هيئة تقويم التعليم
Education Evaluation Commission
المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 6.

T5. COURSE REPORT (CR)

Course title: Biomechanics
Course code: (4032293-3)
Semester: First semester
Academic Year: 1439-1440H & 2018-2019

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A separate Course Report (CR) should be submitted for every course and for each section or campus location where the course is taught, even if the course is taught by the same person. Each CR is to be completed by the course instructor at the end of each course and given to the program coordinator

A combined, comprehensive CR should be prepared by the course coordinator and the separate location reports are to be attached.

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Course Report

For guidance on the completion of this template refer to the EEC-HES handbooks.

Institution	Umm Al-Qura University	Date of CR	5-9-1439
College/ Department	College of Applied Sciences/Physics		

A Course Identification and General Information

1. Course title: **Biomechanics** Code # **4032293** Section #**3**

2. Name of course instructor : **Dr. Hosam Salaheldin Ibrahim** Location **Abdeia/Mekka**

3. Year and semester to which this report applies: **2nd year/ First semester (level 4)**

4. Number of students starting the course? **3** Students completing the course? **2**

5. Course components (actual total contact hours and credits per semester):

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planed	3	0	0	0	0	45
	Actual	3	0	0	0	0	45
Credit	Planed	3	0	0	0	0	45
	Actual	3	0	0	0	0	45

B- Course Delivery

1. Coverage of Planned Program

Topics Covered	Planned Contact Hours	Actual Contact Hours	Reason for Variations if there is a difference of more than 25% of the hours planned
Static Forces-Equilibrium and Stability-Equilibrium Considerations for the Human Body. Stability of the Human Body under the Action of an External Force- Skeletal Muscles- Levers- The Elbow- The Hip- Limping Standing. Friction- Standing at an Incline-Friction at the Hip Joint- Spine Fin of a Catfish- **SOLVED PROBLEMS & EXERCISES**.	6 hrs	6 hrs	

Biomechanics of Bone. Bone basic constiteuts. Properties of the organic component (Collagen). Properties of the inorganic component (Bone minerals). Classification of bones. Difference between trabecular bone and compact bone. Elasticity What is the difference between elastic material and inelastic material. • Stress, strain, and elastic modulus. What are different types of material deformation (moduli)? • Young's modulus • Shear modulus • Bulk modulus Relation Between Hook's Law and Elastic Modulus Compliance of the arteries and veins **SOLVED PROBLEMS & EXERCISES**	9 hrs	9 hrs	
Mechanical Propertiesof Living Tissues • Material Mechanical Properties • Structural Mechanical Properties Some Important Definitions related to elasticity • Ductile materials • Brittle materials • Brittleness • Hardness • Toughness Stress-strain Curve of a Ductile Material The stress-strain diagram for a ductile material behavior Stiffness and Resilience Stiffness vs Strength of the bones Comparison between the behavior of bone with other materials (glass &	9 hrs	9 hrs	

metal)? Elasticity or stiffness of biomaterial Example of Bone stiffness: ○ Cortical bone is stiffer than trabecular bone. **1st Class Test**			
The Motion of Fluids-Bernoulli's Equation. Continuity Equation in circulatory system. -Viscosity and Poiseuille's Law -What are different parameters dependent on for fluid volume flow rate in a flowing tube? -Turbulent Flow-Circulation of the Blood Differentiate between laminar flow and turbulent flow? -Turbulence in the Blood • Explain how the flow of blood into the circulatory system can help in the diagnosis of circulatory disorders? **SOLVED PROBLEMS & EXERCISES**	9 hrs	9 hrs	
Circulation of the Blood • Circulatory or Cardiovascular System • Pulmonary Circulation • Systemic Circulation Types of Blood Vessels • Arteries • Veins • Capillaries -Blood Pressure ○ The systolic pressure ○ The diastolic pressure Mechanisms of energy dissipation during pumping action. **SOLVED PROBLEMS & EXERCISES**	6 hrs	6 hrs	
Control of Blood Flow. -Energetics of Blood Flow -Turbulence in the Blood-	6 hrs	6 hrs	

Arteriosclerosis and Blood Flow Power Produced by the Heart- Measurement of Blood Pressure- **SOLVED PROBLEMS & EXERCISES** **2nd Class Test**			
Total	45 hr	45 hr	

2. Consequences of Non Coverage of Topics

For any topics where the topic was not taught or practically delivered, comment on how significant you believe the lack of coverage is for the course learning outcomes or for later courses in the program. Suggest possible compensating action.

