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

Mode of Exam

OFFLINE

DEPARTMENT OF COMPUTING TECHNOLOGIES
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamil Nadu
Academic Year: 2024 - 2025 - Odd Semester

Test: CLAT3	**Batch 1 – Set B**	**Date: 11.12.2024**
Course Code & Title: 21GNH101J Philosophy of Engineering		**Duration: 60 min**
Year & Sem: I Year & I Sem		**Max. Marks: 35**
Registration Number:		
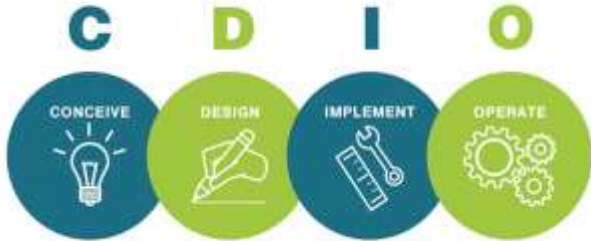
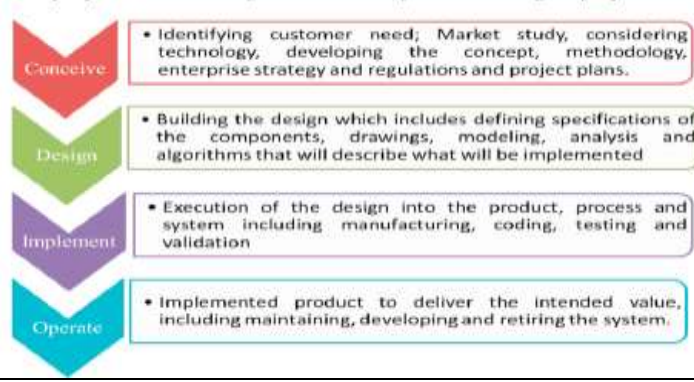|	Part – A (10 * 1 = 10 Marks) Instructions: Answer all the Questions				
Q. No	**Question**	**Marks**	**BL**	**CO**	**PO**

1	The _____ model is the generic process traditionally used by instructional designers and training developers.
	  a) ADDIE
	  b) CDIO
	  c) Engineering
	  d) Scientific
		1	1	4	1

2	_____ model is practiced by instructional designers and training developers
	  a) **ADDIE model**
	  b) RIASEC model
	  c) SPIRAL model
	  d) DISERT model
		1	1	4	1

3	In system design, what is a crucial consideration regarding data?
	  a) Data privacy
	  b) Data quantity
	  c) Data color
	  d) Data speed
		1	1	4	1

4	_____ consist of formative and summative.
	  a) Implementation phase
	  b) Development phase
	  c) Evaluation phase
	  d) Design phase
		1	1	4	1

5	_____ is the final stage of engineering design process.
	  a) Communicate results
	  b) Brainstorm possible solutions
	  c) Research ideas
	  d) Select an approach
		1	2	4	1

6	The core concept of 3Es stand for _____.
	  a) Environmental, economic and ethical
	  b) Evaporation, economic and ethical
	  c) Economic, easy and ethical
	  d) Epic, economic and ethical
		1	2	5	2

7	_____ are the reason for the phenomenal growth in technology of every generation.
	   a) Scientists
	   b) Engineers
	   c) Actors
	   d) Doctors
		1	2	5	1

8	Good designers _____ possible solutions before opting to start a design, building a list of as many solutions as possible
	   a) Research
	   b) Explore
	   c) Identity
	   d) Brainstorm
		1	2	5	1

9	Development which meets the needs of current generation without compromising the ability of future generations to meet their needs.
	   a) Sustainability
	   b) Diversity
	   c) Equity
	   d) Integrity
		1	1	5	1

10	The overall employee performance and their satisfaction level can be improved by increasing
	   a) Team performance
	   b) Machine performance
	   c) Investments
	   d) Requirements
		1	2	5	9

Part - B **(1* 10 = 10 Marks)** **Instructions: Answer any ONE Question**				
11	**Discuss in role of CDIO engineers in industry perspective.** **CDIO ENGINEERS IN INDUSTRY** Conceive: • Defining Customer needs • Considering technology • Enterprise Strategy and regulations • Developing Concepts, techniques and • Business Plan Design: • Creating the design • The plans, drawings and algorithms that describe what will be implemented Implement:	10	2	4	4

	• The transformation of design into the product, including manufacturing, coding , testing and validation				

Operate:
- Using the implemented product to deliver the intended values, including maintaining, evolving and retiring the system

12	**Explain in detail about Engineering and society.**	10	1	5	2

ENGINEERING AND SOCIETY

Are you aware of the extent of the impact engineering has made on our society as a whole? In fact, engineers have completely changed the world we live in, from modern homes, bridges, space travel, cars and the latest mobile technology. Innovative ideas are at the heart of what engineers do, and they use their knowledge to create new and exciting prospects and solve any problems that may arise.

