledge and understanding of how to work oscilloscope and sensors of various physical quantities
5. know and understand how the different devices generate electrical signal

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Knowledge and Understanding
1. knowledge and measurement units for electrical engineering physical quantities
2. knowledge of measurement devices for basic electrical transactions
3. special knowledge of electronic measurement devices
4. knowledge and understanding of how to work oscilloscope and sensors of various physical quantities
5. know and understand how the different devices generate electrical signal

B. Subject-specific skills
1. The use of measurement devices for basic electrical transactions
2. Use oscilscope device and sensors of various physical quantities
3. The use of multiple phases for generating electrical signal devices

Teaching and Learning Methods

Academic lectures: providing a solid foundation upon which the development of the students knowledge

Laboratory and practical workshops: that provide everything he needs from the student's experiences to help develop practical skills side and consolidate the principles necessary to carry out practical projects correctly and follow the occupational safety steps to reduce the damage caused to persons and property

Systematic training: systematic training aims to provide the experience the student and the labor market to enable the student to understand the practical application of curricula he studied.

Assessment methods

Interactive Rating: Rating process where the ditch directly between the student and teaching and be one of the fundamentals of feedback upon which faculty members evaluate the teaching and learning process.

Periodic tests editorial: The availability of these tests the knowledge of a faculty member for over a follow-up to the students to content academy and how to interact with information and observations given by teaching students.

Quarterly exam: Episode moderation and be to assess the student's interest and its interaction with the scientific article received during the semester, both academic and skill

The final exam: These are the final episode to assess the student's interest and its interaction with the scientific article received during the school year, both academic and skill.

C. Thinking Skills
C1. Planting the spirit of creativity among students and to ensure that find them innovative solutions to various problems
C2. Students develop the ability to work together effectively as teams graduated distinct results.
C3. Sense of responsibility among students and psychological configuration to carry the burden on their shoulders development.
C4. Development to ensure the values and perseverance to get the job

Teaching and Learning Methods
Ask a scientific problems and the demand of the students to find more than a solution to it different scientific methods to stimulate creative side of the students. Form working groups are evaluating the results of its work and change their structure periodically to develop a spirit of cooperation and stimulate students to instead of all the efforts the crisis of the work of the various conditions and with several people.
Assessment methods
Direct assessment: Where is this Rating by faculty members directly and through observation of the interaction of students and their application of section sentimental ad valorem targets and record their observations about it Operation projects and graduation projects: is assessing the student's ability to ACCT and to work in teams, consequences and solutions to various scientific problems facing students.

D. General and Transferable Skills (other skills relevant to employability and personal development)
1. The ability to use measurement devices for electrical engineering 2. The ability to deal with the waves of electrical and electronic analysis devices 3. The ability to deal with sensors for physical quantities and how to design 4. maintenance and design of electrical and electronic measurement devices

11. Course Structure					
Assessment Method	Teaching Method	Unit/Module	ILOs	Hours	Week
Oral exam, paper exam, lab. Report	lecture laboratory	Measurement and errors .	The student understands the lesson	2th.3pr.	1st ,
Oral exam, paper	lecture laboratory	System of units of measurements.	The student understands the lesson	2th.3pr	2nd
exam, lab. Report	lecture laboratory	Standard of measurement .	The student understands the lesson	2th.3pr	3rd
Oral exam, paper	lecture laboratory	Measurement device and system .	The student understands the lesson	4th.6pr	4th , 5th
exam, lab. Report	lecture laboratory	D.C indicating instrument .	The student understands the lesson	4th.6pr	6th , 7th
Oral exam, paper	lecture laboratory	A.C indicating instrument .	The student understands the lesson	4th.6pr	8th , 9th
exam, lab. Report	lecture laboratory	Power transducers .	The student understands the lesson	4th.6pr	10th
Oral exam, paper	lecture laboratory	Measurements of R, L and C .	The student understands the lesson	4th.6pr	11th , 12th
exam, lab. Report	lecture laboratory	Descriptive lectures .	The student understands the lesson	4th.6pr	13th , 14th
Oral exam, paper	lecture laboratory	Review of fundamentals of electrical measurements .	The student understands the lesson	4th.6pr	15th , 16th
exam, lab. Report	lecture laboratory	General theory of PMMC	The student understands the	4th.6pr	17th , 18th

		instrument .	lesson		
Oral exam, paper	lecture laboratory	Various instrument .	The student understands the lesson	4th.6pr	19th , 20th
exam, lab. Report	lecture laboratory	Circuits for D.C measurements .	The student understands the lesson	2th.3pr	21st
Oral exam, paper	lecture laboratory	Fundamental of A.C measurements .	The student understands the lesson	2th.3pr	22nd
exam, lab. Report	lecture laboratory	Electronic measuring instruments , oscilloscope .	The student understands the lesson	4th.6pr	23rd , 24th
Oral exam, paper	lecture laboratory	Frequency measurements.	The student understands the lesson	2th.3pr	25th
exam, lab. Report	lecture laboratory	Magnetic instrument .	The student understands the lesson	2th.3pr	26th
Oral exam, paper	lecture laboratory	Concepts of cle .	The student understands the lesson	2th.3pr	27th
exam, lab. Report	lecture laboratory	Types of medical transducers .	The student understands the lesson	4th.6pr	28th , 29th
Oral exam, paper	lecture laboratory	Analogue and digital data acquisition systems .	The student understands the lesson	2th.3pr	30th

12.
studies)

"Modern

nfrastructure Required reading:
- CORE TEXTS
- COURSE MATERIALS
- OTHER

Special requirements (include for example workshops, periodicals, IT software, websites)

Community-based facilities (include for example, guest Lectures , internship , field

electronic instrumentation and measuring techniques", Cooper D & A D
Helfrick Electronic Instrumentation", H. S. Kalsi
1. "Electronic Instrumentation and Measurements", David A Bell

1- "Principles of measurement systems", John P. Beately
2- Electronics & electrical measurements, A K Sawhney, , Dhanpat Rai & sons http://www.academia.edu/.../A_K.Sawhney-
A_course_in_Electrical_and_Electronic_Measu...%20Si milar

13. Admissions	
Pre-requisites	No special requisites
Minimum number of students	40

78

Maximum number of students	30

q

TEMPLATE FOR COURSE SPECIFICATION

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Device Technologies
3. Course title/code	medical instrumentation I
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (theoretical + practical)
6. Semester/Year	2021-2022
7. Number of hours tuition (total)	120(60theoretical + 60practical)
8. Date of production/revision of this specification	2022

9. Aims of the Course
-1-study the medical device as a purely electronic device
2- study the device as a medical device and different from electronic
3-Training in electronic materials in electronic devices and methods of operation and maintenance
4-trainaing the student for the maintenance of medical devices in general

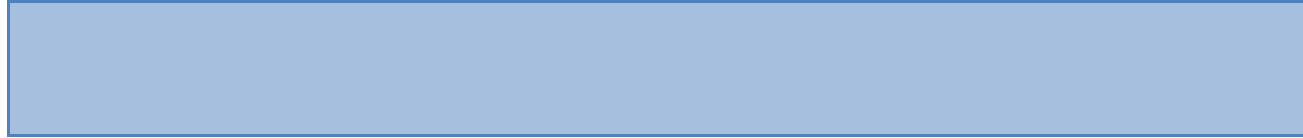| 10· Learning Outcomes, Teaching ,Learning and Assessment Methode |
| --- |
| H- Knowledge and Understanding
  A1. Understand the basic components of the medical device
  A2 - Studying laboratory equipment and types
  A3-Learn the usefulness of each laboratory device
  A4 - Studying sterilization devices
  A - Studying old and modern medical devices
  A6 - Study of radiation and physiotherapy equipment
  A7 - Studying the infant incubator and its usefulness
  A 8 Learn to open and maintain the medical device in case of failure |
| B. Subject-specific skills
  B1. Explains the cause of the malfunction of the medical device
  B. The computer is used to store the specifications of the medical device
  B.3. The computer is used as a means of comparing the medical conditions taken from the medical device with data for natural cases stored in the computer
B- Diagnoses the results of the medical system |

Teaching and Learning Methods
Laboratory experiments on medical devices

Assessment methods
Daily / quarterly tests Practical activities or public activities

C. Thinking Skills C1 - to listen attentively to the student to explain the stadium Student. C2- A student should feel the suffering of victims of racial discrimination C3- to recognize the student the impact of science and scientists in life C4- The student should describe the importance of learning medical equipment

Teaching and Learning Methods
Seminars - Educational guidance

Assessment methods
Discuss the stadium with the student - discuss the student with his colleague

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1 - Office skills outside the scientific subject

D - the student's ability to scientific research

D3 - the student's ability to participate in extra-curricular activities

					11. Course Structure
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2TH+2P	The student understands the lesson	Introduction to medical instruments	Theoretical lecture	Pretest-post test
2-3	4TH+4P	The student understands the lesson	Electronic balance	Theoretical lecture	Pretest-post test
4-5	4TH+4P	The student understands the lesson	Thermal instruments	Theoretical lecture	Pretest-post test
6	2TH+2P	The student understands the lesson	Water baths	Theoretical lecture	Pretest-post test
7-8	4TH+4P	The student understands the lesson	Ovens	Theoretical lecture	Pretest-post test
9-10	4TH+4P	The student understands the lesson	Autoclave	Theoretical lecture	Pretest-post test
11-12	4TH+4P	The student understands the lesson	Incubators (lab.)	Theoretical lecture	Pretest-post test
13-14	4TH+4P	The student understands the lesson	Water distiller	Theoretical lecture	Pretest-post test
15-16	4TH+4P	The student	Cautery	Theoretical	Pretest-post test

		understands the lesson		lecture	
17-18	4TH+4P	The student understands the lesson	Other thermal instruments	Theoretical lecture	Pretest-post test
19-20	4TH+4P	The student understands the lesson	Centrifuge	Theoretical lecture	Pretest-post test
21-22-23	6TH+6P	The student understands the lesson	Microscopes(light, dark field, flourcents, polarized, electro)	Theoretical lecture	Pretest-post test
24-25	4TH+4P	The student understands the lesson	X-ray equipment's	Theoretical lecture	Pretest-post test
26-27	4TH+4P	The student understands the lesson	Rehabilitation equipment	Theoretical lecture	Pretest-post test
28-29	4TH+4P	The student understands the lesson	Medical gases system	Theoretical lecture	Pretest-post test
30	2TH+2P	The student understands the lesson	Infant incubators	Theoretical lecture	Pretest-post test

12. Infrastructure

Required reading: Biomedical Engineering Handbook - J.D.Bronzino
.
Medical Instrumentation

Application and Design	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Course title/code	Mathematical 1
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly
6. Semester/Year	
7. Number of hours tuition (total)	3 hours

8. Date of production/revision of this specification	9/8/2022

9. Aims of the Course
1- The objective of this course is to help the student understand laws and solve mathematical problems for the purpose of solving simple and complex electrical and electronic circuits.
2- Giving the student information about the basic concepts of functions through the laws and the necessary mathematical issues for the purpose of assisting them in their studies in their field of specialization.
3- Preparing the graduates for effective participation in the construction and reconstruction of the country and realizing the economic and social benefits to the society

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

I- Knowledge and Understanding
  A1- Determine the vectors and how to solve them.
  A2- Acquire the theoretical concepts of dealing with linear and nonlinear differential equations and solving them.
  A3- Apply the integration of two or more variables and relate it to solving differential equations.
  A4- Understand matrices and their applications in solving mathematical equations.
  A5- Distinguish the complex number and use it to derive the analytic function.

B. Subject-specific skills
  B1- Apply basic concepts in mathematics through laws and mathematical problems for the purpose of solving simple and complex electrical and electronic circuits.
  B2 - Acquisition of skills in dealing with the problem.
  B 3- Qualifying students for a broad knowledge of mathematics so that the

graduate can employ that knowledge in their field of specialization.
B-4 Qualifying students to be familiar with theoretical aspects.

Teaching and Learning Methods

1. Theoretical lecture

2. Virtual Library

3. Classroom group discussions of mathematical and applied examples.

Assessment methods

1. Achievement and semester test.

2. Quizzes.

3 .Test assignments and discuss them.

C. Thinking Skills
  C1- Recognize the requirements of the engineering profession and ethical responsibility in addition to the need for lifelong learning and the ability to engage in it.
  C2- Mastery of the mathematical, basic and engineering sciences necessary to conduct the analysis and design of engineering systems Electrical and electronic.
  C3 - Develop the student's ability to dialogue and discussion.