Topics (if any) not Fully Covered	Effected Learning Outcomes	Possible Compensating Action
Non	Non	Non

3. Course learning outcome assessment.

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge** ***At the end of this course the student should be able to:***		
1.1	- Define the basic knowledge of the biomechanics and the related laws	- Classroom lectures - Tutorials and independent study assignments - Individually hand written assignments required use of library reference material and web sites to identify the information required to complete tasks. - E-learning through the university website.	- Graded homework. - Assignments. - Quizzes. - Oral Group Discussion. - Class tests (e.g. 15 minute multiple choice test on content on completion of each topic) with a defined ratio of the final assessment of the course. Multiple choice knowledge item on final exam
1.2	- Outline different application of biomechanics and the application on the human body movement.		
2.0	**Cognitive Skills** ***At the end of this course the student should be able to:***		
2.1	- Summarize general areas of human movement and their applications	- Explain and justify several unsolved examples and unsolved problems in lecture under the supervision of the instructor. - Encourage the students to analyze and enhance the medical images	- Graded homework. - Class exams. - Final Exam. - Group and individual assignments require application of analytical tools in problem solving tasks.
2.2	- Apply the mechanics laws to the human different biological systems.		

		using certain image processing program packages (e.g. MATLAB, Image J software).	- Class participation.
3.0	**Interpersonal Skills & Responsibility** ***At the end of this course the student should be able to:***		
3.1	- Work effectively in groups as well as individuals.	- Discuss with students. - Group presentation. - Group assignment (the instructor should meet with each group part way through project to discuss and advise on approach to the tasks). - Individual student assignment or report carries out using the internet and/or library as a source of search.	- Evaluation of group reports and individual contribution within the group. - Peer or self assessment. - Evaluation of the capacity for independent study which could be assessed in individual assignments.
3.2	- Justify a short report in a written form and/or orally using appropriate scientific language.		
4.0	**Communication, Information Technology, Numerical** ***At the end of this course the student should be able to:***		
- 4.1	- Illustrate information technology and modern computer tools to locate and retrieve scientific information relevant to computing in medicine.	- Essay questions - Group presentation - Encouraging assays, reports and presentations. - Encourage the student to use the modern Information and Communication Technology (ICT) tools to prepare the required essays, reports, and/or projects. - Also, the students should conduct the ideal proper style and referencing format as specified in college style manual.	- Assessments of student's assignments. - Evaluation of group reports and individual contribution within the group. - Reports and presentations. - Instructor's feedback - Final and short exams include different problems which need numerical and technical skills.
- 4.2	- Appraise the cooperation through teamwork to assess and criticize various emergent problems.		
- 4.3	- Interpret the defined noise and artifacts an in the medical images to be improved using different signal and/or image processing package. - -		
- 5.0	- Psychomotor		
- 5.1	- Not applicable (N/A)	- N/A	- N/A

Note: In order to analyze the assessment of student achievement for each course learning outcome, student performance results can be measured and assessed using a KPI, a rubric, or some grading system that aligns student work, exam scores, or other demonstration of successful learning.

Summarize any actions you recommend for improving teaching strategies as a result of evaluations in table 3 above.

4. Effectiveness of used Teaching Strategies for Learning Outcomes set out in the Course Specification. (Refer to planned teaching strategies in Course Specification and description of Domains of Learning Outcomes in the National Qualifications Framework)

List Teaching Strategies set out in Course Specification	Were They Effective?		Difficulties Experienced (if any) in Using the Strategy and Suggested Action to Deal with Those Difficulties.
	No	Yes	
Seminar presentation by the students and web-interactions. Then, students will be divided into groups for seminar presentation on important areas of the course to assess their understanding and comprehension of the course.		**Yes**	
Encouraging students to collect the new information about what the new in the physics radiation effects course to make a poster.		**Yes**	

C. Results

1. Distribution of Grades

Letter Grade	Number of Students	Student Percentage	Analysis of Distribution of Grades
A^+	-		Success percentage for Group1 = 100 %
A	-		
B^+	-		
B	-		
C^+	1	50%	
C	-		
D^+	1	50%	
D	-		
F	-		
Denied Entry	-		
In Progress	-		
Incomplete	-		
Pass	2		
Fail	-		
Withdrawn	1		

2. Analyze special factors (if any) affecting the results

3. Variations from planned student assessment processes (if any) (see Course Specifications).	
Variations (if any) from planned assessment schedule (see Course Specifications)	
Variation	Reason
Non	Non

4.Student Grade Achievement Verification (eg. cross-check of grade validity by independent evaluator).	
Method(s) of Verification	Conclusion
The exam is evaluated by independent staff member	The exam evaluation is attached within the accreditation room within the appropriate file.

D Resources and Facilities

1. Difficulties in access to resources or facilities (if any)	2. Consequences of any difficulties experienced for student learning in the course, and proposed action to overcome it.
The number of textbooks is required to increase.	**The textbooks are required from the deanship of the library affaires.**

E. Administrative Issues

1. Organizational or administrative difficulties encountered (if any)	2. Consequences of any difficulties experienced for student learning in the course, and proposed action to overcome it.
Non	**Non**

F Course Evaluation

1. Student evaluation of the course (Attach summary of survey results)

ملخص لتقرير المقرر

اسم المقرر	تقرير مقرر ميكانيكا حيوية	الخطة 37	رقم المقرر 403229-3
اسم استاذ المقرر	د. حسام صلاح الدين	عدد من ملأ الاستبانة	6

