SRM Institute of Science and Technology
College of Engineering and Technology
School of Bioengineering

DEPARTMENT OF BIOMEDICAL ENGINEERING
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2023-24 (ODD:FT)

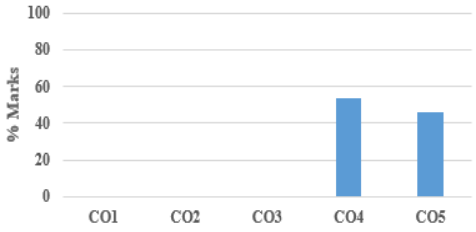
Mode of Exam
OFFLINE

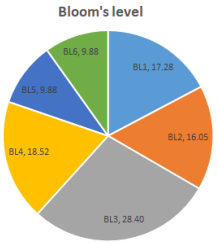
Test: CLA1-T3 | Date: 25-11-2023
Course Code & Title: Philosophy of Engineering (21GNH101J) | Duration: 100 minutes
Year & Sem: I yr, I Sem | Max. Marks: 50

CO	Digital logic for medical systems (21GNH101J)	Program Outcomes (PO)														
		Graduate Attributes												PSO		
	Course Outcomes (COs)	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyze the relation between Arts, Mathematics, Science, Technology and Engineering and desired attributes of an engineer	1	-	-	3	-	1	-	1	3	3	-	3	1	-	-
2	Build ontologies for systems engineering using concept/mind mapping techniques	3	-	-	3	3	-	-	-	3	3	-	3	3	-	-
3	Analyze the knowledge base in engineering, distinctive features of engineering design and RIASEC model	3	-	-	3	-	-	-	-	3	3	-	3	3	-	-
4	Illustrate the engineering design process for the given application, analyze the requirements of CDIO engineers	3	1	3	3	3	-	-	-	3	3	-	3	3	1	3
5	Evaluate designs on their environmental and societal aspects and do organizational analysis on profession engineering organizations	3	3	3	3	-	3	3	3	3	3	-	3	3	3	3

Part – A: Instructions: Answer all questions (11×1 mark = 11 marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
1	What initial step should Engineers take in the Engineering Design process? **a)** Conduct research. **b)** Identify the problem or need. **c)** Select and finalize **d)** Brainstorm and conceptualize.	1	1	4	1,3	
2	In designing a software architecture, _____ is not a crucial element. **a)** Data recovery and planning **b)** Security **c)** History of the programming software **d)** Application Performance Monitoring	1	1	4	1,4	
3	The Conceive phase within the CDIO framework signifies. **a)** Testing and validation **b)** Creating the design **c)** Coding the program **d)** Defining the customer's needs	1	2	4	1,3	
4	In the ADDIE model, what does the 'I' represent? **a)** Implementation **b)** Instruction **c)** Identification **d)** Investment	1	2	4	1,3	
5	_____is followed by Engineers to create or construct new things? **a)** Scientific method **b)** Engineering design process **c)** Trial and error **d)** Brainstorming	1	1	4	1,4	
6	Which of the options provides an accurate description of sustainable development? **a)** A development that is participatory and involves all stakeholders. **b)** A development that is economically viable and profitable. **c)** A development that meets the needs of the present without compromising the ability of future generations to meet their own needs. **d)** A development that is adaptive and can respond to changing circumstances.	1	1	5	1,4	
7	Engineers assume a pivotal role in the healthcare sector by: **a)** Designing and developing innovative medical devices and technologies. **b)** Implementing and maintaining healthcare information systems. **c)** Ensuring the safety and effectiveness of healthcare facilities and equipment. **d)** All of the above	1	2	5	1,3	
8	A diverse, equitable, and ---------- workplace improves the environmental, ethical, and economic impact of a company. **a)** inclusive **b)** contrasting **c)** heterogeneous **d)** vibrant	1	2	5	1,4	
9	Which one of the following is excluded from the Engineer's code of ethics? **a)** Should hold value for safety, health, and welfare of the public. **b)** Should perform services in multidisciplinary fields. **c)** Should issue public statements only in an objective and truthful manner. **d)** Should conduct themselves honorably, responsibly, ethically, and lawfully.	1	1	5	1,4	
10	In seeking sustainable solutions, engineers should_____ **a)** avoid engaging with stakeholders and communities to understand their needs and concerns. **b)** increase the cost of the developed product. **c)** understand that there are environmental limits and finite resources. **d)** use components and materials that cannot be recycled.	1	2	5	1,4	
11	The only professional organization for engineers that has a stated goal of addressing the non-technical concerns of professional and licensed engineers is **a)** IEEE **b)** American Association of Engineering Societies **c)** Society of Women Engineers **d)** National Society of Professional Engineers	1	1	5	1,3	
	Part – B: Instructions: Answer any three questions (3×8 marks = 24 marks)					
12	Explain the CDIO framework for organizing a training program.	8	3	4	1,3	
13	Outline the sequential steps constituting the Engineering Design Process.	8	1	4	1,3	
14	Compare the steps followed in the Scientific method with the Engineering design process.	8	2	4	1,4	
15	Discuss the 3E's that should be considered by companies to address sustainable development.	8	5	5	1,4	
16	List any five professional organizations for Engineers and discuss the same.	8	6	5	1,3	
	Part – C: Instructions: Answer any one question (1×15 marks = 15 marks)					
17	Discuss the five phases of the ADDIE model in detail.	15	3	4	1,3	
18	Illustrate the societal advantages derived from Engineering by examining its influence across diverse domains.	15	4	5	1,3	





Evaluation sheet

Name of the student:
Register Number:

Name of the Faculty: Dr. Rohit Gupta
Department: Biomedical Engineering

PART A (11×1=11 Marks)			
Q.No	**CO**	**Marks Obtained**	**Total**
1	4		
2	4		
3	4		
4	4		
5	4		
6	5		
7	5		
8	5		
9	5		
10	5		
11	5		
PART B (3×8=24 Marks)			
12	4		
13	4		
14	4		
15	5		
16	5		
PART B (1×15=15 Marks)			
17	4		
18	5		

Consolidated Marks:

CO	Marks Scored
CO4	
CO5	
Total	

Signature of the Course Faculty

Approved by the Audit Professor/Course Coordinator