Teaching and Learning Methods

1 .Theoretical lectures

2 .Group discussions

3 .Case Study

Assessment methods

				11. Course Structure	
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st ,·7th	**Theoretical (21)**	The student understands the lesson	Vector analysis, length & direction, Vector fields, unit vector, Vector projections, Vector components, Vector algebra operation, angle between vectors, Lines and Planes in Space, the Distance from a Point to a Line in Space, An Equation for a Plane in Space, Lines of Intersection, Distance between two lines and Partial Derivatives based-Vector.	**Theoretical**	Theoretical, Direct questions and quiz
8th-10th	**Theoretical (9)**	The student understands the lesson	Polar Coordinate, Relating Polar and Cartesian Coordinates, Convert from	**Theoretical**	Theoretical, Direct questions and quiz

			Cartesian Coordinates to Polar Coordinates via points, Triple Integrals in Cylindrical & Spherical Coordinates, and volume for Cylindrical & Spherical.		
10th -15th	**Theoretical (18)**	The student understands the lesson	Complex number, Argand Diagrams, Euler's Formula, Cauchy Riemann Equations, and De Moivre's Theorem.	**Theoretical**	Theoretical, Direct questions and quiz
1st-5th	**Theoretical (15)**	The student understands the lesson	Differential Equations, First Ordinary Differential Equations [Variable Separable, Homogeneous, Exact, First – order linear differential equation, The Bernoulli Equation], Second order differential equation [Non-	**Theoretical**	Theoretical, Direct questions and quiz

			homogeneous Linear Equations, Variation of parameters] and applications differential Equations.		
6th – 9th	**Theoretical (12)**	The student understands the lesson	Laplace Transformation, Properties of the Laplace Transform, Inverse Laplace Transforms, and solution of differential Equations by Laplace Transformation.	**Theoretical**	Theoretical, Direct questions and quiz
10th-15th	**Theoretical (18)**	The student understands the lesson	Fourier series, power series, Taylor series, convergence and divergence series.	**Theoretical**	Theoretical, Direct questions and quiz

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIAL OTHER	- Thomas. - Calculus II.

Special requirements (include for example workshops, periodicals, IT software, websites)	- Advanced Engineering Mathematics (Erwin Kreyszig). - Numerical Methods of Engineering by Steven C. Chapra.
Community-based facilities (include for example, guest Lectures , internship , field studies)	- Advanced Engineering Mathematics tutorials.

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	50

TEMPLATE FOR COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical engineering technical colleges
2. University Department/Centre	Department of medical instrumentation engineering techniques
3. Course title/code	Electronic device & circuits
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Theory , laboratory
6. Semester/Year	2021/2022
7. Number of hours tuition (total)	150 hours (60 theory + 90 practice)
8. Date of production/revision of this	14/8/2022

specification	

9. Aims of the Course
1. clarify the properties of electronic materials and how it is manufactured
2. Understand and know the practical applications of diode and transistor
3. Understand and know the types of transistors and the principle of each one's work
4. Identify the electric signal amplifiers and their types
5. Understand the practical applications of amplifiers and electrical circuit

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

J- Knowledge and Understanding
  A1. Identify the characteristics of the curve of the output signal of the diode and the practical applications in which it is used
  A2. Understand the transistor characteristics and identify the input and output signal of the transistor
  A3. Become acquainted with different types of the transistor
  A4. Become familiar with the frequency response of a BJT and FET amplifier.
  A5. Understand the different types of operational amplifier, their applications and frequency response of their amplifiers
    A6 . know the integrated circuits

B. Subject-specific skills
  B1. Calculate the input and output values of the electronic circuits that contain the diode or transistor
  B2. design circuits according to certain values
    B3.

Teaching and Learning Methods
Academic lectures that contribute to establishing a strong foundation to support the cognitive ability of the student practical laboratory, which provides practical experience to the student through practical experiments, which in turn support and promote the understanding and perception of the theoretical side
Assessment methods
Interactive assessment conducted directly between student and teacher is one of the feedback methods that faculty members depends on to evaluate the teaching and learning process Periodic tests provides information on the extent to which student's follow-up the scientific content and the extent to which the given information can be understood Quarterly tests and a middle course that held the student's interest and follow-up of the scientific material by its theoretical and skill during the entire semester Final exams are the final seminar in the assessment of the student and interaction and interest in the scientific material during the whole academic year

C. Thinking Skills
    C1. Creating creativity among students and find solutions to different
    problems
    C2. Developing students' ability to work as team members with effective

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st-2nd	10	Introduction to semiconductor materials and diode characteristics	semiconductor materials	Lecture + practical	Oral test
3rd-4th	10	DC diode applications	Diode applications	Lecture + practical	Daily test
5th-6th	10	AC diode applications	Diode applications	Lecture + practical	Daily test
7th	5	Zener diode characteristics and applications	Zener diode	Lecture + practical	Daily test
8th-9th-10th	15	BJT transistor characteristics	BJT transistor	Lecture + practical	Daily test
11th-12th-13th	10	DC analysis of BJT transistor	DC analysis of BJT transistor	Lecture + practical	Daily test
14th-15th-16th-17th	20	AC analysis of BJT transistor	AC analysis of BJT transistor	Lecture + practical	First term exam
18th-19th-20th-21th	20	FET transistor characteristics and	FET transistor	Lecture + practical	Test

		applications			
22th-23th	10	Frequency response	Frequency response	Lecture + practical	Second term exam
24th-25th-26th-28th	20	Operational Amplifiers and their applications	Operational Amplifiers	Lecture + practical	Test
28th-29th-30th	15	Power Amplifier	Power Amplifier	Lecture + practical	Final exam

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Electronic Devices and Circuit Theory Eleventh Edition Robert L. Boylestad Louis Nashelsky
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30

		applications			
22th-23th	10	Frequency response	Frequency response	Lecture + practical	Second term exam
24th-25th-26th-28th	20	Operational Amplifiers and their applications	Operational Amplifiers	Lecture + practical	Test
28th-29th-30th	15	Power Amplifier	Power Amplifier	Lecture + practical	Final exam

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Electronic Devices and Circuit Theory Eleventh Edition Robert L. Boylestad Louis Nashelsky
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30

Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

<table>
<tr><td colspan="2">HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW</td></tr>
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<tr><td>1. Teaching Institution</td><td>Middle Technical University</td></tr>
<tr><td>2. University Department/Centre</td><td>Electrical engineering collage</td></tr>
<tr><td>3. Course title/code</td><td>Clinical chemistry – instrumentation & technology</td></tr>
<tr><td>4. Programme(s) to which it contributes</td><td>Department of medical engineering techniques</td></tr>
<tr><td>5. Modes of Attendance offered</td><td>yearly</td></tr>
<tr><td>6. Semester/Year</td><td>2021-2022</td></tr>
<tr><td>7. Number of hours tuition (total)</td><td>120 hr(60theortical+ 60 practical)</td></tr>
<tr><td>8. Date of production/revision of this specification</td><td>8/8/2022</td></tr>
</table>

9. Aims of the Course
1.Preparation of engineers applied in the field of engineering, electrical and electronic technology
2. Graduation of the request to be able to know the parts of different medical devices and the evolution of what happens in the techniques
3.Manages the networks of engineering and technical to operate and maintain medical devices
4. Prepare research and studies to improve and develop medical services
5.Askab demand scientific skill and diagnosis of the faults in medical devices
6. Develop proposals and alternatives for medical devices

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

K- Knowledge and Understanding

A1. 1- Develop plans and programs of work especially in the maintenance of medical equipment

A2.2 - Supervising the site on the implementation of the work

A3.3 - Preparation of research and studies to improve the development of the work of medical devices

A4. A4 - Participation in committees related to the activity of medical devices

A5. A5 - Participate in the analysis of tenders for medical devices and alternative selection

B. Subject-specific skills

B1. Training of engineers and technicians on the operation and maintenance of medical devices

B2 - Installation and operation of medical devices (supervision and implementation)

B 3- Provide consultation in the field of medical devices

Teaching and Learning Methods

Lectures - scientific laboratory- data show - summer training- workshops- seminars

Scientific trade shows.

Assessment methods

Daily evaluations- quarterly evaluations- finally evaluations- practical evaluations- presentation evaluations- attend daily- weekly reports

C. Thinking Skills

C1. Submit scientific projects in the design of circuits for medical devices

C2 - designed electronic board

C3 - sets plans and ideas for the future, which is appropriate to the needs in the field of medical devices

Teaching and Learning Methods

Lectures - scientific laboratory- data show - summer training- workshops- seminars

Scientific trade shows.

Assessment methods					
Daily evaluations- quarterly evaluations- finally evaluations- practical evaluations- presentation evaluations- attend daily- weekly reports					
					11. Course Structure
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
the first	2 n +2 e	The student understands the lesson	Work security in laboratories	Theoretical lecture	Weekly test
The second	2 n +2 e	The student understands the lesson	Quality control	Theoretical lecture	Weekly test
the third	2 n +2 e	The student understands the lesson	Best laboratory use	Theoretical lecture	Weekly test
Fourth and fifth	4 n +4 e	The student understands the lesson	Spectrum instrument and uses	Theoretical lecture	Weekly test
Sixth and seventh	4 n +4 e	The student understands the lesson	Ion measurement instrument	Theoretical lecture	Tribal and remote questions
VIII and IX	4 n +4 e	The student understands the lesson	Salt measurement instrument and it uses	Theoretical lecture	Tribal and remote questions

X and XI	4 n +4 e	The student understands the lesson	Auto-Analysis instrument	Theoretical lecture	Tribal and remote questions
XII and XIII	4 n +4 e	The student understands the lesson	Minerals measurement instrument	Theoretical lecture	Tribal and remote questions
XIV and XV	4 n +4 e	The student understands the lesson	Elisa instrument and its uses	Theoretical lecture	Tribal and remote questions
Sixteenth and Seventeenth	4 n +4 e	The student understands the lesson	Electrical conduction	Theoretical lecture	Tribal and remote questions
Eighteenth and Nineteenth	4 n +4 e	The student understands the lesson	Osmotic conduction	Theoretical lecture	Tribal and remote questions
Twenty-one and twenty-two	4 n +4 e	The student understands the lesson	Enzymes and their measurments	Theoretical lecture	Tribal and remote questions
XXII and XXIII	4 n +4 e	The student understands the lesson	Protein and importance	Theoretical lecture	Tribal and remote questions
XXIV and XXV	4 n +4 e	The student understands the lesson	Fats and importance	Theoretical lecture	Weekly test
twenty-sixth	2 n +2 e	The student understands the lesson	Maemoglobin	Theoretical lecture	Weekly test
Twenty-seventh and twenty-eighth	4 n +4 e	The student understands the lesson	Minerals and neutrition	Theoretical lecture	Weekly test

The Twenty - ninth	4 n +4 e	The student understands the lesson	Immunological	Theoretical lecture	Weekly test

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	65

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW	
This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.	

1. Teaching Institution	Collage of electrical and electronic engineering
2. University Department/Centre	Department of medical engineering techniques
3. Course title/code	Application computer
4. Programme(s) to which it contributes	Weekly (practical + theoretical)
5. Modes of Attendance offered	
6. Semester/Year	2022-2023
7. Number of hours tuition (total)	90

8. Date of production/revision of this specification	25\6\2022
9. Aims of the Course	

1. Identify the working environment of the program and the different components of the screen
2. Know the interface of the program
3 - identify the types of programming instructions
4 - programming and design interface control program

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

L- Knowledge and Understanding
  A1. Knowledge of the program
  A2. Understanding the importance of the program
  A3. Know and understand the practical applications of the program
  A4. Knowledge and understanding of interfacing the program with other software applications
  A5. Knowledge and understanding of the control of the various tools of the program ready
  A6. Knowledge and understanding of presentation preparation methods

B. Subject-specific skills B1. User interface design B2. The student uses the programs for programming the Fijol Pisk B3. Students acquire programming skills in VB B4. The student writes the results obtained by laboratory

	Teaching and Learning Methods				
Lecture theory / software experiments					
11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st-3rd	2	The student understands the lesson	**Networks, Internet** - **Web** - **Ex: Yahoo Google**	Practical and theoretical lecture	Direct exam
4th	2	The student understands the lesson	**Flowcharts**	Practical and theoretical lecture	Direct exam
5th-6th	2	The student	Introduction, VB Environment,VB Windows.	Practical and theoretical lecture	Direct exam

		understands the lesson			
7th	2	The student understands the lesson	A First Program, Expressions, Constants.	Practical and theoretical lecture	Direct exam
7th-8th	2	The student understands the lesson	Variables and assignment statement, logical operator.	Practical and theoretical lecture	Direct exam
9th-12th	2	The student understands the lesson	Control Statements(Conditional statements: If, Else, Elseif, switch case)	Practical and theoretical lecture	Direct exam
13th-	2	The	Repetition	Practical and	Direct exam

