Course Description Form

1. Course Name:
Mechanics of materials II

2. Course Code:
WBM-32-02

3. Semester / Year:
Semester

4. Description Preparation Date:
19/3/2024

5. Available Attendance Forms:
Presence in the classroom

6. Number of Credit Hours (Total) / Number of Units (Total)
45 h/ 2 units

7. Course administrator's name (mention all, if more than one name)
Name: Hussain Amire Aljawad Email: Hussein.aljawad@uowa.edu.iq

8. Course Objectives

Course Objectives	The aim of teaching the curriculum for this subject is to learn the basics of the resistance of materials to external forces and pressures and how to calculate loads, stresses and other mechanical issues and their effect on the materials of objects internally. Materials force field, also known as materials mechanics, refers to various methods for calculating stresses and strains in structural members, such as beams and columns. Methods used to predict the response of a structure under loading and its susceptibility to different failure modes take into account material properties such as yield strength, ultimate strength, Young's modulus, and Poisson's ratio.

9. Teaching and Learning Strategies

Strategy	1- Making the student able to demonstrate real knowledge of engineering concepts related to materials mechanics during the academic level and their applications in the fields of biomedical engineering. 2- Learn and understand the basic definitions used in materials mechanics, such as stresses, ductility, bending moments, cutting force, and other concept 3- Learn and understand solution methods and mathematical applications in solving applications industry problems in the field of biomedicine.

| | | 4- Learn and apply the laws and formulas that the student learns from numer⟨ examples, which make him able to understand the future problems that will faced in medical engineering industries and applications. | | | |

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Units and common principles And Analysis of Internal Forces and Stresses	Units and common principles, SI Units (System International Units), Types of Support in Structure, Types of Loads in Structures, Types of Beams in Structures, Determinate and Indeterminate Problems. Analysis of Internal Forces and Stresses, Introduction, Analysis of Internal Forces (Three-dimensional system (3D), Two-dimensional system (2D)).	Presented the lectures and explain it.	Daily exams + classwork
2	3	Normal stress And Shear stress and safety Factor	Normal stress, Simple Normal Stress, Tensile Stress, Compressive Stress, Beam Stress. Shear stress and safety Factor, Simple Shear Stress, Direct shear stress, Double shear stress, Punching shear stress, Allowable and Factor of Safety.	Presented the lectures and explain it.	Daily exams + classwork

3+4	3	Torsion of Circular Shaft And Torsion of non-circular section	Torsion of Circular Shaft, Introduction, Torsion, Torsional shear stress, Angle of Twist, Polar Moment of Inertia, Composite Shaft, Power Transmitted by Shaft. Torsion of circular shaft 2, Examples and Solutions. Torsion of non-circular sections, Shear Stress and Angle of Rotation.	Presented the lectures and explain it.	Daily exams + classwork
5-7	3	Thin walled pressure vessels	Thin walled pressure vessels, Types of stresses in Cylindrical thin-walled pressure vessels, Cylindrical Thin-Walled Pressure Vessels, Tangential (Hoop or Circumferential) Stress, Longitudinal Stress, Spherical Shell.	Presented the lectures and explain it.	Daily exams + classwork
8	3	Simple Strain and Deformations of Axially Loaded Members	Simple Strain and Deformations of Axially Loaded Members, Simple Strain, Sign Convention, Stress-Strain Diagram, Hooke's Law, Poisson' s Ratio, Cases of Poisson's Ratio.	Presented the lectures and explain it.	Daily exams + classwork
9+10	3	Deformation of axially loaded members	Deformation of axially loaded members, Case 1: prismatic bar, Case 2: Non-prismatic bar, Case 3: Bar	Presented the lectures and explain it.	Daily exams + classwork

			with varying cross-sectional and varying axial force		
11+12	3	Statically indeterminate problems	Statically indeterminate problems, Examples and Solutions.	Presented the lectures and explain it.	Daily exams + classwork
13	3	Thermal stresses and strains	Thermal stresses and strains, Thermal strain, Thermal Deformation.	Presented the lectures and explain it.	Daily exams + classwork
14-15	3	The Columns	The Columns, Definition, The Critical load of column, Radius of Gyration.	Presented the lectures and explain it.	Daily exams + classwork

11. Course Evaluation

1- Theoretical lectures.
2- Discussion Tutorials.
3- Application in group to activate the team spirit at work

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	MECHANICS OF MATERIALS/ R. C. HIBBELER
Main references (sources)	MECHANICS OF MATERIALS, E. J. HEARN
Recommended books and references (scientific journals, reports…)	Strength of material/schaums outline/William Nash
Electronic References, Websites	

1.	Course Name:
Neck & Nervous Anatomy	
2.	Course Code:
WBM-32-04	
3.	Semester / Year:
Semester	
4.	Description Preparation Date:
2024-03-19	
5.	Available Attendance Forms:
presence in the classroom	
6.	Number of Credit Hours (Total) / Number of Units (Total)
30 Hours / 2 Units	
7.	Course administrator's name (mention all, if more than one name)
Name: Natiq Aziz Omran Email: Natikaziz81@gmail.com	
8.	Course Objectives

Course Objectives	Neck, in land vertebrates, the portion of the body joining the head to the shoulders and chest.
	Some important structures contained in or passing through the neck include the seven cervical vertebrae and enclosed spinal cord, the jugular veins and carotid arteries, part of the esophagus, the larynx and vocal cords, and the sternocleidomastoid and hyoid muscles in front and the trapezius and other nuchal muscles behind. head, in human anatomy, the upper portion of the body, consisting of the skull with its coverings and contents, including the lower jaw. It is attached to the spinal column by way of the first cervical vertebra, the atlas, and connected with the trunk of the body by the muscles, blood vessels, and nerves that constitute the neck.

9.	Teaching and Learning Strategies

Strategy	The objective of this course is to teach students generic anatomy so they can recognize different anatomical structures and their roles. At the conclusion of this course, the student should be able to identify the various human anatomical structures as Head and Neck, know how the blood and nerves nourish each one, and understand its function.

10.	Course Structure

Week	Hours	Unit or subject name	Required Learning Outcomes	Learning method	Evaluation method
1+2	2	- Views of the Skull, Bones of the skull,	The student learns the types of bones th make up the skull , the front view of th face, External view of the skull, Latera Inferior and Posterior Views of the Sku	Lectures presen in PDF forma	Daily exams + homework assignments + monthly exams
3	2	The Scalp	- The student learns layers of the Scalp, , Nerve Supply of The Scalp, Blood Supply of The Scalp	Lectures presented in PDF format	Daily exams + homework assignments + monthly exams
4	2	Infratemporal Fossa	The student learns the boundaries of the infratemporal fossa, Inferior part of the temporalis muscle. Lateral and medial pterygoid Muscles, Maxillary artery, Pterygoid venous plexus, Mandibular, inferior alveolar, lingual, buccal, and chorda tympani nerves and Otic ganglion.	Lectures presented in PDF format	Daily exams + homework assignments + monthly exams

