



Course Outline

Class: TY B Tech	Name of the Course:			
Course Type: PEC-III	Course code: BME6503			
	Examination Structure			
Credits: 03	IE	MTE	ETE	Total
	20	30	50	100

Course Relevance: Biomechanics and biomedical engineering course is highly relevant at the undergraduate level as they provide a strong foundation in understanding the mechanics of the lower extremities of the human and how it interacts with medical implants and fixation. This course equips students with knowledge and skills to design and develop innovative solutions for healthcare, where they can contribute to improving patient outcomes and quality of life.

Pre requisites:

- a. Mechanics
- b. Biology

Course Outcome and Mapping with POs and PSOs

CO	Statement	Learning Level	PO/ PSO Mapped	Tools for direct Assessment
1	Demonstrate the basic principles of biomechanics to analyze the movement, forces at a skeletal joint for various activities	0.5	PO1,PO12	IE, MTE
2	Demonstrate a general understanding of the use of artificial materials in humans/animals.	0.6	PO1,PO12	IE, MTE
3	Learn the use of various sensors/transducers in medical applications.	0.6	PO1,PO12	IE, ETE
4	Create 3D model from medical scan images using software.	0.7	PO1, PO2, PO3, PO5, PO9, PO12	IE, MTE
5	Analyze the mechanical properties in biological tissues/implants/fixations.	0.8	PO1, PO2, PO3,PO4, PO5, PO9, PO12	IE, ETE
6	Demonstrate a general understanding of design procedure and Select the appropriate manufacturing process for implant/fixation.	0.5	PO1,PO12	IE, ETE

Internal Evaluation-1 will be based on Case study using Modern Software Tools.

Internal Evaluation-2 will be based on technical presentation.



Department: Mechanical Engineering

A.Y. 2023-24

Semester:II

Date:

Rubrics for IE1

	Excellent (2 marks)	Good (1 marks)	Poor (0 marks)
Understanding of Engineering Concepts: <ul style="list-style-type: none"> • Demonstrates a clear understanding of relevant engineering principles and concepts. • Applies appropriate engineering theories and methodologies • Problem Identification 			
Solution Development: <ul style="list-style-type: none"> • Analyzes and interprets results to support conclusions and recommendations. • Displays logical and systematic thinking throughout the case study. 			
Technical Knowledge and Application: <ul style="list-style-type: none"> • Applies technical knowledge effectively to propose engineering solutions. • Demonstrates an understanding of relevant engineering tools, software, or techniques. 			
Time Management: <ul style="list-style-type: none"> • Adherence to the allocated time frame • Ability to summarize and prioritize key points within the given time • Efficient use of time for each section or topic covered 			
Teamwork and Professionalism: <ul style="list-style-type: none"> • Responding to questions effectively • Overall professionalism and preparedness 			

Rubrics for IE2

	Excellent (2 marks)	Good (1 marks)	Poor (0 marks)
Content: <ul style="list-style-type: none"> • Relevance and depth of information • Use of supporting evidence and examples • Overall understanding of the topic 			
Delivery: <ul style="list-style-type: none"> • Confidence and poise in speaking • Voice projection and clarity • Effective use of verbal and non-verbal communication • Engaging the audience and maintaining their interest 			
Visual Aids and Presentation Materials: <ul style="list-style-type: none"> • Effective use of slides, charts, graphs, or other visual aids • Proper integration of visuals with the presentation content 			
Time Management: <ul style="list-style-type: none"> • Adherence to the allocated time frame • Ability to summarize and prioritize key points within the given time • Efficient use of time for each section or topic covered 			
Engagement, Interaction and Presentation Quality:			



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<ul style="list-style-type: none"> • Ability to engage the audience and encourage participation • Responding to questions or feedback effectively • Creating a conducive and interactive environment during the presentation • Overall professionalism and preparedness 			
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Teaching Plan for Theory Sessions

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO9	PO12	
1	4						3	7
2	4						3	7
3	4						4	8
4	2	1	1		2	1	1	8
5	1	1	1	1	1	1	2	8
6	4						3	7
	19	2	2	1	3	2	16	45

Course Faculty

Dr. R.A. Gujar

Mr.Ishan Sathone

Course Coordinator: Dr.R.A.Gujar