15th		student understands the lesson	statements: (While statement, For statement)	theoretical lecture	
16th-23th	2	The student understands the lesson	**Tool box** **From Message Box, Command Buttons, Label Bones, Text Boxes.** **Check Boxes, Option Button, Control Arrays, Frames, List Boxes, Combo Boxes.** **Scroll bars, Lone, Shape, Picture, Image, Drive List Box (Directory/ file) list Box.** **Command dialog Box.**	Practical and theoretical lecture	Direct exam
23th-	2	The	**(Text file)**	Practical and	Direct exam

30th		student understands the lesson	**Open/close file Read from file write to file Print**	theoretical lecture	

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	Learn Visual Basic 6.0 Visual Basic Programming
Community-based facilities (include for example, guest Lectures , internship , field studies)	1- Visual Basic step by step

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	55

TEMPLATE FOR COURSE SPECIFICATION

1. Teaching Institution	Middle Technical University
2. University Department/Centre	Electrical Engineering Technical College
3. Course title/code	**Digital technique**
4. Programme(s) to which it contributes	Bachelor of Engineering Techniques of Medical Devices
5. Modes of Attendance offered	Year
6. Semester/Year	ABET
7. Number of hours tuition (total)	There is a close relationship in the labor market that receives our graduates, where the view of the labor market is taken into the curriculum as well as

	consideration of the curricula in the scientific universities
8. Date of production/revision of this specification	29-6-2021

9. Aims of the Course
1. Preparation of engineers applied in the field of engineering, electrical and electronic technology
2. Graduation request for them the ability to know the parts of different medical devices and the evolution of what happens in the techniques
3. Training and development of engineering and technical staff to operate and maintain medical devices
4. Preparing researches and studies to improve and develop medical devices
5. Providing students with a scientific skill that enables them to diagnose the resulting malfunctions in medical devices
6. Develop proposals and alternatives for medical devices

10. Learning Outcomes, Teaching ,Learning and Assessment Methode

Lectures – Scientific laboratories – Data show – Workshops – Seminars – Scientific exhibitions

M-Knowledge and Understanding

A1. Develop plans and programs of work especially in the maintenance of medical equipment

A2 - Supervising the site on the implementation of the work

A3 - Preparation of research and studies to improve the development of the work of medical devices

A4 - Participation in committees related to the activity of medical devices

A5 - Participate in the analysis of tenders for medical devices and alternative selection

B. Subject-specific skills

B1.Training of engineers and technicians on the operation and maintenance of medical devices

B2 - Installation and operation of medical devices (supervision and implementation)

B3- Provide consultation in the field of medical devices

Teaching and Learning Methods

Lectures – Scientific laboratories – Data show – Workshops – Seminars – Scientific exhibitions

Assessment methods

Daily Evaluation - Quarterly Evaluation - Practical Evaluation - Final Evaluation - Progressive Presentation - Daily Attendance - Weekly Reports

C. Thinking Skills
C1. Submit scientific projects in the design of circuits for medical devices
C2 - designed electronic board
C3 - sets plans and ideas for the future, which is appropriate to the needs in the field of medical devices

D. General and Transferable Skills (other skills relevant to employability and

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st +2nd	4+4	The student understands the lesson	Number system : Binary numbers , Octal numbers , Hexadecimal numbers	theoretical lecture	Before and after questions
3th+ 4th	4+4	The student understands the lesson	Binary codes .	theoretical lecture	Before and after questions
5th+6th	4+4	The student understands the lesson	Logic gates .	theoretical lecture	Before and after questions
7th+8th	4+4	The student understands the lesson	De Margan's theorems .	theoretical lecture	Before and after questions
9th+10th	4+4	The student understands the lesson	Laws and theorem of Boolean algebra	theoretical lecture	Before and after questions
11th+12th	4+4	The student understands the lesson	Arithmetic circuit .	theoretical lecture	Before and after questions
13th+14th +15th	4+4	The student understands		theoretical lecture	Before and after questions

		the lesson			
16th+17th +18th	6+6	The student understands the lesson	Simplifying logic circuits : fundamentals products , sum of products , algebraic simplification	theoretical lecture	Before and after questions
19th+20th+21th	6+6	The student understands the lesson	Truth table to Karnaugh map	theoretical lecture	Before and after questions
22th+23th+24th	6+6	The student understands the lesson	Truth table to Karnaugh map	theoretical lecture	Before and after questions
25th+26th +27th	4+4	The student understands the lesson	Counters .	theoretical lecture	Before and after questions
28th+29th +30th	4+4	The student understands the lesson	Special counters and shift registers	theoretical lecture	Before and after questions

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Digital
Special requirements (include for example workshops, periodicals, IT software, websites)	

Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	50
Maximum number of students	65

Course description form

Course description

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities .It must be linked to the description of the program.

The College of Electrical Engineering Techniques	1.	Educational institution
Department of Medical Instrumentation Engineering Techniques	2.	Scientific Department / Center
Physiology and Anatomy	3.	Course name / code
Weekly (practical + Theoretical)	4.	Available forms of attendance
Second semester 2021\2022	5.	season / year

10.	Exit data of the decision and the methods of teaching, learning and assessment

60 hours	6. Number of hours of study (total)
23/8/2022	7. The date this description was prepared
8. The objectives of the course :to prepare students for the study and understanding of medical devices and by clarifying physiological changes especially the electrical ones, that develop when the different parts of the body perform their function, and the relationship with the devices that are used to measure and diagnose various phenomena and diseases.	

A - The cognitive goals
A 1 -Defines the anatomical structure of the human being
A 2 -Determines the relationship between the structures of the human body
A3 - Understand the physiology of the human body
A 4 -Understand electrical phenomena in cells and tissues
A 5 -Understand the functions of organs and systems in the human body
A 6 -

B - Objectives of skills for the course.
B 1 – Student is able for technical uses of medical devices and the principle of its work in the analysis of medical data.
B 2 - Student is able to measures some of the elements involved in the composition of the human body
B 3 - Enabled the student for analysis and measurement of blood components
B 4 - Student is able to analyze and measure electrical phenomena in the human body.

Teaching and learning methods

Theoretical lectures using Data show presentations and Video-laboratories process-
laboratory biochemistry experiments, hematology – Seminars.

Evaluation methods

Daily tests, pre-test and post-test - weekly tests - quarterly - annual tests - scientific activities

C - Affective and value goals
    C 1 .The student listens attentively to the professor explained
    C 2 -That the student learn about the impact of physiology and anatomy in life to facilitate understanding of the work of laboratory, diagnostic and therapeutic medical devices and devices for monitoring vital human functions.
    C 3 -The student should describe the importance of analyzing elements and chemicals in human body fluids
    C 4 -The student should take care of calm and the order of the class

Teaching and learning methods Theoretical lectures using Data show presentations and Video-laboratories process- laboratory biochemistry and hematology experiments, – Seminars.
Seminars - guidance and educational education A panel discussion on the emergence of electrical phenomena and signals in the human body and methods of their measurement and analysis. Symposium on the dangers of smoking on public health. Symposium on the dangers of drugs to public health. Awareness seminar on the COVID 19 pandemic about symptoms, methods of infection and prevention. Awareness seminar on the vaccine and its types for the COVID 19 pandemic.
Evaluation methods Daily tests, pre-test and post-test - weekly tests - tests quarterly - annual tests - scientific activities

Discussion and dialogues of the professor with the student - and discussion and dialogues of the student with another student

D - Skills of public and rehabilitation transferred) other skills related to the viability
of employment and personal development.

    D 1 -The student's ability to do scientific research

    D 2 -The student's ability to participate in extra-curricular activities

    D 3 -Library skills and via the Internet, the Internet outside the scientific material

	11.	Course structure			
Evaluation method	Education method	Unit name or / topic	Required learning outcomes	Hours	The week
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Central Nervous System	The student understands the lesson	2 T+ 2 P	**The First**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Peripheral Nervous System.	The student understands the lesson	2 T+ 2 P	**The Second**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Autonomic Nervous System.	The student understands the lesson	2 T+ 2 P	**The Third**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Sensory, Motor, and integrating system.	The student understands the lesson	2 T+ 2 P	**The Fourth**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The endocrine system.	The student understands the lesson	4 T + 4 P	**The Fifth and Sixth**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Cardiovascular System: The Blood.	The student understands the lesson	2 T + 2 P	**The Seventh**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Cardiovascular System: The Heart.	The student understands the lesson	2 T + 2 P	**The Eighth,**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Cardiovascular System: The Blood Vessels, Dynamics and Physiology of Circulation.	The student understands the lesson	2 T + 2 P	**The Ninth**

Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Respiratory System.	The student understands the lesson	2 T+ 2 P	**The Tenth**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Dynamics and Physiology of Respiration.	The student understands the lesson	2 T +2 P	**The Eleventh**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Lymphatic and Immune System.	The student understands the lesson	2 T +2 P	**The Twelfth**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Digestive System.	The student understands the lesson	2 T+ 2 P	**The Thirteenth**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Urinary System.	The student understands the lesson	2 T+ 2 P	**The fourteenth**
Pre and Post tests, weekly, quarterly and yearly tests	Theoretical and practical lecture	The Reproductive System.	The student understands the lesson	2 T+ 2 P	**The Fifteenth**

12-Infrastructure	
1- Brief lectures, Theoretical and practical The H- to Frederic 2 the Martini, F , Edwin Bartholomew, C ., William the Ober , Claire , W . Garrison, Kathleen Welch, & t 's Ralf Hutchings	1- Required prescribed books

(2007), *Essentials software Of And Anatomy , Physiology* , 14 Th Edn , Education 's Pearson, the San , Francesco, , USA .	
1- Interactive physiology, Copyright © 2005 Pearson Education, Inc. publishing as Benjamin Cummings.	2 - (main references sources)
Human Anatomy text book Human Physiology text book	1, A-Recommended books and references, (scientific journals, reports....)
1- Human Physiology Study Guide **2- Human Anatomy & Physiology: Help and Review**	B- Electronic references , Websites

13. Course development plan
1- Adding an introduction to the anatomical and physiological concepts so that the student can understand the subsequent topics. 2- Provide some illustrations of the human body. **3-** Updating practical experiences to understand physiological phenomena in the human body.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW	
This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.	
1. Teaching Institution	Collage of electrical and electronic engineering
2. University Department/Centre	Department of medical engineering techniques
3. Course title/code	Application computer
4. Programme(s) to which it contributes	Weekly (practical + theoretical)
5. Modes of Attendance offered	
6. Semester/Year	2022-2023
7. Number of hours tuition (total)	90
8. Date of production/revision of this specification	25\6\2022

9. Aims of the Course
1. Identify the working environment of the program and the different components of the screen
2. Know the interface of the program
3 - identify the types of programming instructions
4 - programming and design interface control program

10· Learning Outcomes, Teaching ,Learning and Assessment Methode
N- Knowledge and Understanding A1. Knowledge of the program A2. Understanding the importance of the program A3. Know and understand the practical applications of the program A4. Knowledge and understanding of interfacing the program with other software applications A5. Knowledge and understanding of the control of the various tools of the program ready A6. Knowledge and understanding of presentation preparation methods
B. Subject-specific skills B1. User interface design B2. The student uses the programs for programming the Fijol Pisk B3. Students acquire programming skills in VB B4. The student writes the results obtained by laboratory
Teaching and Learning Methods

			Lecture theory / software experiments		

Assessment methods

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st week	2	The student understands the lesson	Introduction, MATLAB Environment,MATLAB Windows(Command Window, Workspace Window, Command History window, Help Window, Editor Window).	Practical and theoretical lecture	Direct exam
2nd, 3rdweek	2	The student understands the lesson	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting ,End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.	Practical and theoretical lecture	Direct exam
4thweek	2	The student understands the lesson	Variables and assignment statement, logical operator.	Practical and theoretical lecture	Direct exam
5thweek	2	The	Arrays, Built in functions,	Practical and	Direct

			Basic Matrix Functions(sum, max, min,mean,magic,diag,length,size, median, prod, sort).	theoretical lecture	exam
6thweek	2	The student understands the lesson	Basic Plotting(Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).	Practical and theoretical lecture	Direct exam
7th,8th week	2	The student understands the lesson	Arguments and return values, M-file, input-output statement	Practical and theoretical lecture	Direct exam
9th,10th, 11th week	2	The student understands the lesson	Control Statements(Conditional statements: If, Else, Elseif, switch case)	Practical and theoretical lecture	Direct exam
12th ,13th, 14th week	2	The student understands the lesson	Repetition statements: (While statement, For statement)	Practical and theoretical lecture	Direct exam
15thweek	2	The student understa	String handling		

		nds the lesson			
16th week	2	The student understands the lesson	Procedures and Functions(a custom-made Matlab function, define the name of the function, the input and the output variables, Calling Functions)	Practical and theoretical lecture	Direct exam
17th week	2	The student understands the lesson	Cells(Pre-defined cells, its usage, cell Arrays, cell two structure).	Practical and theoretical lecture	Direct exam
18th week	2	The student understands the lesson	Printing Output. Array Functions(length, size, reshape, dot)	Practical and theoretical lecture	Direct exam
19th,20th, 21th week	2	The student understands the lesson	Handle graphics and user interface. 1.Pre-defined dialogs 2. Handle graphics a) Graphics objects b) Properties of objects c) Modifying properties of graphics objects	Practical and theoretical lecture	Direct exam
22th week	2	The student understands the	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output)	Practical and theoretical lecture	Direct exam

		lesson			
23th , 24th week	2	The student understands the lesson	Predefined GUIs and Dialog Boxes.	Practical and theoretical lecture	Direct exam
25th ,26th week	2	The student understands the lesson	Menu-driven programs a) Controls: uimenu and uicontrol b) Interactive graphics c) Large program logic flow	Practical and theoretical lecture	Direct exam
27th ,28th week	2	The student understands the lesson	Manipulating Text (Writing to a text file, Reading from a text file, Randomising and sorting a list, Searching a list).	Practical and theoretical lecture	Direct exam
29th ,30th week	2	The student understands the lesson	Introduction to Image Analysis(Reading & Writing Images,Displaying Images)	Practical and theoretical lecture	Direct exam