5	2	The Face	The student learns Skin of the Face,Bone of the face, the muscles of the face	Lectures presented in PDF format	Daily exams + homework assignments + monthly exams
6 +7	2	-The Orbit, Eyeball	- The student learns The Orbital region Openings into the Orbital Cavity, *Blood Vessels of the Orbit, Branches of the Ophthalmic Artery, EyelidsLacrimal and ApparatusLacrimal Gland*	Lectures presented in PDF format	Daily exams + homework assignments + monthly
8+9+10	2	Neck description Blood Supply of Head and Neck1 Blood Supply of Head and Neck2	The student learns how the neck and head are supplied with blood by arteries	Lectures presented in PDF format	Daily exams + homework assignments + monthly
11+12	2	The brain, Pituitary Gland (Hypophysis Cerebri), Cranial Nerves.	The student will learn the definition of the brain and its components, the pituitary gland and its importance, the components of the brain and its trunk, the cerebellum and the medulla oblongata, and the spinal cord and what its components and branches cranial nerves, their types and locations.	Lectures presented in PDF format	Daily exams + homework assignments + monthly
13+14	2	The Digestive System in the Head and Neck, Endocrine Glands in the Head and Neck.	Students learn about the digestive system in the neck and head area and identify the components of the mouth, tongue, and salivary glands	Lectures presented in PDF format	Daily exams + homework assignments + monthly
15	2	Respiratory system definition	The student learns about the respiratory system, nose, nasal cavity, sinuses, and trachea	Lectures presented in PDF format	Daily exams + homework assignments + monthly

11. Course Evaluation
☐ Daily exams with practical and scientific questions.   ☐ Participation scores for difficult competition questions among students   ☐ Establishing grades for environmental duties and the reports assigned to them   ☐ Semester exams for the curriculum, in addition to the mid-year exam and final exam

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Snell Clinical Anatomy by Regions (9th Edition) Atlas of Human Anatomy by Frank H. Netter Snell Clin Anatomy by Regions (9th Edition) Human Anatomy by Frederic H. Martini, Robert B. Tallitsch, L. Nath Gray's Basic Anatomy 2nd Edition.
Main references (sources)	College library to obtain additional sources for the acade curricula • Check scientific websites to see recent developments in subject
Recommended books and references (scientific journals, reports...)	Atlas of Human Anatomy by Frank H. Netter Snell Clin Anatomy by Regions (9th Edition) Human Anatomy by Frederic H. Martini, Robert B. Tallitsch, L. Nath Gray's Basic Anatomy 2nd Edition.

MODULE DESCRIPTION FORM

Module Name:	
Electronic III	
Module Code:	
WBM-32-06	
Semester / Year:	
2nd Semester / 2025	
Date of Preparation of this Description:	
28/1/2025	
Available Attendance Formats:	
Weekly (Theoretical)	
Total Credit Hours / Total Units:	
45 Hrs. Theoretical /3 Units	
Name of the Course Coordinator (if there are multiple names):	
Name: Ali Mohammed Email: ali.mohammed@uowa.edu.iq	
Module Objectives:	
Module Objectives	Oscillators are electronic circuits that generate a signal output without requiring an input signal. Several types of basic oscillator circuits use both discrete transistors and reference amplifiers as the advance gain element. Also, the popular 555 timer integrated circuit, in terms of oscillator applications, the operation of a sinusoidal oscillator is based on the principle of positive feedback, where a portion of the output signal is fed back to the input in such a way that it enhances itself and thus maintains a continuous output signal.
1. Teaching and Learning Strategy	
Strategy:	1. The student learns to describe the principles of operation of the oscillator.

2. The student will learn to discuss the principle of feedback oscillators based describing and analyzing the feedback process to the resident coordinator of oscillators.

3. The student will learn to describe and analyze the business letter feedb process for oscillators

4. The student will learn to discuss and analyze the 555 timer and its use in oscillator.

5. The student will learn to explain and analyze the operation of Class A amplif

6. The student will learn to explain and analyze the operation of type B and cl AB power amplifiers

7. The student will learn to explain and analyze the operation of Class C po amplifiers

8. The student will learn to troubleshoot power amplifiers.

9. The student should link theoretical and practical ideas.

10. The student will learn to use the above techniques in designing and invent a new biomedical device.

11. Knowing most of the engineering applications of the above vocabulary and how to benefit from them and employ them correctly in the field of biomedical engineering.

2. Module Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	frequency response, Sinusoidal, Wien bridge, Oscillator and circuit.	The student learns the response and frequency of sinusoidal oscillators, their types, and the circuits for eachoscillator	Theoretical	Daily test and oral questions

2	3	Phase shift oscillator, Shaping of frequency response, and Ramp generator	The student learns other types of oscillators and their uses	Theoretical	Daily test and oral questions
3	3	Hartley oscillator, and crystal oscillator	The student learns other types of oscillators and their uses	Theoretical	Daily test and oral questions
4	3	Large signal amplifier (power amplifier).	The student will learn about power amplifiers and their types	Theoretical	Daily test and oral questions
5	3	Power amplifier classification, class A, class B, class A-B and class C.	The student learns power amplifiers and their classifications according to...Efficiency	Theoretical	Daily test and oral questions
6	3	The properties of Power amplifiers, theory of classification.	The student learns the properties of power amplifiers and the theoretical basis of classifications	Theoretical	Daily test and oral questions

7	3	Transformer coupled stage	The student will learn to use the coupled transformer method in power amplifiers	Theoretical	Daily test and oral questions
8	3	Direct coupled type, Transformer coupled type.	The student will learn the method of direct coupling in coupled transformers	Theoretical	Daily test and oral questions
9	3	Transformer-coupled, class B push pull, linear amplifier.	The student will learn to use the direct coupling method in type B amplifiers	Theoretical	Daily test and oral questions
10	3	Multivibrator: MTV's using transistor	The student will learn about multiple oscillators using transistors	Theoretical	Daily test and oral questions
11	3	Astable MTV, and Mono stable MTV.	For the student to learn the stable and single multivibrators and the difference between them	Theoretical	Daily test and oral questions
12	3	Design of the circuit, bistable MTV using op-amp	The student will learn to design multivibrator	Theoretical	Daily test and oral questions

			circuits of all types, especially dual ones		
13		Design of the circuit, A stable MTV using op-amp	The student will learn to design multivibrator circuits of all types, especially stable ones, using (operational) signal modulators.	Theoretical	Daily test and oral questions
14		Monostable MTV using . op-amp	The student learns to design single vibrator circuits using (operational) signal modulators.	Theoretical	Daily test and oral questions
15		Transmission matrix.	The student will learn to use the designed circuits and analyze them through electronic arrays.	Theoretical	Daily test and oral questions

Module Evaluation
1- Weekly exams

2- Monthly exams 3- Participations inside the class 4-present the seminars 5- Writing reports	
Learning and Teaching Resources.	
Required textbooks (curricular books, if any)	Thomas L. Floyd , " Electronic Devices ", Pearson Education © 2018.
Main references (sources)	Electronic Devices and Circuit Theory, Eleventh Edition, Robert L. Boylestad
Recommended books and references (scientific journals, reports...)	Thomas L. Floyd , " Electronic Devices ", Pearson Education © 2018
Electronic References, Websites	www.ieee.org

MODULE DESCRIPTION FORM

Module Name:	
Electronic III	
Module Code:	
WBM-32-06	
Semester / Year:	
2nd Semester / 2025	
Date of Preparation of this Description:	
28/1/2025	
Available Attendance Formats:	
Weekly (Theoretical)	
Total Credit Hours / Total Units:	
45 Hrs. Theoretical /3 Units	
Name of the Course Coordinator (if there are multiple names):	
Name: Ali Mohammed Email: ali.mohammed@uowa.edu.iq	
Module Objectives:	
Module Objectives	Oscillators are electronic circuits that generate a signal output without requiring an input signal. Several types of basic oscillator circuits use both discrete transistors and reference amplifiers as the advance gain element. Also, the popular 555 timer integrated circuit, in terms of oscillator applications, the operation of a sinusoidal oscillator is based on the principle of positive feedback, where a portion of the output signal is fed back to the input in such a way that it enhances itself and thus maintains a continuous output signal.