اسئلة الاستبيان	غير موافق بشدة (1)	غير موافق (2)	محايد (3)	موافق (4)	موافق بشدة (5)	المتوسط
الأهداف الأساسية للمقرر (بما في ذلك المعلومات والمهارات التي صمم المقرر لتنميتها) واضحة بالنسبة لي	0	0	3	2	1	3.7
متطلبات النجاح في المقرر (بما في ذلك الواجبات التي يتم التقيم بناء عليها ومحكات التقييم) واضحة بالنسبة لي	0	0	0	4	2	4.3
مصادر مساعدتي في المقرر (بما في ذلك الساعات المكتبية لعضو هيئة التدريس والمراجع) واضحة بالنسبة لي	0	0	2	1	3	4.2
تنفيذ المقرر والأشياء التي طلب مني أداوها متسقة مع الأهداف الأساسية للمقرر	0	1	1	1	3	4.0
التزام عضو هيئة التدريس بأعطاء المقرر بشكل كامل (مثل : بدء المحاضرة , تواجد الأستاذ , التحضير ...)	0	0	1	2	3	4.3
لدى عضو هيئة التدريس إلمام كامل بمحتوى المقرر الذي يقدمه	0	0	1	1	4	4.5
عضو هيئة التدريس موجود للمساعدة خلال الساعات المكتبية	0	0	1	3	2	4.2
عضو هيئة التدريس متحمس لما يقوم بتدريسه	0	0	3	0	3	4.0
عضو هيئة التدريس مهتم بمدى تقدمي الدراسي وكان معينا لي	0	0	3	1	2	3.8
كل ما يقدم في المقرر حديث ومفيد (النصوص المقروءة , التلخيصات , المراجع , وما شابهها)	0	1	0	3	2	4.0
مصادر التعلم التي احتجتها في هذا المقرر متوافرة كلما احتجت إليها	0	1	2	2	1	3.5
تم استخدام الفعال للتقنية لدعم تعليمي في هذا المقرر	2	1	1	1	1	2.7
وجدت تشجيعا لإلقاء الأسئلة وتطوير أفكاري الخاصة في هذا المقرر	0	0	2	3	1	3.8
شجعت في هذا المقرر على تقديم أفضل ما عندي	0	1	1	2	2	3.8
ساعدت الأشياء التي طلبت مني في هذا المقرر في تطوير معرفتي ومهاراتي التي يهدف المقرر لتعليمها	0	2	0	2	2	3.7
كانت كمية العمل في هذا المقرر متناسبة مع عدد الساعات المعتمدة المخصصة للمقرر	0	0	2	1	3	4.2
قدمت لي درجات الواجبات والاختبارات في هذا المقرر خلال وقت معقول	0	1	0	2	3	4.2
كان تصحيح واجباتي واختباراتي عادلا ومناسبا	0	0	2	1	3	4.2
وضحت لي الصلة بين هذا المقرر والمقررات الأخرى بالبرنامج (القسم)	0	1	0	4	1	3.8
ما تعملته في هذا المقرر مهم وسيفيدني مستقبلا	0	2	2	0	2	3.3
ساعدني هذا المقرر على تحسين قدرتي على التفكير وحل المشكلات بدلا من حفظ المعلومات فقط	0	2	0	2	2	3.7
ساعدني هذا المقرر على تحسين مهاراتي في العمل كفريق	0	0	3	1	2	3.8
ساعدني هذا المقرر على تحسين مهارات الاتصال بفاعلية	0	0	2	3	1	3.8
أشعر بالرضا بشكل عام عن مستوى جودة هذا المقرر	0	1	2	2	1	3.5
المتوسط العام للتقييم						3.9

Note:
The copy of the survey is attached at the end of the course report **Section #A**

a. List the most important recommendations for improvement and strengths

Non

b. Response of instructor or course team to this evaluation

The course instructor is satisfied with the survey evaluation results.

2. Other Evaluation (eg. by head of department, peer observations, accreditation review, other stakeholders)
   It was evaluated by international accreditation foundation "ASIIN"

a. List the most important recommendations for improvement and strengths

Non

b. Response of instructor or course team to this evaluation **Non**

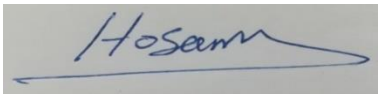
G Planning for Improvement

1. Progress on actions proposed for improving the course in previous course reports (if any).			
Actions recommended from the most recent course report(s)	Actions Taken	Action Results	Action Analysis
a. **The number of textbooks is required to increase.**	**The textbooks are required from the deanship of the library affaires.**	**In progress**	**Will be followed**
b.			
c.			
d.			

2. List what other actions have been taken to improve the course (based on previous CR, surveys, independent opinion, or course evaluation). **Non**

3. Action Plan for Next Semester/Year		
Actions Recommended for Further Improvement	Intended Action Points (should be measurable)	Person Responsible
a. **The number of textbooks is required to increase.**	**The textbooks are required from the deanship of the library affaires.**	**Head of the physics department**
b.		
c.		
d.		

Name of Course Instructor: **Physics of Radiation Effects**

Signature:  Date Report Completed: 5-5-1439

Saleh M. Alluqmani

Program Coordinator:

Signature:  Date Received:_____