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	

Special requirements (include for example workshops, periodicals, IT software, websites)	Introduction to MATLAB for Engineers William J. Palm III INTRODUCTION TO MATLAB FOR ENGINEERING STUDENTS ,David Houcque
Community-based facilities (include for example, guest Lectures , internship , field studies)	

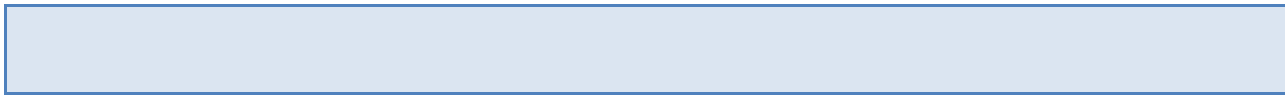| 13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Middle Technical University
2. University Department/Centre	Technical college of electrical engineering\ Department of medical engineering techniques
3. Programme Title	Digital Signal Processing
4. Title of Final Award	Middle Technical University Award
5. Modes of Attendance offered	Class attendance
6. Accreditation	TVET
7. Other external influences	Real world applications of biomedical signal processing

8. Date of production/revision of this specification	August 2022

9. Aims of the Programme
1. The graduates get fundamentals on digital signal and system.
2. The graduated students gain classification of both signals and systems.
3. The graduated students familiar with time and frequency analysis.
4. The graduated students able to realize digital filters.

10. Learning Outcomes, Teaching, Learning and Assessment Methods
B. Knowledge and Understanding A1. Prepare the plans and work programmers particularly in digital signal processing. A2. Preparation the research and studies to improve and develop the action of digital signals. A3. On-site supervision on the business implementation. A4. Participate in the relevant committee's activity of medical applications. A5. Participate in the analysis of tenders particularly in the digital systems.
B. Subject-specific skills B1. Development and training the engineering technical staffs on the applications of digital signal processing in medical instrumentation. B2. Signal quality identification. B3. Consult scientific in the field of medical instrumentations.

Teaching and Learning Methods
Lectures - scientific laboratory- data show - summer training- workshops- seminars scientific trade shows.

Assessment methods
Weekly assessment Monthly assessment Semester assessment

C. Thinking Skills
C1. The possibility graduate on providing scientific project in design signal analysis tool for medical instrumentations. C2. The possibility graduate on develop algorithm. C3. The possibility graduate on put the plains and future ideas that suitable with requirements in the field of medical instrumentations.

Teaching and Learning Methods
Lectures - scientific laboratory- data show - summer training- workshops- seminars scientific trade shows.

Assessment methods
Weekly assessment Monthly assessment Semester assessment

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. Programing D2. Algorithm development D3. System simulation
Teaching and Learning Methods
Lectures - scientific laboratory- data show - summer training- workshops- seminars scientific trade shows.
Assessment Methods
Weekly assessment Monthly assessment Semester assessment

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
3-1	12	*Characterize signals*	*Introduction to signal processing*	Classroom	Oral and written
6-4	12	*Characterize system*	*Convolution and sampled data system*	Classroom	Oral and written
9-7	12	*Signal analysis*	*Fourier series and Fourier Transform*	Classroom	Oral and written
12-10	12	*Signal Transform*	*Z-Transform*	Classroom	Oral and written
14-13	8	*Frequency domain analysis*	*Discrete Fourier Transform*	Classroom	Oral and written
16-15	8	*Fast computation*	*Fast Fourier Transform*	Classroom	Oral and written
19-17	12	*Digital filter structure*	*Digital filter*	Classroom	Oral and written
22-20	12	*IIR design*	*IIR Digital Filter*	Classroom	Oral and written
24-23	12	*FIR design*	*FIR Digital Filter*	Classroom	Oral and written
27-25	12	*Real world application*	*Speech signal processing*	Classroom	Oral and written
30-28	12	*Fundamentals of image processing*	*Image processing*	Classroom	Oral and written

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Digital Signal Processing, Schum's outlines. Digital Signal Processing using Matlab, Vinay k. Ingle. YouTube Channel
Special requirements (include for example workshops, periodicals, IT software, websites)	Weekly Home Works
Community-based facilities (include for example, guest Lectures , internship , field studies)	Applications in medical instrumentations

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	50

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Middle Technical University
2. University Department/Centre	Technical college of electrical engineering\ Department of medical engineering techniques
3. Programme Title	Microprocessor & microcomputer
4. Title of Final Award	Middle Technical University Award
5. Modes of Attendance offered	Theoretical lectures and practical lectures

6. Accreditation	
7. Other external influences	
8. Date of production/revision of this specification	August 2022

9. Aims of the Programme

That is programmed in microprocessor 8085 (is a 3nd-year) education leading to the degree of bachelor of technical engineering. The program is taught entirely in English. The programmer is coordinated by the instrumentation dept. at MTU and students will have access to a world-class research environment. The BACHELOR's programmed aims to offer an engaging and challenging, research-oriented academic environment, enabling students to: 1. acquire extensive knowledge and insight; develop their professional and scientific mindset by taking the initiative in and assuming responsibility for the learning process. 2. develop an inquisitive and reflective attitude. acquire a knowledge of, understand and gain practical experience with taking stock of the requirements of MID systems (i.e. technology, design, validation and implementation) and of promising alternatives, and take informed decisions.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A1- The student knows the definition of Microprocessor 8085 . A2- How to engage colleagues and stakeholders in managing information, knowledge and communication systems. A3. Design and implementation of 8085 microprocessors. A4- Principles, methods, tools and techniques for keeping information, knowledge and communication secure and how to establish appropriate security levels and approaches. A5- How to evaluate current information, knowledge and communication systems and their capability and capacity to meet future needs. A6- Information, knowledge and communication technologies, their features and benefits for your needs. A7- Suppliers of information, knowledge and 8085MP and their capabilities

. B. Subject-specific skills B1. The student can identify the Design and implementation of 8085MP. B2. The student can recognize the importance of noise in transmitting and receiving INSTRUCION. B3. The student performs a technique of built a INTERFERANCE KIT.
Teaching and Learning Methods
Lectures - scientific laboratory- data show - summer training- workshops- seminars scientific trade shows.
Assessment methods
Weekly assessment Monthly assessment Semester assessment
C. Thinking Skills C1. Students become know what is the transmitting and receiving technique. C2. Students interested in PROGRAMMER properties. C3. Students have a many solution of practical problem in MICROPROCSSOR circuits
Teaching and Learning Methods
Lectures - scientific laboratory- data show - summer training- workshops- seminars scientific trade shows.
Assessment methods

Weekly assessment
Monthly assessment
Semester assessment

D. General and Transferable Skills (other skills relevant to employability and
   personal development)
D1. Programing
D2. Algorithm development
D3. System simulation

Teaching and Learning Methods

Lectures - scientific laboratory- data show - summer training- workshops- seminars
scientific trade shows.

Assessment Methods

Weekly assessment Monthly assessment Semester assessment			

11.	Course program		
Week	Syllabus	Teaching Method	Assessment Method
1st , 2nd , 3rd	Introduction to microprocessor and microcomputer.	Theory lecture+practical lab	Daily tests and discussions
4th , 5th , 6th	Semiconductor memories (ROMs & RAMs).	Theory lecture+practical lab	Daily tests and discussions
7th , 8th , 9th	Auxiliary (backing) memories (magnetic tape, magnetic disk, etc).	Theory lecture+practical lab	Daily tests and discussions
10th , 11th , 12th	Microprocessor architecture.	Theory lecture+practical lab	Daily tests and discussions

13th , 14th , 15th	Bus signal timing & I/O timing.	Theory lecture+practical lab	Daily tests and discussions
16th , 17th , 18th	Microprocessor interfacing.	Theory lecture+practical lab	Daily tests and discussions
19th , 20th , 21st	Instruction sets & addressing modes.	Theory lecture+practical lab	Daily tests and discussions
22nd , 23rd	Digital I/O (parallel I/O & serial I/O).	Theory lecture+practical lab	Daily tests and discussions
24th , 25th , 26th	Analogue I/O (interfacing ADC & DAC to microprocessor).	Theory lecture+practical lab	Daily tests and discussions
27th , 28th	Standard buses (serial & parallel buses).	Theory lecture+practical lab	Daily tests and discussions
29th , 30th	Some practical microprocessor.	Theory lecture+practical lab	Daily tests and discussions

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW	
This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.	

1. Teaching Institution	Electrical engineering techniques college
2. University Department/Centre	Medical instrumentation
3. Course title/code	Electrical technology
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (theory & practical)
6. Semester/Year	2018-2019
7. Number of hours tuition (total)	60hrs theory+60 hrs practical =120 hrs
8. Date of production/revision of this specification	14-12-2018

9. Aims of the Course
Study of the basics of electricity, the electrical machines, the electrical transformers and their principle of operation, maintenance, starting, and troubleshooting

10· Learning Outcomes, Teaching ,Learning and Assessment Methode
O- Knowledge and Understanding A1.list the types of the electrical transformers A2.list the types of the electrical machines A3.knowing the charactristics of the electical motors and transformers A4.learn how to control the electrical switching A5. A6 .
B. Subject-specific skills B1using the electrical circuits B2.using the different types of electrical machines B3.learning the skills of connection of electrical transformes and machines B4 writing the practical results which done in the laboratory
Teaching and Learning Methods

Theory lecture and electrical experiment
Assessment methods
Theory courses exams Courses practical exams Weekly tests (oral&written) Quick questions Pre and post tests

C. Thinking Skills
    C1. listening to the lecture carefully
    C2.knowing the influence of the science and scientists on the life
    C3.describing the importance of learning the electrical technology subject
    C4. Giving importance to calmness and systematic class

Teaching and Learning Methods
Discussion
Assessment methods
Questionnaire, seminar, discussion

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st , 2nd	4+4	The student understand the lecture	Transformers : single phase transformer and construction .	Theory lecture+practical lab	Daily tests and discussions
3rd	2+2	The student understand the lecture	Theory of operation , no load and short circuit test	Theory lecture+practical lab	Daily tests and discussions
4th , 5th	4+4	The student understand the lecture	Equivalent circuit , auto–transformers, instrument transformers .	Theory lecture+practical lab	Daily tests and discussions
6th , 7th	4+4	The student understand the lecture	Three phase transformers , constructions methods of connection .	Theory lecture+practical lab	Daily tests and discussions
8th , 9th	4+4	The student understand the lecture	Electromechanical energy conversion principles , relay operation .	Theory lecture+practical lab	Daily tests and discussions
10th , 11th , 12th	6+6	The student understand the lecture	D.C machines : e.m.f and torque equation , equivalent circuit , methods of excitation , generator characteristics .	Theory lecture+practical lab	Daily tests and discussions
13th , 14th , 15th	6+6	The student understand the lecture	Motor characteristics , testing , calculation of losses and efficiency .	Theory lecture+practical lab	Daily tests and discussions

16th , 17th , 8th	6+6	The student understand the lecture	Induction machines : equivalent circuit , basic equation , simple analysis testing .	Theory lecture+practical lab	Daily tests and discussions
19th , 20th , 21st	6+6	The student understand the lecture	Single phase induction motor , methods of starting , siplitphase , capacitor short , capacitor run and shaded pole motors .	Theory lecture+practical lab	Daily tests and discussions
22nd , 23rd	4+4	The student understand the lecture	Synchronous machines , generators and motors , equivalent circuit , basic equation .	Theory lecture+practical lab	Daily tests and discussions
24th , 25th	4+4	The student understand the lecture	Special machines : Reluctance motor , hysteresis motor , linear motor , stepper motor , dray cup type motor , servo motor , etc ……..	Theory lecture+practical lab	Daily tests and discussions
26th , 27th	4+4	The student understand the lecture	Control switches : pilot switches , push bottoms , limits .	Theory lecture+practical lab	Daily tests and discussions
28th	2+2	The student understand the lecture	Switches , flost switches , contactors , pressure switches .	Theory lecture+practical lab	Daily tests and discussions
29th , 30th	4+4	The student understand the lecture	High voltage circuits .	Theory lecture+practical lab	Daily tests and discussions

12. Infrastructure

Required reading:
· CORE TEXTS
· COURSE MATERIALS
· OTHER

Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

1. Teaching Institution	Middle Technical University/ Collage of electrical and electronic engineering
2. University Department/Centre	Medical Instrumentation Engineering Techniques
3. Course title/code	Medical instrumentation ii
4. Programme(s) to which it contributes	Department of medical engineering techniques
5. Modes of Attendance offered	Weekly (theoretical + practical)
6. Semester/Year	2023-2022
7. Number of hours tuition (total)	30 hours (theoretical) + 30 hours (practical)

8. Date of production/revision of this specification	2022/08/18
9. Aims of the Course	
Studying the medical device as a purely electronic device, then its difference from the rest of the electronic devices because it is a medical device and studying its internal electronic circuits, then training on all electronic circuits in medical devices and the ways of operating and maintaining them, which ultimately qualifies the student to use and maintain medical devices in general.	