1. **Teaching and Learning Strategy**	
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8. The student will learn to troubleshoot power amplifiers.

9. The student should link theoretical and practical ideas.

10. The student will learn to use the above techniques in designing and invent a new biomedical device.

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5	3	Power amplifier classification, class A, class B, class A-B and class C.	The student learns power amplifiers and their classifications according to...Efficiency	Theoretical	Daily test and oral questions
6	3	The properties of Power amplifiers, theory of classification.	The student learns the properties of power amplifiers and the theoretical basis of classifications	Theoretical	Daily test and oral questions

7	3	Transformer coupled stage	The student will learn to use the coupled transformer method in power amplifiers	Theoretical	Daily test and oral questions
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Recommended books and references (scientific journals, reports...)	Thomas L. Floyd , " Electronic Devices ", Pearson Education © 2018
Electronic References, Websites	www.ieee.org

Course Description Form

1. Course Name:
Physiology I

2. Course Code:
WBM-31-04

3. Semester / Year:
Third Year\First semester

4. Description Preparation Date:
2025−02−1

5. Available Attendance Forms:
presence in the classroom, lab

6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours\ 3 units

7. Course administrator's name (mention all, if more than one name)
Name: Ahmed oudah kadhim Email: ahmed.oudah@uowa.edu.iq

8. Course Objectives

Course Objectives	The study objectives can be summarized as follows: • Understand body fluids and water/electrolyte balance. • Learn the functions of blood cells (RBCs, WBCs) and hemoglobin. • Recognize anemia and polycythemia. • Understand the immune system and types of immunoglobulins. • Study hemostasis and the role of platelets. • Differentiate between internal and external coagulation pathways. • Know the ABO blood group system and transfusion reactions.

9. Teaching and Learning Strategies

Strategy	Assessment is based on hand-in assignments, written exam, Case study, Quizzes, seminars, Practical testing and Online testing.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Learn about the Body fluids	Body fluids	Lectures presented PDF format + lab	Daily exams + homework assignments + monthly exams
2	4	Learn about the fluid compartment	fluid compartment	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
3	4	Learn about the water balance, electrolyte balance	water balance, electrolyte balance	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
4+5	4	Learn about the RBC, hemoglobin	RBC, hemoglobin	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
6	4	Learn about the anemia polycythemia	anemia polycythemia	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
7	4	Learn about the WBC, Immunity	WBC, Immunity	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
8	4	Learn about the type of	type of immunoglobulins,	Lectures presented in PDF	Daily exams homework assignments

		immunoglobulins,		format + lab	monthly
9	4	Learn about the homeostasis	homeostasis,	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
10	4	Learn about the platelets	platelets,	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
11+12	4	Learn about the external and internal pathways of coagulation	external and internal pathways of coagulation	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exan
13+14	4	Learn about the blood groups (ABO system) and transfusion reaction.	blood groups (ABO system) and transfusion reaction.	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exan
15	2		Mid exam		

11. Course Evaluation

 Daily exams with practical and scientific questions.
 Participation scores for difficult competition questions among students
 Establishing grades for environmental duties and the reports assigned to them
 Semester exams for the curriculum, in addition to the mid-year exam and final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principiles of anatomy and physiology, by Gerard J. Tortora& Bryan H. Derrickson 12PthP ed. Volume 1 2009
Main references (sources)	Text book of medical physiology, by Guton & Hall . eleven ed. 2020.

Recommended books and references (scientific journals, reports…)	Check out websites in this field

Course Description Form

1. Course Name:	
Physiology I	
2. Course Code:	
WBM-31-04	
3. Semester / Year:	
Third Year\First semester	
4. Description Preparation Date:	
2025-02-1	
5. Available Attendance Forms:	
presence in the classroom, lab	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours\ 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Ahmed oudah kadhim Email: ahmed.oudah@uowa.edu.iq	

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3	4	Learn about the water balance, electrolyte balance	water balance, electrolyte balance	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
4+5	4	Learn about the RBC, hemoglobin	RBC, hemoglobin	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
6	4	Learn about the anemia polycythemia	anemia polycythemia	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
7	4	Learn about the WBC, Immunity	WBC, Immunity	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
8	4	Learn about the type of	type of immunoglobulins,	Lectures presented in PDF	Daily exams homework assignments

		immunoglobulins,		format + lab	monthly
9	4	Learn about the homeostasis	homeostasis,	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
10	4	Learn about the platelets	platelets,	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
11+12	4	Learn about the external and internal pathways of coagulation	external and internal pathways of coagulation	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
13+14	4	Learn about the blood groups (ABO system) and transfusion reaction.	blood groups (ABO system) and transfusion reaction.	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
15	2		Mid exam		

11. Course Evaluation

🗹 Daily exams with practical and scientific questions.
🗹 Participation scores for difficult competition questions among students
🗹 Establishing grades for environmental duties and the reports assigned to them
🗹 Semester exams for the curriculum, in addition to the mid-year exam and final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principiles of anatomy and physiology, by Gerard J. Tortora& Bryan H. Derrickson 12PthP ed. Volume 1 2009
Main references (sources)	Text book of medical physiology, by Guton & Hall . eleven ed. 2020.

Recommended books and references (scientific journals, reports…)	Check out websites in this field

نموذج وصف المقرر

1. اسم المقرر	
The Trunk Anatomy	
2. كود المقرر	
WBM-31-03	
3. الفصل / السنة	
الفصلي	
4. تاريخ اعداد هذا الوصف	
2024/4/19	
5. اشكال الحضور المتاحة	
اسبوعي (نظري)	
6. عدد الساعات الدراسية (الكلي) / عدد الوحدات الكلي	
30 ساعة نظري & 30 ساعة عملي / 3 وحدات	
7. اسم مسؤول المقرر الدراسي	
الاسم: م.م ناطق عزيز عمران الايميل: Natikaziz81@gmail.com	
8. اهداف المقرر	
دراسة تشريح جذع الجسم البشري بصورة مناطقية والعلاقة بين الاعضاء المختلفة من الناحية التشريحية والوظيفية. In this course, the student will study the trunk anatomy of the human body. The student will be able to- : -1 Understand the function of the heart, Borders of the heart, layers of the heart, Heart Chambers, Coronary circulation of the heart . -2 know the conductive system. Thoracic cage organization, functional anatomy of respiration and diaphragm.	اهداف المادة الدراسية:

-3 Describe the characteristics of pulmonary trunk, and major veins, the mediastinum, autonomic nervous system in the thorax.	

9.	استراتيجيات التعليم والتعلم

ج- الاهداف المعرفية
أ1- التعرف على تشريح الجذع المتعلق بجسم الانسان
أ2- فهم عمل الاجزاء والاعضاء الجذعية
أ3- معرفة الاجزاء الداخلية الجذعية

ب - الاهداف المهاراتية الخاصة بالمقرر
ب1 – المهارات المتعلقة بطريقة عمل الاجزاء الجذعية
ب2 – معرفة وظائف الاعذاء الداخلية للجسم البشري المتعلقة بالمناطق الجذعية
ب3 – معرفة علاقة تشريح الجذع بتخصص هندسة الطب الحياتي