Health

The health industry has hugely benefitted from engineering. Advances in medical technology is solely down to engineers, and without it doctors would not be able to treat patients the way they do today; with fantastic success rates. Engineering has essentially allowed us to understand the medical issues in today's society.

Technology

Engineers are the reason for the phenomenal growth in technology of every generation. Just think about what the technological advances that are in our everyday lives; not only can we access the world with our fingertips, engineers have also allowed us to build satellites and machines that help us to understand the world we live and shape our lives on a daily basis.

Communication

Whilst on the subject of technology, the way we communicate has also vastly improved due to engineering. We can now get in touch with people at any time of the day in any part of the world. This has greatly improved the way we do business and how we talk to our friends, family and strangers on a daily basis.

	Development Steam engines, jet engines and aeroplanes are all down to hard work from engineers, and it has allowed businesses to work smarter and faster than ever before. Improvements to travel have changed the way humans connect with one another, opening trades for business and allowing us to literally travel to the other side of the planet in a mere 24 hours. **Space** Visiting Space may have been a mere dream in the past, but not anymore. The International Space Station is the largest and most complex science undertaking ever. It allows scientists, analysts and engineers from all over the planet to come together and conduct research that cannot be done elsewhere, finding answers to queries that have been unquestioned for years. There are no aspects of the world we live in today that isn't affected by the work of engineers. The great thing is that engineering is continuing to affect society in a great and beneficial way.				

<table>
<tr><td colspan="6" align="center">Part - C
(1* 15 = 15 Marks)
Instructions: Answer any ONE Question</td></tr>
<tr>
<td>13</td>
<td>Suppose you're leading a team to develop a mobile app for a local coffee shop chain. Using the engineering design process, describe how you would approach the development of this app.
Architecture (3)

12 principles – (12 mark)
1. Identify the Need or Problem: Clearly define the problem or opportunity that the design</td>
<td>15</td>
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	aims to address. 2. **Research and Gather Information**: Conduct research to gather relevant data, information, and constraints related to the problem or need. 3. **Define Design Criteria and Constraints**: Establish specific criteria and constraints that the design solution must meet, considering factors such as performance, cost, safety, and usability. 4. **Brainstorm Possible Solutions**: Generate a wide range of potential solutions through brainstorming and creative thinking techniques. 5. **Evaluate and Select the Best Solution**: Evaluate each potential solution against the design criteria and constraints, considering factors like feasibility, effectiveness, and practicality. Select the most promising solution for further development. 6. **Develop a Prototype or Model**: Create a prototype or model of the chosen solution to test its functionality, performance, and usability. 7. **Test and Evaluate the Prototype**: Conduct tests and evaluations to assess the prototype's performance, identify any shortcomings or areas for improvement, and gather feedback from stakeholders. 8. **Iterate and Refine the Design**: Based on the test results and feedback, make iterative improvements to the design, refining it to better meet the established criteria and address any identified issues. 9. **Finalize the Design Solution**: Once the design meets all criteria and constraints and has undergone sufficient testing and refinement, finalize the design solution for implementation. 10. **Implement the Design**: Carry out the necessary steps to bring the design solution to fruition, which may involve manufacturing, construction, programming, or other implementation processes. 11. **Evaluate the Implemented Solution**: Assess the performance and effectiveness of the implemented solution in real-world conditions, monitoring its functionality and addressing any unexpected issues that arise. 12. **Communicate Results and Reflect on the Process**: Communicate the results of the design process to stakeholders, sharing insights gained, lessons learned, and recommendations for future improvements.				

	Reflect on the design process to identify strengths, weaknesses, and opportunities for enhancement in future projects.				
14	**Mention the professional organizations available for engineers with a detailed note.** *PROFESSIONAL ORGANIZATIONS FOR ENGINEERS* Engineering professional organizations provide important support to engineers. These groups work to advocate on behalf of engineers, provide professional development opportunities, publish updates on the latest innovations, and connect engineers to the community. Anyone pursuing a Master of Engineering Management degree would benefit from becoming a member of at least one of these organizations. Below find the top 5 engineering associations, which serve both the general profession of engineering as well as specific industries within the field. • National Society of Professional Engineers • IEEE • American Association of Engineering Societies • Society of Women Engineers • International Engineering Consortium	15	1	5	1

Course Outcome (CO) and Bloom's level (BL) Coverage in Questions

CO Coverage

BL Coverage