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

P- Knowledge and Understanding
A1. Developing the scientific ability of students in the maintenance and development of medical devices
A2. Develop students' skills in the field of medical devices
A3. Practical training for students on all electronic circuits in medical devices
A4.
A5.
A6 .

B. Subject-specific skills
B1. Training in the operation and maintenance of medical devices
B2. Installation and operation of medical devices (supervision and implementation)
B3. Providing advice in the field of medical devices
B4. Repair of medical equipment

Teaching and Learning Methods
Present, electronic and video lectures - scientific laboratories (medical devices) - use of data show - workshops - use of the smart board to explain the vocabulary of the curriculum

Assessment methods
Daily assessment - quarterly assessment - practical assessment - final assessment - presentation - daily attendance - weekly reports

C. Thinking Skills
    C1. Presents scientific projects in the design of electronic and electrical circuits for medical devices
    C2. Designing an electronic board for medical applications
    C3. Develops future plans and ideas, in line with the needs in the field of medical devices

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Providing the graduate with a scientific and applied skill that enables him to diagnose the resulting malfunctions in medical devices
D2. The graduate's ability to work on electronic boards in medical devices
D 3. The graduate's ability to train technical cadres in the fields of medical devices
D 4. Repairing, maintaining and developing medical devices and designing alternative electronic circuits.
D 5. The ability to deal with the work environment in hospitals, companies and scientific offices.

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
4+4+4	3-1	lecture + lab	**Cardiac function recorders and monitors.**	The student understands the lesson	direct questions
4+4+4	6-4	lecture + lab	**Surgical scope**	The student understands the lesson	quick test+ direct questions
4+4+4	9-7	lecture + lab	**Audiological system**	The student understands the lesson	quick test+ direct questions
4+4+4	12-10	lecture + lab	**Ophthalmic system**	The student understands the lesson	quick test+ direct questions
4+4+4	15-13	lecture + lab	**Pulmonary function system.**	The student understands the lesson	quick test+ direct questions
+4+4+4 +4+4+4 4+4	23-16	lecture + lab	**Imaging Technology. (Ultrasound, Radiation, X-ray, Computed Tomography, Magnetic Resonance Imaging, etc.)**	The student understands the lesson	quick test+ direct questions
4+4	25-24	lecture + lab	**Therapeutic Diathermy**	The student understands the lesson	quick test+ direct questions
4+4	27-26	lecture + lab	**Pathological units.**	The student understands the lesson	quick test+ direct questions
4+4+4	30-28	lecture + lab	**Coronary care units**	The student understands the lesson	quick test+ direct questions

11. Course Structure

4+4+4	3-1	lecture + lab	**Cardiac function recorders and monitors.**	The student understands the lesson	direct questions
4+4+4	6-4	lecture + lab	**Surgical scope**	The student understands the lesson	quick test+ direct questions
4+4+4	9-7	lecture + lab	**Audiological system**	The student understands the lesson	quick test+ direct questions
4+4+4	12-10	lecture + lab	**Ophthalmic system**	The student understands the lesson	quick test+ direct questions

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	
				lesson	

13. Admissions

Pre-requisites	
Minimum number of students	30
Maximum number of students	50

TEMPLATE FOR COURSE SPECIFICATION

Electronic systems are the combination of several electronic components with each other to form a board or an electronic circuit to carry out certain tasks to control and control the passage of current through those circuits. These electronic circuits are used in many medical electronic devices as circuits of regular power supplies, filters and electronic switches.

1. Teaching Institution	Middle Technical University
2. University Department/Centre	Electrical Engineering Technical College, Department of Medical Instrumentation Techniques Engineering
3. Course title/code	medical Electronic systems
4. Programme(s) to which it contributes	Electronic systems
5. Modes of Attendance offered	Theory , laboratory
6. Semester/Year	2020/2021
7. Number of hours tuition (total)	120 hours (60 theory + 60 practice)
8. Date of production/revision of this specification	1/9/2020
9. Aims of the Course	

- Preparing applied engineers in the field of electrical and electronic engineering works.
- Graduating students have the ability to be familiar with the different parts of medical devices and keep pace with the development that is taking place in their technologies.
- Training and developing engineering and technical cadres to operate and

maintain medical electronic devices
• Preparing research and studies to improve and develop the work of medical electronic devices.
• Providing students with a scientific skill that enables them to diagnose malfunctions caused in medical electronic devices.
Develop proposals and alternatives for medical electronic devices.

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

Q- Knowledge and Understanding

A1- Develop work plans and programs, especially in the maintenance of electronic medical devices.
A 2- On-site supervision of the implementation of the works
A3- Preparing research and studies to improve the development of the work of medical electronic devices.
A4- Participation in committees related to the activity of medical electronic devices.
A 5- Participate in the analysis of bids for medical devices and choose the alternative.

B. Subject-specific skills

B1 - Training engineers and technicians to operate and maintain medical electronic devices.
B 2 - Installation and operation of medical devices (supervision and implementation).
B3 - Providing advice in the field of medical devices.

Teaching and Learning Methods

Academic lectures that contribute to establishing a strong foundation to support the cognitive ability of the student practical laboratory, which provides practical experience to the student through practical experiments, which in turn support and promote the understanding and perception of the theoretical side.

Assessment methods

Interactive assessment conducted directly between student and teacher is one of the feedback methods that faculty members depends on to evaluate the teaching and learning process. Periodic tests provides information on the extent to which student's follow-up the scientific content and the extent to which the given information can be understood

Quarterly tests and a middle course that held the student's interest and follow-up of the scientific material by its theoretical and skill during the entire semester.

Final exams are the final seminar in the assessment of the student and interaction and interest in the scientific material during the whole academic year.

C. Thinking Skills

C1- Presents scientific projects in the design of electronic circuits for medical devices.
C 2- Designing an electronic board.
C3- Develops future plans and ideas, in line with the needs in the field of medical devices.

Teaching and Learning Methods

Motivate the creative side by posing various problems to students and urging them to find appropriate solutions. Forming work teams to assess the results of their work and change their structure periodically to develop the spirit of cooperation and development and motivate students to make intensive efforts to work different roles.

Assessment methods

Direct assessment where the assessment is done by the teacher directly and write their observations about it. Practical projects and graduation projects and evaluate the student's ability to creativity, achievement and teamwork and ability to find solutions to various scientific problems.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Calculate the input and output values of the electronic circuits that contain the

diode or transistor
D2. How to design circuits according to certain values
D3. Know the analysis of any complex electronic circuit

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2+2		Introduction to electronic systems	Lecture + practical	Oral test
2	2+2		Regulated power supplies	Lecture + practical	Daily test
3	2+2		Monolithic regulators	Lecture + practical	Daily test
4	2+2		Switching regulators	Lecture + practical	Daily test
5-6	4+4		Zener With AC Circuits (Clippers	Lecture + practical	Daily test
10 - 7	8+8		Operations amplifiers applications	Lecture + practical	Daily test
14 - 11	8+8		Active filters LPF, HPF, BPF, BSF	Lecture + practical	First term exam
18 - 15	8+8		Passive filters LPF, HPF, BPF, BSF	Lecture + practical	Test
22 - 19	8+8		Analog to digital conversion (ADC) & Digital to analog conversion (DAC)	Lecture + practical	Test
24 - 23	4 + 4		Medical data acquisition system	Lecture + practical	Test
27 - 25	6 + 6		Microcomputers and microcontrollers		Test
29 - 27	6 + 6		Monitoring and control application	Lecture + practical	Test
30	2 + 2		مراجعة والامتحان النهائي		Final exam

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Electronic Circuit Analysis
Special requirements (include for example workshops, periodicals, IT software, websites)	Advanced Electronic Circuits
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Course title/code	Advance Logic Design (ALD)
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (practical + theoretical)
6. Semester/Year	2021-2022
7. Number of hours tuition (total)	Theory (60 h) and practical (60 h)
8. Date of production/revision of this specification	16/08/2022
9. Aims of the Course	
1- Teaching the student to program the Arduino microcontrollers in C language	
2- Teaching the student on how to use the Arduino microcontroller in different scientific applications	
-3Design and implementation of different scientific projects based on Arduino microcontrollers	
4- Teaching the student to identify advanced digital electronic circuits and how to distinguish between them.	
5- Teaching the student to design digital electronic circuits	
6- Identify the types of digital memories and programmable electronic circuits	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
R- Knowledge and Understanding A1. The student lists the types of digital integrated circuits A2. The student recognizes the difference between digital integrated circuits A3. The student recognizes to digital memory types and programmable digital   circuits A4. The students learn how to programming the microcontroller in C language A5. The student programs the microcontroller A6 .The student learns several applications of the microcontroller
B. Subject-specific skills B1. The student uses digital electronic circuits B2.The student uses programs to program the microcontroller B3. Students acquire programming skills in C language B4. The student writes the results obtained by the experiments
Teaching and Learning Methods
Theoretical and online lectures, role playing, brainstorming, and experiments
Assessment methods
• Written quarterly examinations • Practical Quarterly Examinations • Weekly Tests (Oral / Written) • Quizzes • pre- test and post-test
C. Thinking Skills C1. The student listens to the explanation C2. The students learn about the impact of science and scientists in life C3. The student should describe the importance of learning the subject of   Advanced Logic Design (ALD) C4. The student is concerned with quietly and the class system
Teaching and Learning Methods
Discussion and dialogue with students
Assessment methods
Questionnaire, Seminars, Discussion Hubs

D. General and Transferable Skills (other skills relevant to employability and personal development)
    D1. Sports activities
    D2. Technical activities
    D3. Literary activities
    D4. Voluntary activities

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	Theoretical (2) Practical (2)	The student understands the lesson	Introduction to Arduino	Theory and practical	Direct questions
2 and 3	Theoretical (2) Practical (2)	The student understands the lesson	Arduino Programming Language	Theory and practical	Quiz
4	Theoretical (2) Practical (2)	The student understands the lesson	Digital and Analog Inputs of Arduino	Theory and practical	Direct questions
5 and 6	Theoretical (2) Practical (2)	The student understands the lesson	Getting Input from Sensors to Arduino	Theory and practical	Quiz
7	Theoretical (2) Practical (2)	The student understands the lesson	Matrix keypad interface with Arduino	Theory and practical	Direct questions
8	Theoretical (2) Practical (2)	The student understands the lesson	Liquid crystal display (LCD) interface with Arduino	Theory and practical	Quiz
9	Theoretical (2) Practical (2)	The student understands the lesson	Arduino Hardware Interrupt	Theory and practical	Direct questions
10	Theoretical (2) Practical (2)	The student understands the lesson	Arduino Power Saving Sleep Modes	Theory and practical	Quiz
11 and 12	Theoretical (2) Practical (2)	The student understands the lesson	Wave generator based on Arduino	Theory and practical	Direct questions
13 and 14	Theoretical (2) Practical (2)	The student understands the lesson	Interface GLCD with Arduino	Theory and practical	Quiz
15	Theoretical (2) Practical (2)	The student understands the lesson	Arduino troubleshooting	Theory and practical	Direct questions
16	Theoretical (2) Practical (2)	The student understands the lesson	TTL and CMOS Family	Theory and practical	Direct questions
17	Theoretical (2) Practical (2)	The student understands the lesson	Astable multivibrators	Theory and practical	Direct questions