10.	بنية المقرر

الاسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقيم
1 & 2	2 نظري + 2 عملي	التعرف على القلب واجزاءه	The heart	نظري + عملي	امتحان يومي + تقرير
3	2 نظري + 2 عملي	التعرف على الاجزاء التي تتوسط القفص الصدري	The mediastinum	نظري + عملي	امتحان يومي + تقرير
4 & 5	2 نظري + 2 عملي	معرفة تضاريس الجدار الداخلي للبطن	Topography of the anterior abdominal wall	نظري + عملي	امتحان يومي + تقرير
6&7	2 نظري + 2 عملي	التعرف على عضلات ومفاصل الجزء الخلفي للجسم	The muscles and joints of the back	نظري + عملي	امتحان يومي + تقرير
8	2 نظري + 2 عملي	معرفة القفص الصدري واجزاءه	Thoracic cage organization	نظري + عملي	امتحان يومي + تقرير
9 & 10	2 نظري + 2 عملي	معرفة التوصيل الكهربائي للقلب البشري	The conductive system	نظري + عملي	امتحان يومي + تقرير
11	2نظري + 2 عملي	التعرف على الاغشية الداخلية في جوف البطن	The peritoneum	نظري + عملي	امتحان يومي + تقرير

امتحان يومي + تقرير	نظري + عملي	The pancreas and spleen	معرفة وظائف الكبد والبنكرياس	2نظري + 2 عملي	12
امتحان يومي + تقرير	نظري + عملي	The nerves on the posterior abdominal wall	معرفة الاعصاب المتواجدة على الجدار الخلفي للبطن	2 نظري + 2 عملي	13
امتحان يومي + تقرير	نظري + عملي	Female internal genital organs	شرح الاعضاء التناسلية الانثوية الداخلية	2 نظري + 2 عملي	14 & 15

11. تقييم المقرر

1- امتحانات يومية بأسئلة عملية وعلمية .
2- درجات مشاركة لأسئلة المنافسة الصعبة بين الطلاب.
3- وضع درجات للواجبات البيتية والتقارير المكلفة بهم.
4- امتحانات فصلية للمنهج الدراسي اضافة الى امتحان نصف السنة والامتحان النهائي.

12. مصادر التعليم والتدريس

Last's Anatomy e-Book: Regional and Applied	الكتب المقررة المطلوبة
Gray's Atlas of Anatomy E-Book	المراجع الرئيسية
rahams' and McMinn's Clinical Atlas of Human Anatomy E-Book	الكتب والمراجع الساندة التي يوصي بها

Course Description Form of bone injury and fractions

1. Course Name:	
Bone injury and fracture	
2. Course Code:	
WBM/32/07	
3. Semester / Year:	
Semester 2	
4. Description Preparation Date:	
2024-02-19	
5. Available Attendance Forms:	
presence in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours / 2 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Kawthar Ali Hasan Email: Kawtharali@uowa.edu.iq	

8. Course Objectives

Course Objectives	- The student will be able to identify bones and bone remodeling . - The student should be able to know the synovial membrane and bone cells. - Enabling students to obtain general knowledge of diseases that affect - Enabling students to obtain general knowledge of the types of fractures, methods of treating them, and the duration of their recovery - Enabling students to obtain general knowledge to diagnose and treat the disease

9. Teaching and Learning Strategies

Strategy	- Using the smart board - Use illustrative pictures whenever possible

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Bone cells, bone matrix, bone remodeling synovium	Introduction about bon	Lectures presented i PDF forma	Daily exams + homework assignments + monthly exams

2	2	Simple and comminuted fracture ,healing ,pathological fracture	Bone fracture	Lectures presented in PDF format	Daily exams homework assignments monthly exam
3	2	Management of fracture , reduction , immobilization, exercise	Bone fracture 2	Lectures presented in PDF format	Daily exams homework assignments monthly exam
4	2	Gout, osteoporosis , osteoarisritis	Disease of the bone	Lectures presented in PDF format	Daily exams homework assignments monthly exam
5	2	Arthritis , symptoms ,diagnosis, osteoarthritis ,treatment	Infection of the bone	Lectures presented in PDF format	Daily exams homework assignments monthly
6	2	Arthritis , signs and symptoms , disability , diagnosis	Joint disease	Lectures presented in PDF format	Daily exams homework assignments monthly
7	2	Osteoarthritis ,rheumatoid arthritis , lupus, gout	Joint disease2	Lectures presented in PDF format	Daily exams homework assignments monthly
8	2	Regulation of bone metabolism , osteoporosis , rickets, hyperparathyroidism	Bone metabolism	Lectures presented in PDF format	Daily exams homework assignments monthly
9	2	Causes of Rheumatic fever, symptoms ,rheumatic heart disease ,prevention , treatment	Rheumatic fever	Lectures presented in PDF format	Daily exams homework assignments monthly
10	2	Introduction, cervical disc herniation, diagnosing IVDD, treatment	**Intervertebral disc disorder**	Lectures presented in PDF format	Daily exams homework assignments monthly
11	2	Stabilizers, mechanism, predisposing factors	Patellar Dislocation ,knee dislocation and tibal shaft dislocation	Lectures presented in PDF format	Daily exams homework assignments monthly
12 +13	4	Rupture of rotator cuff , causes , types , acute calcific tendinitis	Disorders of the shoulder	Lectures presented in PDF format	Daily exams homework assignments monthly

14+15	4	Predisposition, mechanism , x ray, complications of prolonged immobilization	Intertrochanteric, Subtrochanteric & Femur Shaft Fracures	Lectures presented	Daily exams homework

11.Course Evaluation

☐ Daily exams scientific questions.
☐ Establishing grades for environmental duties
☐ Semester exams for the curriculum, in addition to the mid-year exam and final exam

12.Learning and Teaching Resources

ley & solomons system of orthopaedics and trauma

Mayo clinical family health book

Course Description Form of bone injury and fractions

1. Course Name:	
Bone injury and fracture	
2. Course Code:	
WBM/32/07	
3. Semester / Year:	
Semester 2	
4. Description Preparation Date:	
2024-02-19	
5. Available Attendance Forms:	
presence in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours / 2 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Kawthar Ali Hasan Email: Kawtharali@uowa.edu.iq	

8. Course Objectives

Course Objectives	
	• The student will be able to identify bones and bone remodeling .
	• The student should be able to know the synovial membrane and bone cells.
	• Enabling students to obtain general knowledge of diseases that affect
	• Enabling students to obtain general knowledge of the types of fractures, methods of treating them, and the duration of their recovery
	• Enabling students to obtain general knowledge to diagnose and treat the disease

9. Teaching and Learning Strategies

Strategy	
	• Using the smart board
	• Use illustrative pictures whenever possible

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Bone cells, bone matrix, bone remodeling synovium	Introduction about bon	Lectures presented i PDF forma	Daily exams + homework assignments + monthly exams

2	2	Simple and comminuted fracture ,healing ,pathological fracture	Bone fracture	Lectures presented in PDF format	Daily exams homework assignments monthly exam
3	2	Management of fracture , reduction , immobilization, exercise	Bone fracture 2	Lectures presented in PDF format	Daily exams homework assignments monthly exam
4	2	Gout, osteoporosis , osteoarisritis	Disease of the bone	Lectures presented in PDF format	Daily exams homework assignments monthly exam
5	2	Arthritis , symptoms ,diagnosis, osteoarthritis ,treatment	Infection of the bone	Lectures presented in PDF format	Daily exams homework assignments monthly
6	2	Arthritis , signs and symptoms , disability , diagnosis	Joint disease	Lectures presented in PDF format	Daily exams homework assignments monthly
7	2	Osteoarthritis ,rheumatoid arthritis , lupus, gout	Joint disease2	Lectures presented in PDF format	Daily exams homework assignments monthly
8	2	Regulation of bone metabolism , osteoporosis , rickets, hyperparathyroidism	Bone metabolism	Lectures presented in PDF format	Daily exams homework assignments monthly
9	2	Causes of Rheumatic fever, symptoms ,rheumatic heart disease ,prevention , treatment	Rheumatic fever	Lectures presented in PDF format	Daily exams homework assignments monthly
10	2	Introduction, cervical disc herniation, diagnosing IVDD, treatment	**Intervertebral disc disorder**	Lectures presented in PDF format	Daily exams homework assignments monthly
11	2	Stabilizers, mechanism, predisposing factors	Patellar Dislocation ,knee dislocation and tibal shaft dislocation	Lectures presented in PDF format	Daily exams homework assignments monthly
12 +13	4	Rupture of rotator cuff , causes , types , acute calcific tendinitis	Disorders of the shoulder	Lectures presented in PDF format	Daily exams homework assignments monthly

14+15	4	Predisposition, mechanism , x ray, complications of prolonged immobilization	Intertrochanteric, Subtrochanteric & Femur Shaft Fracures	Lectures presented	Daily exams homework

11.Course Evaluation

⬜ Daily exams scientific questions.
⬜ Establishing grades for environmental duties
⬜ Semester exams for the curriculum, in addition to the mid-year exam and final exam

12.Learning and Teaching Resources

ley & solomons system of orthopaedics and trauma

Mayo clinical family health book

Course Description Template

Course Description

This course description provides a brief summary of the most important course features and learning outcomes expected of the student to achieve, demonstrating whether they have made the most of the available learning opportunities. These should be linked to the program description.

1. Educational Institution	Warith Al-Anbiya University
2. Scientific Department / Center	Department of Biomedical Engineering
3. Course Name/Code	Numerical Analysis / WBM -32-02
4. Available Forms of Attendance	Weekly
5. Semester/Year	Chapter Two/2023
6. Number of Hours (Total)	120 Hours
7. Date of this description	12/3/2023

8. Course Objectives

- To provide the numerical methods of solving the non-linear equations, interpolation, differentiation, and integration.
- To improve the student's skills in numerical methods by using numerical analysis software and computer facilities.

9. Course Outputs and Methods of Teaching, Learning and Assessment

A. Cognitive Objectives

A1- The student will be able to use numerical methods in solving equations and employ them appropriately.

A2- Gain experience and knowledge in the types of differential equations and methods of solving them numerically.

A3. Gain experience and knowledge in solving types of integrals numerically.

A4- Making the student able to show the real knowledge of mathematical concepts during the study ladder and their applications in the engineering field.

A5- Develop an understanding of the basic ideas and concepts of numerical methods.

B. Skills objectives of the course

B1 - How to write programs using MATLAB to solve mathematical problems and find numerical solutions.

B2 - Solving mathematical models that represent numerically different physical and engineering models and finding the best one that suits the experimental data .

B3 – Skills of calculating the types of integrals by various numerical methods.

B4 – Skills of calculating differential equations using a set of numerical methods.

B5- Exercises solving skills from the textbook and from the auxiliary resources that have application in the practical aspect.

Teaching and learning methods

- ✓ The lecturer is to give theoretical lectures.
- ✓ Explanation and clarification using modern electronic means.
- ✓ The method of the lecture is based on brainstorming and feedback.
- ✓ The method of self-learning through extra-curricular assignments that require exerting skills and self-explanations in experiential methods.
- ✓ The teacher requests periodic reports for the basic topics of the subject.
- ✓ The instructor conducts practical experiments related to the theoretical aspect.

Evaluation methods

- ✓ Daily exams with practical and scientific questions.
- ✓ Participation scores for competition questions among students.

✓ Scoring homework and reports assigned to them.
✓ Scoring for practical experience reports.
✓ Semester exams for the curriculum in addition to the mid-year exam and the final exam.

C. Emotional and Value Goals
   A1- Observation and perception.
   A2- Analysis and Interpretation
   A3. Conclusion and evaluation
   C4- Preparation and Evaluation

d. General and qualifying skills transferred (other skills related to employability and personal development).
   D1- Skills necessary to work within the local labor market to maintain all medical devices related to fluid issues.
   D2- Enabling the student to use the special and general equations of the study subjects and how to benefit from them in analyzing the problems and extracting the results accurately.
   D3- Holding special workshops for students for the purpose of self-development for them.
   D4- Developing the student's ability to analyze information and interpret the data obtained through conducting practical experiments, using manual skills, or using computers such as simulation of systems.

10. Course Structure					
Evaluation Method	Method of education	Unit Name/Topic	Required Learning Outcomes	Hours	The week
Daily exams + homework	Lectures presented in pdf format	Linear Interpolation: Newton-Gregory	Learning the calculation using technique of estimating the value of a function for any intermediate value of the independent variable.	2	The first
Daily exams + homework	Lectures presented in pdf format	Linear Interpolation: Lagrange interpolating polynomial	Learning the calculation of the Lagrange interpolating polynomial of lowest degree that interpolates a given set of data.	2	Second
Daily exams + homework	Lectures presented in pdf format	Interpolation: General Equation	Learning the calculation using technique of General Equation	2	Third
Daily exams + homework	Lectures presented in pdf format	Numerical integration: Equal segments Trapezoidal method	To calculate the area under the curve of a function plotted on a graph. The trapezoidal rule that computes a function f(x) with a set of linear functions.	2	Fourth
Daily exams + homework	Lectures presented in pdf format	Numerical integration: Unequal segments	To calculate the area under the curve of a function plotted	2	V

		Trapezoidal method	on a graph. The trapezoidal rule that computes a function f(x) with a set of linear functions.		
Daily exams + homework	Lectures presented in pdf format	Numerical integration: Simpson's rules	Learning the calculation using technique of Simpson's rules which solves several approximations for definite integrals	2	Sixth
Daily exams + homework	Lectures presented in pdf format	Numerical Integration: Gaussian Quadrature Method	Learning the calculation of the definite integral of a function, usually stated as a weighted sum of function values at specified points within the domain of integration.	2	Seventh
Daily exams + homework	Lectures presented in pdf format	Solution of non-linear equations: Bisection method	Learning the numerical calculation of the bisection method which is one of the first numerical methods developed to find the root of a nonlinear equation.	2	Eighth
Daily exams +	Lectures presented	Solution of non-linear equations:	Learning the numerical calculation of	2	Ninth

homework	in pdf format	Newton Raphson method	the Newton-Raphson method which is the method of choice for solving nonlinear systems of equations.		
Daily exams + homework	Lectures presented in pdf format	Solution of non-linear equations: Secant method	Learning the numerical calculation of the Secant method which is a very effective numerical procedure used for solving nonlinear equations of the form $f(x) = 0$	2	X
Daily exams + homework	Lectures presented in pdf format	Numerical solution of ODE: Taylor series	Learning the numerical calculation of the Taylor series that provides a means to predict a function value at one point in terms of the function value and its derivatives at another point.	2	Eleventh
Daily exams + homework	Lectures presented in pdf format	Euler method and modified Euler method	Learning the numerical calculation of the Euler's method which is the first order numerical methods for solving ordinary differential	2	Twelfth

			equations with given initial value.		
Daily exams + homework	Lectures presented in pdf format	Runge - Kutta method	To calculate using the technique of Runge - Kutta method for solving the initial-value problems of differential equations.	2	Thirteenth
Daily exams + homework	Lectures presented in pdf format	Finite differences method	Learning the numerical calculation of the finite differences method for solving partial differential equations.	2	Fourteenth
Daily exams + homework	Lectures presented in pdf format	Matrix method	Learning the numerical calculation of Matrix method to find the solution to the system of equations such as Gaussian elimination method.	2	Fifteenth

11. Infrastructure	
1. Numerical Methods of Engineers, Chapra &Canale, 6th Edition.	1- Required Textbooks
2. Applied Numerical Analysis, Gerald & Wheatley, 7th Edition.	2- Key Reference(s)

All solid scientific journals that have to do with the broad concept of mathematical theories and their results.	A) Recommended Books and References (Scientific Journals, Reports, ...)
1. books-world.net 2. www.pdfdrive.com	B) Electronic References, Websites, ...