18 and 19	Theoretical (2) Practical (2)	The student understands the lesson	Decoders. (4-to-16 decoder, The BCD decoder , BCD to Seven-segment decoder).	Theory and practical	Quiz
20 and 21	Theoretical (2) Practical (2)	The student understands the lesson	Random Access Memories (RAMs)	Theory and practical	Quiz
22 and 23	Theoretical (2) Practical (2)	The student understands the lesson	Read only Memories (ROMs).	Theory and practical	Direct questions
24 and 25	Theoretical (2) Practical (2)	The student understands the lesson	Programmable Read Only Memories (PROMs) [EPROMs, UV EPROMs, and EEPROMs].	Theory and practical	Quiz
26 and 27	Theoretical (2) Practical (2)	The student understands the lesson	Programmable Logic Arrays (PLAs) [PAL, FPLA and FPGA].	Theory and practical	Direct questions
28	Theoretical (2) Practical (2)	The student understands the lesson	First in –First out serial memories (FIFOs).	Theory and practical	Quiz
29	Theoretical (2) Practical (2)	The student understands the lesson	Last in - First out memories (LIFOs).	Theory and practical	Direct questions
30	Theoretical (2) Practical (2)	The student understands the lesson	Universal Asynchronous Receiver Transmitter (UART)	Theory and practical	Quiz

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1- Digital fundamentals ninth edition by Thomas L.Floyd 2006 2- "Arduino Cookbook" Published by O'Reilly Media, by Michael Margolis Inc., First Edition. 2011 United States of America.
Special requirements (include for example workshops, periodicals, IT software, websites)	http://www.arduin.cc
Community-based facilities (include for example, guest Lectures , internship , field studies)	1- Digital Principles and Logic Design ,chapter 11. by A. Saha and N. Manna. 2007. 2- Digital Electronics Principles, Devices and Applications ,chapter5. by Anil K. Maini 2007. 3- Theory and Problems of digital principles third Edition ,

	chapter6. by ROGER L. TOKHEIM, M.S.1994

13. Admissions	
Pre-requisites	
Minimum number of students	60 (admission plan)
Maximum number of students	75 (admission plan)

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW	

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Engineering Techniques
3. Course title/code	Computer application
4. Programme(s) to which it contributes	2022\2023
5. Modes of Attendance offered	Lecture \ laboratory
6. Semester/Year	Year
7. Number of hours tuition (total)	90
8. Date of production/revision of this specification	2022-8-24
9. Aims of the Course	
1- Knowing how to run the program 2- Know the program interface 3- Know how to create a presentation 4- Knowing how to insert a new slide for your presentation 5- Know how to enter the fees for the presentation 6- Knowledge of adding images and data tables and controlling them	

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Knowledge and Understanding

A1- Knowing the program
A2- Understand the importance of the program
A3- Knowing and understanding the practical applications of the program
A4- Knowing and understanding the interlocking of the program with other software applications
A 5- Knowing and understanding the control of various ready-made program tools
A6- Knowing and understanding how to prepare a presentation

E. Subject-specific skills

B1-Presentation design
B2 - Adding graphic animations to your presentation
B3 - Control the slide show style of your presentation
B4- Design transition animations between presentation slides

Teaching and Learning Methods

Academic lectures: They provide a solid foundation upon which to develop students' knowledge balance

The practical laboratory: which provides all the experiences the student needs to help develop the practical skill side and consolidate the principles necessary to carry out the implementation of projects correctly.
occupational safety steps to reduce the damage caused to persons and property

Systematic training: Interactive assessment: It provides the basis for student assessment by observing the extent of his interaction during the lecture and his participation
Written tests: which provide knowledge of the student's understanding and follow-up of the material and scientific notes given by the instructor
Quarterly exams: The intermediate cycle is to assess the student's interest and interaction with the scientific material he received during the semester, in its academic and skill aspects.
Final exams: The final episode is to evaluate the student's interest and interaction with the scientific material he received during the academic year, both in its academic and skill aspects.

Assessment methods

Interactive Rating: Rating process where the ditch directly between the student and teaching and be one of the fundamentals of feedback upon which faculty members evaluate the teaching and learning process.
Periodic tests editorial: The availability of these tests the knowledge of a faculty member for over a follow-up to the students to content academy and how to interact with information and observations given by teaching students. Quarterly exam: Episode moderation and be to assess the student's interest and its interaction with the scientific article received during the semester, both academic and skill
The final exam: These are the final episode to assess the student's interest and its interaction with the scientific article received during the school year, both academic

Assessment Method	Teaching Method	Unit/Module	ILOs	Hours	Week
Oral exam, paper exam, lab. Report	lecture laboratory	Basics of a PowerPoint application	The student understands the lesson	18	6 - 1
Oral exam, paper	lecture laboratory	Build a new presentation, store the presentation, perform presentation, edit and save changes.	The student understands the lesson	24	14 - 7
exam, lab. Report	lecture laboratory	Insert a new slide (text or image) Enter notes Enter the two main titles for the slide.	The student understands the lesson	15	19 - 15
exam, lab. Report	lecture laboratory	Edit text and control In its form, control the colors and the floor of the slide.	The student understands the lesson	12	23 - 20
Oral exam, paper	lecture laboratory	Adding natural images and their controls, adding charts from Excel, and databases from Access.	The student understands the lesson	6	24-25
exam, lab. Report	lecture laboratory	Transition between program slides, animation styles and sound effects for slides.	The student understands the lesson	9	28 - 26
Oral exam, paper	lecture laboratory	cad-cam	The student understands the lesson	6	29-30

12. Infrastructure	
Required reading: · **CORE TEXTS** · **COURSE MATERIALS** · **OTHER**	PowerPoint 2007: Part Stephen Moffat, The Mouse Training Company
Special requirements (include for example workshops, periodicals, IT software, websites)	PowerPoint 2013 Shelley Fishel
Community-based facilities (include for example, guest Lectures , internship , field studies)	http://www.powerpointninja.com/

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical engineering technical colleges
2. University Department/Centre	Department of medical instrumentation engineering techniques
3. Course title/code	.Medical Instrumentation (III)
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Theory , laboratory
6. Semester/Year	2022/2023
7. Number of hours tuition (total)	150 hours (60 theory + 90 practice)
8. Date of production/revision of this specification	23/8/2022
9. Aims of the Course	
Study the medical devices as a purely electronic device, different from the rest of the electronic devices and study the internal electronic circuits .then training in all electronic circuits in medical devices and methods of operation and maintenance, which ultimately qualifies the student to use .and maintenancethe medical devices in general	

10. Learning Outcomes, Teaching ,Learning and Assessment Methode

S- Knowledge and Understanding
A1. Understand the basic components of the surgical medical device
A2. Studying surgical instruments and their types
A3. Learn the usefulness of each surgical device
A4. Study shock devices
A5. Studying medical surgical instruments.
A6. Studying dental unit.
A7. Studying anesthesia and ventilation devices.
A8. Learn to operate and maintain dialysis devices.

B. Subject-specific skills
B1 - Explains the cause of the malfunction of the medical device
B2. The computer is used to store the specifications of the medical device
B.3. The computer is used as a means of comparing the medical conditions taken from the medical device with data for natural cases stored in the computer
B4- Diagnoses the results of the medical system

Teaching and Learning Methods

Academic lectures that contribute to establishing a strong foundation to support the cognitive ability of the student
practical laboratory, which provides practical experience to the student through practical experiments, which in turn support and promote the understanding and perception of the theoretical side

Assessment methods

Interactive assessment conducted directly between student and teacher is one of the feedback methods that faculty members depends on to evaluate the teaching and learning process
Periodic tests provides information on the extent to which student's follow-up the scientific content and the extent to which the given information can be understood
Quarterly tests and a middle course that held the student's interest and follow-up of the scientific material by its theoretical and skill during the entire semester

Final exams are the final seminar in the assessment of the student and interaction and interest in the scientific material during the whole academic year

C. Thinking Skills
C1. Creating creativity among students and find solutions to different problems
C2. Developing students' ability to work as team members with effective results
C3. Developing students' sense of responsibility and psychological preparation
C4. Develop the studiousness in accomplishing the work to reach satisfactory results

Teaching and Learning Methods
Motivate the creative side by posing various problems to students and urging them to find appropriate solutions Forming work teams to assess the results of their work and change their structure periodically to develop the spirit of cooperation and development and motivate students to make intensive efforts to work different roles

Assessment methods
Direct assessment where the assessment is done by the teacher directly and write their observations about it Practical projects and graduation projects and evaluate the student's ability to creativity, achievement and teamwork and ability to find solutions to various scientific problems

D. General and Transferable Skills (other skills relevant to employability and personal development)
D - the student's ability to scientific research
D3 - the student's ability to participate in extra-curricular activities
D3 - Skills to identify and deal with modern medical devices

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
			11. Course Structure		
1st , 2nd	10	Part 1 : general systems and specialized tools in general surgery .	general systems and specialized tools in general surgery .	Lecture + practical	Oral test
3rd , 4th , 5th	15	Part 2 : specialized systems and Inst .	specialized systems and Inst .	Lecture + practical	Daily test
6th , 7th	10	Ophthalmic microsurgical Inst .	Ophthalmic microsurgical Inst .	Lecture + practical	Daily test
8th , 9th	10	Open heart & cardiovascular .	Open heart & cardiovascular .	Lecture + practical	Daily test
10th	5	Heart – lung machine .	Heart – lung machine .	Lecture + practical	Daily test
11th , 12th	10	Kidney machine .	Kidney machine .	Lecture + practical	Daily test
13th , 14th	10	Surgical diathermy .	Surgical diathermy .	Lecture + practical	First term exam
15th , 16th , 17th	15	Artificial organs – internal & external .	Artificial organs – internal & external .	Lecture + practical	Test
18th , 19th , 20th	15	Dental system .	Dental system .	Lecture + practical	Test
21st , 22nd	10	Gynecology Inst .	Gynecology Inst .	Lecture + practical	Test
23rd, 24th	10	Ultrasonic assisting device .	Ultrasonic assisting device .	Lecture + practical	Test
25th , 26th	10	Audio logical surgical units .	Audio logical surgical units .	Lecture + practical	Test
27th , 28th	10	Anesthetic units .	Anesthetic units .	Lecture + practical	Second term exam
29th , 30th	10	Intensive care units .	Intensive care units .	Lecture + practical	Final exam

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Medical Instrumentation Application and Design
Special requirements (include for example workshops, periodicals, IT software, websites)	Biomedical Engineering Handbook - J.D.Bronzino S. Ananthi ,2005,"A text book of medical
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College, Middle Technical University
2. University Department/Centre	Department of Medical Instrumentation Techniques Engineering
3. Course title/code	Management
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly
6. Semester/Year	2018/2019
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	25/12/2018
9. Aims of the Course	
Provide students with concepts related to the administrative activities of the organization and its applications, and introduce students to the principles and elements of project management strategies in terms of planning, scheduling and controlling activities. In which quantitative methods are emphasized to take into consideration all activities and administrative functions of the project as well as to deal with the recent experiences of the Japanese administration .compared to the administration of the United States (Western in general)	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

 A - Cognitive goals

  T- Students can acquire concepts related to administrative activity
  U- Students will learn about project management principles, elements and
     strategies
  V- Students will learn the types of other experiments in the project management
  W-Students can compare previous project management experiences

 B - The skills objectives of the course
 1 - Students will write the timeline for the start and end of the project
 2. Students will use data analysis programs
 3. Students will acquire project scheduling skills
 4. Students will write methods of project management

   Teaching and Learning Methods

Theoretical lecture

   Assessment methods

Written quarterly examinations
Weekly / oral / written tests
Quick questions
Pre-test and post-test

   (C) Emotional and moral goals
   1 - Listen to the student to explain attentively
   2 - The student learns about the impact of science and scientists in life
   3 - To describe the importance of learning project management material
  4 - The student is interested in calm and class system

   Teaching and Learning Methods

   Discussion and dialogue with students

Assessment methods
Questionnaire, Seminars, Discussion

D. General and Transferable Skills (other skills relevant to employability and personal development)
1- Sports activities
2- Technical activities
3- Literary activities

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2		*-Introduction to project management objective and tradeoffs.* *-Cost – schedule – performance*	Theoretical lecture	Direct questions
2	2		*Planning and control in projects :* *Planning* *Scheduling* *Controlling*	Theoretical lecture	Direct questions
3	2		*Scheduling methods.*	Theoretical lecture	Pre-test and post test
4	2		*Gant chart.*	Theoretical lecture	Pre-test and post test
5	2		*Networks methods.*	Theoretical lecture	Quiz
6	2		*Constant – time network.*	Theoretical lecture	Discussion
7, 8	4		*Pert network.*	Theoretical lecture	Discussion
9, 10	4		*Critical path method.*	Theoretical lecture	Discussion
11	2		*Precedence diagramming method.*	Theoretical lecture	Quiz
12, 13	4		*Project phases: choice of project location.*	Theoretical lecture	Discussion
14	2		*Process design*	Theoretical lecture	Discussion
15	2		*Choice of technology.*	Theoretical lecture	Discussion
16, 17	4		*Financial analysis.* *Purchase of new machine.* *Machine replacement.* *Layout of facilities.*	Theoretical lecture	Quiz
18	2		*Managing the work force in project who manages the work force.* *Principles in decision of work – force management.*	Theoretical lecture	Quiz
19	2		*Japans work – force management.*	Theoretical lecture	Direct questions