12. Course Development Plan
1-   Keeping pace with the scientific development in the field of specialization and providing students with all the Publication of the Scientific Subject. 2-   Updating and revising lectures annually. 3-   use Modern Means of Education.

Course Description Template

Course Description

Analysis of mathematical equations from the significance of time to the significance of frequency by using integrative and differential properties

1. Educational Institution	Warith Al-Anbiya University
2. Scientific Department / Center	Department of Biomedical Engineering
3. Course Name/Code	WBM-31-01/ Engineering Analysis
4. Available Forms of Attendance	Weekly
5. Semester/Year	First Semester /2024
6. Number of Hours (Total)	60 Hours
7. Date of this description	21/9/2024
8. Course Objectives	
The topic of geometric analysis of frequency functions mathematically aims to clarify the practical and philosophical challenges of current geometric analyses that have stimulated this continuous development, as well as to provide the basic concepts of functions and their useful fields for further study of engineering sciences and applied analytical mathematics in the scientific and practical field. This is done starting from reviewing the basic principles, studying the meaning of the function and how to draw it on the attempt, analyzing the integrative in relation to time and frequency, finding the purpose for it, vectors, and finally the polar coordinates, in addition to introducing the principles of integration and calculus, their applications, and some functions in particular, in addition to increasing the opportunity for students to practice sound thinking methods, such as reflective, deductive, and inductive thinking, and increasing their skills in using the problem-	

solving method to understand what they are studying, and to reveal new relationships.

9. Course Outputs and Methods of Teaching, Learning and Assessment

A. Cognitive Objectives
  A1- Making the student able to show the real knowledge of analytical mathematical concepts during the study ladder and their applications in the field of communication science and the transmission and knowledge of the properties of waves.
  A2- Learn and understand the basic definitions used in geometric mathematics such as real value medals , exponents and roots, equations, inequalities and graphs.
  A3- Learn and understand solution methods and temporal applications in calculus and derivative
  A4- Learn and apply laws and formulas that result directly from mathematical concepts such as quadratic equations, exponential functions, properties of logarithmic relations , and Euler transformations.

B. Skills objectives of the course
  B1- Familiarity with the mathematical analytical relations that represent the types of algebraic functions and their drawing.
  C2- Familiarity with the laws of finding the derivative using the definition and returning it to the basic function under the influence of the integration properties.
  C3- Familiarity with finding the field and the corresponding field of a function with one variable and how to draw it in terms of Cartesian coordinates
  A4- Familiarity with concepts does not achieve the goal, solving immediate equations and performing algebraic operations on them.

Teaching and learning methods

  ✓ The teaching to give preferential theoretical lectures
  ✓ The teacher requests periodic reports for the basic topics of the subject.

Evaluation methods

- ✓ Daily exams with practical and scientific questions
- ✓ Participation scores for challenging competition questions among students
- ✓ Scoring homework and reporting assignments.
- ✓ Semester exams for the curriculum in addition to the mid-year exam and the final exam

C. Emotional and Value Goals

A1- Encouraging the student to think about ways to solve real-time equations and draw all kinds of functions.

A2- Encouraging the student to think about the importance of derivative applications and integration in solving engineering problems.

A3- Encouraging the student to integrate in knowledge in terms of benefiting from mathematical information in other theoretical and practical fields of study and relying on each other

A4- Encouraging the student to acquire growing skills for mathematics in terms of language, symbols, information, and thinking styles.

Teaching and learning methods

- ✓ The lecturer gives detailed theoretical lectures
- ✓ The teacher is familiar with the basic concepts, equations, and functions of all kinds and their practical applications, which enhances the method of learning and teaching.
- ✓ The teacher introduces students to the most important applications of mathematical equations in the design of various medical devices theoretically and practically.

Evaluation methods

- ✓ Daily exams with practical and scientific questions.
- ✓ Participation scores for challenging competition questions among students.
- ✓ Scoring environmental duties and reports assigned to them.
- ✓ Semester exams for the curriculum in addition to the mid-year exam and the final exam.

d. General and qualifying skills transferred (other skills related to employability and personal development).

D1- Enabling students to write assignments on topics related to mathematics.
D2- Enabling students to solve algebraic equations in a way that can match the practical reality of communication systems.
D3. Housing students from obtaining professional exams organized by local or international bodies.
D4- Enabling students to develop continuously after graduation.
D5- Holding special seminars for students for the purpose of self-development of their personalities

10. Course Structure					
Evaluation Method	Method of education	Unit Name/Topic	Required Learning Outcomes	Hours	The week
Daily exams + homework + monthly exams	Lectures presented in pdf format	Introduction	Introduction to wave analytics, Fourier series representation of periodic signals, trigonometric Fourier series orthogonality conditions for sine and coding function	4	The first Second
Daily exams + homework + monthly exams	Lectures presented in pdf format	Fourier series expansion	Fourier series expansion , even and odd function , half range expansion ,complex exponetion fourier	4	Third
Daily exams + homework + monthly exams	Lectures presented in pdf format	complex exponetion fourier	complex exponetion fourier Parssival's theorem for periodic function power, trigonometric series approximation	4	fourth fifth
Daily exams + homework + monthly exams	Lectures presented in pdf format	Fourier integral, Fourier transform	Fourier integral, Fourier transform, definition and properties	4	sixth
Daily exams + homework + monthly exams	Lectures presented in pdf format	multiplication and convolution	multiplication and convolution, duality, inverse Fourier transform, unit impulse function	4	seventh
Daily exams + homework + monthly exams	Lectures presented in pdf format	unit step function	unit step function, rectangular function, Sinc function, Parssival's theorem for aperiodic function energy	4	eighth ninth

Daily exams + homework + monthly exams	Lectures presented in pdf format	Laplace transform	Laplace transform, definition and properties asymptotes and dominant terms, Examples	4	tenth
Daily exams + homework + monthly exams	Lectures presented in pdf format	Laplace transform	Laplace transform of special functions	4	eleventh
Daily exams + homework + monthly exams	Lectures presented in pdf format	initial value	initial value and final value theorems	4	twelfth
Daily exams + homework + monthly exams	Lectures presented in pdf format	Laplace transform	inverse Laplace transform	4	Xiii
Daily exams + homework + monthly exams	Lectures presented in pdf format	partial fractions	partial fractions theorem	4	fourteenth

	11. Infrastructure
Signals and systems , Sanjay sharma. 2011	1- Required Textbooks
✓ College Library for additional curriculum resources. Refer to scientific websites to view the latest developments in the subject .	2- Key Reference(s)
All solid scientific journals that have to do with the broad concept of mathematical theories and their results.	A) Recommended Books and References (Scientific Journals, Reports, …..)
www.ieee.org	B) Electronic References, Websites, …..

12-Course Development Plan

1-   Keeping pace with the scientific development in the field of specialization and providing students with every new development.
2-   Updating and revising lectures annually.
3-   use Modern Means of Teaching and Learning.