20	2		*New approach to evaluation performance.*	Theoretical lecture	Direct questions
21	2		*Materials handling.*	Theoretical lecture	Direct questions
22	2		*Concepts of MRP system. Elements of MRP system.*	Theoretical lecture	Discussion
23	2		*MRP versus order – point system. MRP versus just in time system.*	Theoretical lecture	Discussion
24, 25	4		*Activities in project : Coordination of project activities. Activities breakdown.*	Theoretical lecture	Discussion
26	2		*Measuring project process tools. Purpose of work measurement*	Theoretical lecture	Pre-test and post test
27	2		*Methods study.*	Theoretical lecture	Pre-test and post test
28	2		*Types of work measurements.*	Theoretical lecture	Discussion
29	2		*Time study.*	Theoretical lecture	Discussion
30	2		*Time management.*	Theoretical lecture	Pre-test and post test

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1. Y. Bakouros and V. Kelessidis "Project management" INNOREGIO: dissemination of innovation and knowledge management techniques, January 2000. J.R. Meredith and S.J. Mantel "Project Management", J. Wiley & Sons, 1995.
Special requirements (include for example workshops, periodicals, IT software, websites)	1. Principles of Project Management, NPC publication 2. S. Choudhury "Project Management", Tata McGraw Hill – 2003 3. GANTT CHART Category: Planning/ Monitoring – Control 4. W. Durfee and T. Chase, "Project Management - Gantt Chart Tutorial" University of Minnesota, 2003 5. Billings, B.A., Musazi, B., Houston, M., "Bonus depreciation tax incentives may not work for needy firms". Tax Notes 118, 735-737s. 2008. 6. A. D. Luber. "Solving Business Problems with MRP II," Digital Press. Massachusetts, pp.17-63, 1991. T. Tsukishima, H. Matoba, and H. Onari. "Development of

	synchronized supervision systems in a parallel MRP system," Waseda University, Fifth International Conference, Tokyo, 2000.
Community-based facilities (include for example, guest Lectures , internship , field studies)	1- J.R. Meredith and S.J. Mantel "Project Management", J. Wiley & Sons, 1995. http://www.projectmanagement.com/main.htm 2- GANTT CHART Category: Planning/ Monitoring – Control http://www.netmba.com/operations/project/gantt/ 3- Mike Holt, "Applying Overhead and Determining Break-Even Cost" Mike Holt Enterprises, Inc,2001, www.ecmweb.com 4- Iaba "Manual Materials Handling" Industrial Accident Prevention Association,2008. Website: www.iapa.ca. 5- Blair, "Personal Time Management for Busy Managers" G. M., 2002, www. Ee.ed.ac.uk/~gerard/Management/art2.htm. http://moneysavingmom.com/2010/12/managing-your-time-when-its-just-you.html

13. Admissions	
Pre-requisites	
Minimum number of students	20
Maximum number of students	50

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of electrical Engineering Technique.
2. University Department/Center	Medical Instrument Department
3. Course title/code	Medical Laser System
4. Program(s) to which it contributes	
5. Modes of Attendance offered	Weakly / theoretical and practical
6. Semester/Year	2023-2022
7. Number of hours tuition (total)	60 hour's
8. Date of production/revision of this specification	9-8-2022
9. Aims of the Course: study of (Laser generation , optical fiber, Detectors and medical application of laser).	

10· Learning Outcomes, Teaching ,Learning and Assessment Methode
X- Knowledge and Understanding 　A1. The student listed laser types. 　A2. The student Distinguish between laser and light. 　A3. Recognize laser application in Medicine. 　A4.the student learn laser properties. 　A5. Recognize the optical fiber (laser transportation) 　A6.　recognize laser dangers and laser safety.
B. Subject-specific skills 　B1. The student uses laser systems. 　B2. The student uses laser sensors. 　B3. The student acquires skills in understanding of laser properties and its applications. 　B4. The student writes the results and phenomena of laser lab. Experiments.
Teaching and Learning Methods
Theoretical lectures / Experiments in Lab.
Assessment methods
Theoretical semesters exams Weakly exams Quick exams. And after& before exams
C. Thinking Skills 　C1. The student listen to the lecture with attention 　C2. The student recognizes the impact of science and scientist in life. 　C3. The students describe the importance of laser and its applications. 　C4. The students are clam and cares about the system of the class.
Teaching and Learning Methods
Discussions and speaks with the students
Assessment methods
A questionnaire, seminars, and discussion topics

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Sport Activities.
D2.Artistic Activities.
D3. Literary Activities.
D4. Scientific Activities.

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
11. Course Structure					
1,2	Theory 4 + practical 4	The student understands the lesson	*Laser generation*	Theory + practical (lectures)	Direct questions
3,4	Theory 4 + practical 4	The student understands the lesson	*Types of laser.*	Theory + practical (lectures)	Direct questions
5,6,7	Theory 4 + practical 4	The student understands the lesson	*Light and light propagation in glass fiber.*	Theory + practical (lectures)	Quick quiz
8,9,10	Theory 4 + practical 4	The student understands the lesson	*Optical fiber wave guide, band width distance product, dispersion and pulse spreading, maximum allowable data rate, fiber power losses.*	Theory + practical (lectures)	Direct questions
11,12	Theory 4 + practical 4	The student understands the lesson	*Transmitter devise and circuits (communication LEDs).*	Theory + practical (lectures)	Quick quiz
13,14	Theory 4 + practical 4	The student understands the lesson	*Injection lasers, modulators.*	Theory + practical (lectures)	Direct questions
15,16	Theory 4 + practical 4	The student understands the lesson	*Receiver devices and circuits photo diode light detector.*	Theory + practical (lectures)	Quick quiz
17	Theory 4 + practical 4	The student understands the lesson	*PIN photo diodes, photo multiplier*	Theory + practical (lectures)	Direct questions
18,19	Theory 4 + practical 4	The student understands the lesson	*Avalanche photo diode (APD), receiver circuits.*	Theory + practical (lectures)	Quick quiz
20,21	Theory 4 + practical 4	The student understands the lesson	*Transmission technology, fiber technology, connectors.*	Theory + practical (lectures)	Direct questions
22,23	Theory 4 +	The student	*Splices,*	Theory +	Direct

	practical 4	understands the lesson	*couplers.*	practical (lectures)	questions
24,25,26,27	Theory 4 + practical 4	The student understands the lesson	*Types of medical applications of laser.*	Theory + practical (lectures)	Quick quiz
28,29,30	Theory 4 + practical 4	The student understands the lesson	*Laser hazards, the standard level for a safe working environment, lab – safety.*	Theory + practical (lectures)	Direct questions

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	An introduction to the laser theory an applications by M.N. Avadhanulu and Dr.P. S. Hemne. Optical Fiber Communications By Gerd Keiser ,second edition. Laser Principles and Applications By J.Wilson. Photonics Linear and non Linear Interactions of Laser and Matter.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Medical Instrumentation Techniques Engineering
3. Course title/code	Medical Communication Systems
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly
6. Semester/Year	
7. Number of hours tuition (total)	7 hours
8. Date of production/revision of this specification	7/9/2022
9. Aims of the Course	

1. Knowledge of the systems and structures of radio, television and telephone systems

2. Knowing the methods of transmitting information in communication systems in medical devices.

10· Learning Outcomes, Teaching ,Learning and Assessment Methode
Y- Knowledge and Understanding A1- The student looks at how electromagnetic transmission is A2- The student lists the types of digital and analog embedding A3- The student distinguishes the difference between digital and analog embedding A4- The student will be familiar with the types of signs and systems. A5- The student learns the types of articulation. A6- The student knows the types of electromagnetic wave deformation media. A 7- The student will identify the antennas.
B. Subject-specific skills B1 - The student uses analog and digital modulation B2 - The student uses simulation programs and laboratory boards B3 - The student acquires the skills of connecting electronic circuits with each other B 4- The student writes the results obtained by the laboratory from different devices and the computer
Teaching and Learning Methods
1. Theoretical lecture 2. Virtual Library 3. Classroom group discussions of mathematical and applied examples.
Assessment methods
1. Achievement and semester test. 2. Quizzes. 3 .Test assignments and discuss them.
C. Thinking Skills C1- The student listens attentively to the explanation C2- The student learns about the impact of science and scientists on life C3- The student describes the importance of learning the subject of communication C4- The student cares about the calmness and order of the class
Teaching and Learning Methods
1 .Theoretical lectures 2 .Group discussions 3 .Case Study
Assessment methods
1 .Regular and quarterly theoretical exams. 2 .Duties. 3 .Presenting the results in class to be discussed and the participation of the rest of the students in the discussion.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1-Building and communicating ideas effectively orally and in writing

D2- Managing time and working within deadlines.

D3- Participate constructively in groups.

D4- Searching for information and using information technology.

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st	**2+2**	**The student understands the lesson**	**General review in electrostatic**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
2nd	**2+2**	**The student understands the lesson**	**Gauss's law**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
3rd	**2+2**	**The student understands the lesson**	**Steady magnetic field**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
4th-5th	**4+4**	**The student understands the lesson**	**Time varying magnetic field**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
6th	**2+2**	**The student understands the lesson**	**Uniform plane waves**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
7th-8th	**4+4**	**The student understands the lesson**	**Fourier transform**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
9th-10th	**4+4**	**The student understands the lesson**	**Signal and system**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
11th-12th	**4+4**	**The student understands the lesson**	**Periodic , Non periodic signals**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
13th-15th	**6+6**	**The student understands the lesson**	**AM and FM system**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
1st -3rd	**6+6**	**The student understands the lesson**	**Sampling , PAM, PWM, PPM, PCM**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
4th -6th	**6+6**	**The student understands the lesson**	**Digital modulation (ASK, FSK, PSK)**	**Theoretical and practical**	**Theoretical, Direct questions and quiz**
7th-8th	**4+4**	**The student understands**	**Noise in analogue and digital**	**Theoretical and**	**Theoretical, Direct**

11. Course Structure

		the lesson	systems	practical	questions and quiz
9th-10th	4+4	The student understands the lesson	Rectangular wave - guides	Theoretical and practical	Theoretical, Direct questions and quiz
11th-12th	4+4	The student understands the lesson	Microwave passive devices	Theoretical and practical	Theoretical, Direct questions and quiz
13th-15th	6+6	The student understands the lesson	Microwave generators, Antennas	Theoretical and practical	Theoretical, Direct questions and quiz

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIAL OTHER	• Introduction to Communication Systems (second edition- by Ferrel. G. Stremler) • Engineering Electromagnetic (fifth edition – by William H. Hayt. JR)
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	• www.tallguide.com • www.ainfoinc.com • www.millitech.com • www.rfcafe.com • www.globalspec.com

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	50

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Middle Technical University \ Electrical engineering technical college
2. University Department/Centre	Medical instrumentation
3. Course title/code	
4. Programme(s) to which it contributes	Control system
5. Modes of Attendance offered	Theoretical lectures and practical lectures
6. Semester/Year	year
7. Number of hours tuition (total)	150 hrs. in 4hrs(2 Theoretically+2 practically) weekly
8. Date of production/revision of this specification	30/6/2021

9. Aims of the Course

That is programmed in **control system** (is a 4th-year) education leading to the degree of **bachelor of technical engineering**. The program is taught entirely in English. The programmer is coordinated by the instrumentation dept. at MTU and students will have access to a world-class research environment.

The **BACHELOR**'s programmed aims to offer an engaging and challenging, research-oriented academic environment, enabling students to:
1. acquire extensive knowledge and insight; develop their professional and scientific mindset by taking the initiative in and assuming responsibility for the learning process.
2. develop an inquisitive and reflective attitude.

acquire a knowledge of, understand and gain practical experience with taking stock of the requirements of MID systems (i.e. technology, design, validation and control system) and of promising alternatives, and take informed decisions.

10· Learning Outcomes, Teaching ,Learning and Assessment Method

Z- Knowledge and Understanding
A1- The student knows the definition of Control system .
A2- How to engage colleagues and stakeholders in managing information, knowledge and control systems.
A3. Design and simulation of control system by matlab.
A4- To understand the use of transfer function models for analysis physical systems and introduce of using the control system in stable circuit.
A5- How to evaluate current information, knowledge and control systems and their capability and capacity to meet future needs.
A6- Information, knowledge and control technologies, their features and benefits for your needs.
A7-   To provide adequate knowledge in the time response of systems and steady state error.