Course Description Form of Histology

1. Course Name:	
Histology	
2. Course Code:	
WBM/31/05	
3. Semester / Year:	
Semester 1	
4. Description Preparation Date:	
2024-09-15	
5. Available Attendance Forms:	
presence in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 Hours / 2 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Kawthar Ali Hasan Email: Kawtharali@uowa.edu.iq	

8. Course Objectives

Course Objectives	The Histology course aims to equip students with the following skills: • Provide students with general knowledge about tissues • Understand the characteristics of tissues and the damage that may occur in them • Learn about the types of specialized tissues • Recognize histological stains and their importance in sample preparation and early disease detection • Understand the relationship between histology and physiology

9. Teaching and Learning Strategies

Strategy	• Using the smart board and illustrative images whenever possible • Use of light microscopes with different magnifications through objective and ocular lenses

10. Course Structure

Week	Hours	Unit or subject name	Learning method	Evaluation method
1	2	Epithelial tissues	Lectures presented in	Daily exams , homework

Course Description Form

1. Course Name:
Physiology II

2. Course Code:
WBM-32-05

3. Semester / Year:
Third Year\second semester

4. Description Preparation Date:
2025-02-1

5. Available Attendance Forms:
presence in the classroom, lab

6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours\ 3 units

7. Course administrator's name (mention all, if more than one name)
Name: Ahmed oudah kadhim Email: ahmed.oudah@uowa.edu.iq

8. Course Objectives	
Course Objectives	The study objectives can be summarized as follows: • The circulatory system: Understand how the heart and blood vessels work, how blood is pumped and distributed in the body, and the mechanisms of regulating blood pressure. • The nervous system: Know the types of nervous tissue, how nerve signals are transmitted, and the role of the autonomic nervous system in regulating the various functions of the body. • The senses: Understand the mechanisms of the different senses such as hearing, sight, and touch, and how sensory signals are converted into nerve signals. • Muscle physiology: Study the different types of muscles, how they contract and relax, and the mechanisms of muscle fatigue. • Renal and respiratory physiology: Understand the functions of the kidneys and respiratory system, and how fluid, acid, and base balance are regulated in the body.

9. Teaching and Learning Strategies	
Strategy	Assessment is based on hand-in assignments, written exam, Case study, Quizzes, seminars, Practical testing and Online testing.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Learn about the	Cardiovascular system, action	Lectures	Daily exams

		cardiovascular system, action partial	partial,	presented PDF format + lab	+ homework assignments + monthly exams
2	4	Learn about the functional design of cardiovascular system, electrophysiology of the heart ECG	functional design of cardiovascular system, electrophysiology of the heart ECG	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
3	4	Learn about the cardiac cycle, cardiac output	cardiac cycle, cardiac output	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
4	4	Learn about the blood pressure, muscle and nerve	blood pressure, muscle and nerve	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam
5	4	Learn about the excitable tissue, nervous tissue	excitable tissue, nervous tissue	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
6	4	Learn about the types of nerves, excitation of the muscle	types of nerves, excitation of the muscle	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
7	4	Learn about the theories of contraction, muscle contraction change	theories of contraction, muscle contraction change	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
8	4	Learn about the	fatigue, smooth muscle	Lectures	Daily exams

		fatigue, smooth muscle		presented in PDF format + lab	homework assignments monthly
9	4	Learn about the cardiac muscle, neuromuscular transmission	cardiac muscle, neuromuscular transmission	Lectures presented in PDF format + lab	Daily exams homework assignments monthly
10	4	Learn about the autonomic nervous system, anatomical consideration and autonomic reflex arch	autonomic nervous system, anatomical consideration and autonomic reflex arch	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exan
11	4	Learn about the sympathetic and parasympathetic nervous system, higher anatomical centers and neurotransmitters in autonomic nervous system	sympathetic and parasympathetic nervous system, higher anatomical centers and neurotransmitters in autonomic nervous system	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exan
12	4	Learn about the micturition, introduction to special senses	micturition, introduction to special senses	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exan
13	4	Learn about the hearing vestibular apparatus, vision and the eye muscle contractility,	hearing vestibular apparatus, vision and the eye muscle contractility,	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exan
14	4	Learn about the electroencephalography, biophysics of circulation	electroencephalography, biophysics of circulation,	Lectures presented in PDF	Daily exams homework assignments

				format	monthly exam
				+ lab	
15	4	Learn about the Renal physiology, respiratory physiology	renal physiology, respiratory physiology	Lectures presented in PDF format + lab	Daily exams homework assignments monthly exam

11.Course Evaluation

⯀ Daily exams with practical and scientific questions.
⯀ Participation scores for difficult competition questions among students
⯀ Establishing grades for environmental duties and the reports assigned to them
⯀ Semester exams for the curriculum, in addition to the mid-year exam and final exam

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Principiles of anatomy and physiology, by Gerard J. Tortora& Bryan H. Derrickson 12PthP ed. Volume 1 2009
Main references (sources)	Text book of medical physiology, by Guton & Hall . eleven ed. 2020.
Recommended books and references (scientific journals, reports...)	Check out websites in this field

Unit Description Form

Course Description Form

Faculty of Engineering / Department of

Unit Information		
Course Information		

Unit Title	**Tissues**	Unit delivery
Unit Type	**Secondary**	نظريه ☒
Unit Code	WBM-31-07	حاضر ☒
ECTS Credits	**8**	المختبر ☒ تعليمي ☐
SWL (ساعة / SEM)	**45 hours**	عملي ☐ ☐ Seminar

Unit level		2	Delivery Semester		1
Department of Administration		Biomedical	College		Biomedical
Unit Commander			E-mail Address		
Title of Unit Commander		Assistant Lecturer	Unit Commander Qualifications		Master
Unit Teacher		Eng. Kawthar Ali Hassan	E-mail Address		Kawther.ali@uowa.edu.iq
Peer Reviewer Name		name	E-mail Address		E-mail Address
Date of accreditation of the Scientific Committee		26/9/2024	Version number		1.0

Relationship with other units		
Relationship with other subjects		
Prerequisites Unit	No	Semester	
Common Requirements Unit	No	Semester	

Unit objectives, learning outcomes and how-to contents Course objectives, learning outcomes and instructional contents	
Objectives of the Unit Course Objectives	• **Understanding tissue types**: Identify the different types of tissues in the body such as epithelial, muscular, neurological, and connective tissue. • **Study the exact characteristics of each type of tissue**: Learn the structural and functional characteristics of each type of tissue. • **Recognize the role of tissues in organ formation**: Study how different tissues interact to form organs and systems in the body. • **Understand how tissues respond to injuries and changes**: Study how tissues are affected by injuries and pathological changes. • **Analysis of the relationship between tissues and overall health**: Understand the importance of tissues in maintaining health and normal body functioning.
Unit Learning Outcomes Learning outcomes of the course	• **Recognize different tissue types**: Ability to identify different types of tissues and their functions. • **Analysis of microscopic properties of tissues**: Know how to distinguish different tissues under a microscope. • **Practical application of tissue concepts**: Ability to apply tissue knowledge in fields such as medicine and biology. • **Understand the functional role of tissues in the body**: Know how tissues contribute to various body functions such as movement, sensation, and protection. • **Tissue-organ interaction**: Understand how tissues form organs and their diverse functions.
Indicative Contents Indicative Contents	• **Introduction to Tissues**: Definition of tissue types and their basic functions. • **Epithelial tissue**: The study of tissues covering the inner and outer surfaces of the body such as the skin and intestines. • **Muscle tissue**: The study of tissues responsible for movement such as skeletal muscle, cardiac, and soft muscle. • **Neural tissue**: The study of tissues that deal with nerve signals such as nerves and brain. • **Connective tissue**: The study of tissues that support and connect other tissues such as tendons and cartilage. • **Specialized tissues**: such as blood, bone and glands tissue. • **Pathological changes in tissues**: the study of how tissues change due to diseases or injuries

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	• **Hands-on learning**: Using microscopes to examine tissue samples and characterize them below magnifier level. • **Interactive activities**: Discuss medical conditions related to tissue changes such as tumors or tissue infections. • **Case Study**: Analysis of medical conditions based on an understanding of tissue formation such as muscle or nerve diseases. • **Field trips**: Visit laboratories or hospitals to see tissue through techniques such as biopsies.