B. Subject-specific skills
B1. The student can identify the Design and implementation of control system.
B2. The student can recognize the control system of   accord basic knowledge in obtaining the open loop and closed–loop frequency
responses of systems
B3. The student performs a technique of built Modelling and Simulation of Dynamic Systems.

Teaching and Learning Methods

1. theoretical lecture.
2. Seminars.
3. Experiential in lab.
4. Ytube lectures.

Assessment methods

1.   Quizzes and short reviewers.
2.   semester tests.
3.   The daily assessment.
4.   Final exam.
5.   Final Project.

C. Thinking Skills
C1. Students should have familiarity with control system covering techniques of analysis of linear control system, such as root locus method, stability considerations using Nyquist diagram, and phase-gain-frequency diagrams
C2. Students interested in Transient response-steady state response-Measures of performance of the standard first order and second order system.
C3. Students have a many solution of practical problem in control system engineering.

Teaching and Learning Methods

D1. Teaching students the control system.
D2. Clarify the control system such as   root locus method, stability considerations using Nyquist diagram, and phase-gain-frequency diagrams
D3. Know the definition of control system in programmed, built the control

interface circuit.
Assessment methods

D. General and Transferable Skills (other skills relevant to control system lovability and personal development)
  D1. Program the control system.
  D2. Built stable control system.
  D3.
  D4.

11. Course Structure

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Introduction to linear control engineering	**CONTROL SYSTEM**	Lecture	Daily Exam
2-3	6	Mathematical background; lap lace transform, complex variable, matrices	**CONTROL SYSTEM**	Lecture	Daily Exam
4-6	6	Transfer , function, block diagram representation and reduction, signal flow diagram.	**CONTROL SYSTEM**	Lecture	Daily Exam
7-9	6	Time domain analysis, steady state transient analysis.	**CONTROL SYSTEM**	Lecture	Daily Exam
10-11	4	Stability analysis; Routh, Nyquist.	**CONTROL SYSTEM**	Lecture	Daily Exam
12-13	4	Root locus technique.	**CONTROL SYSTEM**	Lecture	Daily Exam
14-16	6	Frequency domain analysis, gain margin, phase margin and bode plot.	**CONTROL SYSTEM**	Lecture	Daily Exam
17-18	4	Frequency domain synthesis, phase lead	**CONTROL SYSTEM**	Lecture	Daily Exam
19-20	4	Compensation, phase lag compensation lag lead compensation	**CONTROL SYSTEM**	Lecture	Daily Exam
21-24	8	PID controllers design.	**CONTROL SYSTEM**	Lecture	Daily Exam
25-27	6	State space representation and analysis	**CONTROL SYSTEM**	Lecture	Daily Exam
28-29	4	State diagram; analogue computer	**CONTROL SYSTEM**	Lecture	Daily Exam
30	2	Block diagram representation	**CONTROL SYSTEM**	Lecture	Daily Exam

B- Course Structure (Practical)

2- Exp. Per week	Hrs.	ILOs	Unit/Module or Topic Title	Teaching Method	PS
1	2	Mathematical Model response.	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
2-3	2	First Order Systems Analysis	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
4-6	2	Second Order Systems Analysis	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
7-9	2	State Space Representation.	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
10-11	2	Steady State Error Analysis	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
12-13	2	Root Locus plot.	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
14-16	2	Bode Plot.	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
17-18	2	Effect of addition of poles and zeros on the Root-Locus plot	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
19-20	2	Lead Compensation Techniques Based on the Root-Locus Approach	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
21-24	2	Lag Compensation Techniques Based on the Root-Locus Approach.	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
25-27	2	Digital Control representations	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
28-29	2	z-transform	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework
30	2	Analog to digital conversion	**CONTROL SYSTEM**	**Experiment**	Daily exam and homework

12. Infrastructure	
Required reading: Required reading: 1. Ogata K., Modern Control Engineering, Prentice-Hall of India Pvt Ltd., New Delhi, 3rd edition, 2000. 2. Franklin G.F., Powell J.D., Emami-Naeini A., Feedback Control of Dynamic Systems, Pearson, Upper Saddle River, New Jersey, 5th edition, 2006. 3. Kuo B.C., Automatic Control Systems, Prentice-Hall of India Pvt Ltd., New	

Delhi, 6th edition, 1991.	
Special requirements (include for control system workshops, periodical matlab software, websites)	
Community-based facilities (include for extra control system, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	50

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of electrical Engineering Technique.
2. University Department/Center	Medical Instrument Department
3. Course title/code	Engineering of Radiation instrument
4. Program(s) to which it contributes	
5. Modes of Attendance offered	Weakly / theoretical and practical
6. Semester/Year	2021-2020
7. Number of hours tuition (total)	60 hour's
8. Date of production/revision of this specification	30-6-2021
9. Aims of the Course: Studying the composition of the atom and atomic and nuclear radiation and their effect on the human body and their uses in medical devices.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

AA- Knowledge and Understanding
A1. The student enumerates the study of radiation technology techniques
A2. The student distinguishes the difference between different radiation devices
A3. The student learns about the applications of radiation devices in general and the radiation used in medicine in particular
A4. The student learns to study the structure of the atom and the molecule
A5. The student learns how to operate radiation devices
A6. The student learns about avoiding radiation hazards and the safe use of radiation

B. Subject-specific skills
B1. The student uses radioactive equipment
B2. The student uses other materials accompanying the radiation devices to carry out the experiments
B3. The student acquires the skills of properties and applications of radiation
B4. The student writes the results obtained in the laboratory from the radiation devices

Teaching and Learning Methods
Theoretical lectures / Experiments in Lab.

Assessment methods
Theoretical semesters exams Weakly exams Quick exams. And after& before exams

C. Thinking Skills
C1. The student listens to the lecture with attention
C2. The student recognizes the impact of science and scientist in life.
C3. The students describe the importance of laser and its applications.
C4. The students are clam and cares about the system of the class.

Teaching and Learning Methods
Discussions and speaks with the students

Assessment methods
A questionnaire, seminars, and discussion topics

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1,2	Theory 4 + practical 4	The student understands the lesson	*Atomic structure and atomic radiation.*	Theory + practical (lectures)	Direct questions
3, 4	Theory 4 + practical 4	The student understands the lesson	*The nuclear and nuclear radiation.*	Theory + practical (lectures)	Direct questions
5, 6	Theory 4 + practical 4	The student understands the lesson	*Interaction of radiation with matter.*	Theory + practical (lectures)	Quick quiz
7,8,9	Theory 4 + practical 4	The student understands the lesson	*Radiation detection & engineering of radiation detectors.*	Theory + practical (lectures)	Direct questions
10,11,12	Theory 4 + practical 4	The student understands the lesson	*Engineering of radiation dosimetry and dosimeters.*	Theory + practical (lectures)	Quick quiz
13, 14	Theory 4 + practical 4	The student understands the lesson	*Radiation protection.*	Theory + practical (lectures)	Direct questions
15, 16	Theory 4 + practical 4	The student understands the lesson	*Engineering of body scanners.*	Theory + practical (lectures)	Quick quiz
17,18	Theory 4 + practical 4	The student understands the lesson	*Production of x-rays.*	Theory + practical (lectures)	Direct questions
19,20	Theory 4 + practical 4	The student understands the lesson	*Clinical radiation generators.*	Theory + practical (lectures)	Quick quiz
21,22	Theory 4 + practical 4	The student understands the lesson	*Dose distribution and scatter analysis.*	Theory + practical (lectures)	Direct questions
23,24	Theory 4 + practical 4	The student understands the lesson	*A system of dosimetric calculations.*	Theory + practical (lectures)	Direct questions
25,26	Theory 4 + practical 4	The student understands the lesson	*Treatment planning.*	Theory + practical (lectures)	Quick quiz
27,28	Theory 4 + practical 4	The student understands the lesson	*Engineering of electron beam therapy.*	Theory + practical (lectures)	Direct questions
29,30	Theory 4 +	The student	*Brachy therapy*	Theory +	Direct

	practical 4	understands the lesson		practical (lectures)	questions

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Sport Activities.
D2.Artistic Activities.
D3. Literary Activities.
D4. Scientific Activities.

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1- Physics for scientists and engineers with the modern physics, eighth edition. By Raymond A. Serway and Johnw. Jewatt, jr 2- Classiced radition therapy pants by faiz khan 3- The physics and radiayion therapy by faiz khan. Ed. 3,4 Principle of radiological physics Donald T. Granham, paul coke martin vosper.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	60

TEMPLATE FOR COURSE SPECIFICATION

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Electrical Engineering Technical College
2. University Department/Centre	Department of medical engineering techniques
3. Course title/code	English language
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Weekly (theoretical)
6. Semester/Year	2022-2023
7. Number of hours tuition (total)	30 Hr.(theoretical)
8. Date of production/revision of this specification	9-2022
9. Aims of the Course	

1-The student is acquainted with the basics of the English language for mastery in the future
2-Understands the basic structures of English sentences
3-Learns the basic vocabulary for any school stage
4-Listens and understands simple words and sentences in English

10· Learning Outcomes, Teaching ,Learning and Assessment Methods
A- Knowledge and Understanding A1. Understands the meanings of synonyms in English A2. Expresses himself orally using simple English A3. Reads and understands words and phrases written in English A4. Writes sentences and phrases in English A5. He talks to his colleague in English A6. They appreciate the importance of the English language as an international language of communication to benefit from the achievements of other cultures
B. Subject-specific skills B1. Expresses ideas clearly and confidently in speech (verbal communication) B2. Work confidently with group (Team work) B3. Uses the steps of the method of collecting information in a systematic and scientific manner, especially within his competence
Teaching and Learning Methods
Theoretical lectures
Assessment methods
Daily / quarterly tests Practical activities or public activities
C. Thinking Skills C1 - To listen attentively to the student to explain the stadium Student. C2- To familiarize the student with the impact of the English language course on life C3- The student should describe the importance of speaking, reading, listening and writing for expression in the English language C4- That the student cares about calmness and the order of the class
Teaching and Learning Methods
Seminars - Educational guidance
Assessment methods

Discuss the stadium with the student - discuss the student with his colleague

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1 - Office skills outside the scientific subject
D2 - the student's ability to scientific research
D3 - the student's ability to speaking with another students.

			11. Course Structure		
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1TH	The student understands the lesson	Unit one :getting to know you tenses Questions Questions words	Theoretical lecture	Pretest-post test
2-3	2TH	The student understands the lesson	Unit two :the way we live Present tenses Present simple Present continuous Have /have got	Theoretical lecture	Pretest-post test
4-5	2TH	The student understands the lesson	Unit three: it all went wrong Past tenses Past simple Past continuous	Theoretical lecture	Pretest-post test
6	1TH	The student understands the lesson	Unit four :let's go shopping Quantity Much and many Some and any Something,anyone,nobody, everywhere A few, a little, a lot of Articles	Theoretical lecture	Pretest-post test
7-8	2TH	The student understands the lesson	unit five ,wtat ao You want to do Past tenses Verb patterns'\ Future intentions Going to and will	Theoretical lecture	Pretest-post test
9-10	2TH	The student understands the lesson	Unit six: tell me! What's it ?like ?What's it Iike comparative and suPerlative	Theoretical lecture	Pretest-post test
11-12	2TH	The student understands the lesson	Unit seven :fame Present Perfect and For and since Tense revision past simple	Theoretical lecture	Pretest-post test
13-14	2TH	The student understands the lesson	Fn'reti ght: do's and don'ts Have(got) to Shou ld must	Theoretical lecture	Pretest-post test
15-16	2TH	The student understands the lesson	Unit nine: going Places Time and conditional ? clauses what if	Theoretical lecture	Pretest-post test

17-18	2ᵀᴴ	The student understands the lesson	Unit 10 scared to death Verbs Patterns lnfinitives What ,etc.+infin itive Something,etc.+infinitive	Theoretical lecture	Pretest-post test
19-20	2ᵀᴴ	The student understands the lesson	Unit eleven:tell me about lndirect questions it!	Theoretical lecture	Pretest-post test
21-22-23	3ᵀᴴ	The student understands the lesson	Unit things that changed the world	Theoretical lecture	Pretest-post test
24-25	2ᵀᴴ	The student understands the lesson	Unit 12:dreams and CCXimpleCCX Second conditional might	Theoretical lecture	Pretest-post test
26-27	2ᵀᴴ	The student understands the lesson	Unit 13 :earning a living ; Present Perfect continuous Present Perfect CCXimple versus Continuous	Theoretical lecture	Pretest-post test
28-29	2ᵀᴴ	The student understands the lesson	Unit 14 familY ties Present perfect and past perfect and clarification Reported statements	Theoretical lecture	Pretest-post test
30	1TH	The student understands the lesson	Unitfifteen :15 revision	Theoretical lecture	Pretest-post test

12. Infrastructure

Required reading: New headway plus by: John and liz Soars	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions

Pre-requisites	
Minimum number of students	50
Maximum number of students	60