	• **Project-based activities**: Assign students projects to examine and study histology using different techniques.	

Student Workload (SWL) The student's academic load is calculated for 15 weeks			
SWL منظم (h / sem) Regular academic load of the student during the semester	30	**SWL regulator(h/s)** Regular student load per week	5
SWL غير منظم (h / sem) Irregular academic load of the student during the semester	15	**Unregulated SWL (h/s)** Irregular student academic load per week	5
SWL إجمالي (h / sem) The student's total academic load during the semester			45

Unit Evaluation Course Evaluation					
	As	**Time/Number**	**Weight (tags)**	**Week due**	**Related learning outcomes**
Formative Assessment	**Contests**	2	10% (10)	5, 10	LO #1 , 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO #3 , 4, 6 and 7
	Projects /Laboratory.	1	10% (10)	continuous	every
	report	1	10% (10)	13	LO #5 , 8 and 10
Final Assessment	**Midterm Exam**	2 hr	10% (10)	7	LO #1-7
	Final Exam	2 hours	50% (50)	16	every
	Overall Rating	100% (100 degree)			

Delivery Plan (Weekly Curriculum) Theoretical Weekly Curriculum	
week	**Covered Material**
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	

Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Learning and Teaching Resources
Learning and Teaching Resources

	text	Available in the library?
Required texts	Clinical Biochemistry, (8 editions), by Leipencotts	Yes
Recommended texts		Yes
Websites		

Grading chart
Grading chart

group	degree	Appreciation	Tags (%)	definition
An-Najah Group (50 - 100)	**A -** Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Proper work with noticeable errors
	D - Satisfactory	medium	60 - 69	Fair but with significant shortcomings
	E - sufficient	Acceptable	50 - 59	The work meets the minimum standards
Group failure (0 – 49)	**FX -** Failed	Deposit (in (processing	(45-49)	More work required but credit granted
	F - Failed	Failure	(0-44)	Large amount of work required

Note: Signs that are more than 0.5 decimal places greater than or below the full mark will be rounded higher or lower (for example, a score of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54. The university has a policy of not tolerating "imminent traffic failure", so the only modification to the marks granted by the original mark(s) will be the automatic rounding described above.

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	Unit Description Form	
	Course Description Form	
	Faculty of Engineering / Department of	

Unit Information
Course Information

Unit Title	**Medical Equipment**	Unit delivery
Unit Type	**fundamental**	نظريه ☒ حاضر ☒ المختبر ☒ تعليمي ☐ عملي ☐ ☐ Seminar
Unit Code	WBM-31-06	
ECTS Credits	**8**	
SWL (ساعة / SEM)	**45 hours**	

Unit level	3	Delivery Semester	1
Department of Administration	Biomedical	College	Engineering
Unit Commander	Eng. Mustafa Habib Giyad	E-mail Address	mustafa.ha@uowa.edu.iq
Title of Unit Commander	Assistant Lecturer	Unit Commander Qualifications	Master
Unit Teacher		E-mail Address	
Peer Reviewer Name	name	E-mail Address	E-mail Address
Date of accreditation of the Scientific Committee	26/9/2024	Version number	1.0

Relationship with other units
Relationship with other subjects

Prerequisites Unit		No	Semester	
Common Requirements Unit		No	Semester	

	Unit objectives, learning outcomes and how-to contents Course objectives, learning outcomes and instructional contents		

Objectives of the Unit Course Objectives	• **Identify types of medical equipment**: Learn about a wide range of devices used in medicine, such as diagnostic and therapeutic devices. • **Understand how medical equipment works**: Study how medical devices such as manometers, X-rays, and monitoring devices work. • **Learn about safety standards**: Learn how to use medical equipment safely and in accordance with approved medical standards. • **Study of clinical applications of medical equipment**: Know how to apply medical equipment in the diagnosis and treatment of pathological conditions. • **Understand the role of devices in healthcare**: examine the impact of medical equipment in improving healthcare.
Unit Learning Outcomes Learning outcomes of the course	• **Learn about the different types of medical equipment**: Know how diverse medical devices work and are used. • **Practical applications of medical devices**: Ability to operate and maintain medical equipment efficiently. • **Understanding parts and components**: Ability to identify components of medical equipment and understand how they work. • **Handling medical equipment safely**: Adhere to safety guidelines while using medical devices. • **Analysis of data generated by medical devices**: Learn how to interpret data provided by medical devices such as monitoring devices or diagnostic devices.

Indicative Contents
Indicative Contents
	• **Introduction to medical equipment**: definition of medical equipment, classifications, and types.
	• **Types of medical equipment**:
	
	  • **Diagnostic equipment**: such as X-ray machines, magnetic resonance imaging machine (MRI), electrocardiogram (ECG) machines.
	  • **Therapeutic equipment**: such as ventilators, radiotherapy devices.
	  • **Surgical equipment**: such as electric surgical instruments.
	  • **Life aids**: such as monitors, insulin pumps.
	
	• **Medical Standards and Specifications**: Study of global health standards related to medical equipment, such as FDA or CE standards.
	• **Safety and maintenance**: Learn how to properly maintain medical equipment and ensure its safety.
	  • **Clinical applications**: How these devices are used in hospitals or clinics to diagnose and treat patients.

	Learning and Teaching Strategies Learning and Teaching Strategies		

Strategies	• **Hands-on learning**: Conducting hands-on experiments using medical devices in a laboratory or simulated environment. • **Case Study**: Discuss real medical cases in which medical devices are used. • **Equipment Operation Training**: Provide practical training to students on how to operate and maintain medical equipment. • **Interactive activities**: Use simulators and software to teach students how to handle medical devices.

	• **Field trips**: Visit hospitals or medical laboratories to apply concepts in a real-world environment.		

Student Workload (SWL) The student's academic load is calculated for 15 weeks			
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SWL غير منظم (h / sem) Irregular academic load of the student during the semester	15	**Unregulated SWL (h/s)** Irregular student academic load per week	5
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Final Assessment	**Midterm Exam**	2 hr	10% (10)	7	LO #1-7
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Delivery Plan (Weekly Curriculum) Theoretical Weekly Curriculum	
week	**Covered Material**
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Learning and Teaching Resources		
Learning and Teaching Resources		
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Recommended texts		Yes
Websites		

Grading chart				
Grading chart				
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Course Information

Unit Title	**Medical Equipment**	**Unit delivery**	
Unit Type	**fundamental**	نظريه ☒	
Unit Code	WBM-31-06	حاضر ☒	
ECTS Credits	**8**	المختبر ☒	
SWL (ساعة / SEM)	**45 hours**	تعليمي ☐ عملي ☐ ☐ Seminar	

Unit level	3	**Delivery Semester**	1
Department of Administration	Biomedical	**College**	Engineering
Unit Commander	Eng. Mustafa Habib Giyad	**E-mail Address**	mustafa.ha@uowa.edu.iq
Title of Unit Commander	Assistant Lecturer	**Unit Commander Qualifications**	Master
Unit Teacher		**E-mail Address**	
Peer Reviewer Name	name	**E-mail Address**	E-mail Address
Date of accreditation of the Scientific Committee	26/9/2024	**Version number**	1.0

Relationship with other units
Relationship with other subjects

Prerequisites Unit		No	**Semester**	
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Learning and Teaching Strategies	
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Learning and Teaching Resources		
Learning and Teaching Resources		
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Websites		

				Grading chart
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