



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma Engineering

Level: Diploma

Branch: Biomedical Engineering

Subject Code: DI04003041

Subject Name: Hospital Management & Information System

w. e. f. Academic Year:	2025-26
Semester:	4 th
Category of the Course:	PCC

Prerequisite:	Basic knowledge of healthcare terminology and fundamental computer skills to understand hospital processes and information systems effectively.
Rationale:	It is vital to understand how hospitals function and how information systems support daily healthcare operations. It introduces the role of technology in managing patient data, hospital resources, and administrative tasks accurately. The subject also builds foundational skills required for future roles in healthcare administration and hospital IT support.

Course Outcome:

After Completion of the Course, Student will be able to:

No	Course Outcomes	RBT Level
1	Explain the fundamentals of hospital management and design.	U
2	Describe the roles, layout, challenges, and ethical aspects related to OPD and nursing units for effective patient care.	U
3	Understand the functions, types, procedures, and safety of ICU and the roles and workflow of CSSD in hospitals.	U
4	Apply principles of medical records and biomedical waste management for accurate documentation and safe hospital waste disposal.	AP
5	Evaluate hospital administration strategies and accreditation standards to enhance overall hospital quality and performance.	E

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR		C	Theory		Tutorial / Practical	
			ESE(E)		PA(M)	PA(I)	ESE(V)	
3	0	0	3	70	30	00	00	100



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Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	Introduction to Hospital Management	05	17%
	1.1 Definition of Hospital & Medical care 1.2 Changing role of hospital, Classification of hospital 1.3 Factors influencing hospital utilization 1.4 Hospital layout and Department design		
2.	Outpatient & Nursing Services	10	20%
	2.1 Introduction to OPD : Definition and functions of OPD, Flow of patients in OPD 2.2 OPD layout and equipments 2.3 Challenges in OPD management 2.4 Nursing service: Definition, function and roles & responsibilities 2.5 Factors influencing the number of nurses		
3.	Intensive Care Unit and Central Sterile Supply Department	10	20%
	3.1 Introduction to ICU: Definition, function and types of ICU 3.2 ICU Layout and Design 3.3 ICU procedure, safety and quality 3.4 Introduction of CSSD: Definition, function and role 3.5 Flowchart of CSSD		
4.	Medical Records and Biomedical Waste Management	10	21%
	4.1 Medical records: Definition, functions and needs 4.2 Characteristics of good medical records 4.3 Biomedical waste management: Definition, types and classification of waste 4.4 Characteristics of good waste disposal system 4.5 Flow process of hospital waste disposal		
5.	Effective Hospital Management and Accreditation	10	22%
	5.1 Principles of management 5.2 Managerial activities of hospital 5.3 Roles and responsibilities of hospital administration 5.4 Hospital Accreditation Standards: NABH, NABL, ISO, JCI		
	Total	45	100 %



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Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
10 %	45 %	20 %	10 %	15 %	--

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Principles of Hospital Administration and Planning; B.M.Shakharkar, Jaypee Brothers Medical Publishers, 2009 ISBN: 978-81-8448-632-2
2. Hospital Planning and Administration; Parhlad Singh Ahluwalia, Siddhanta International Publication, ISBN: 978-93-6933-051-5
3. Healthcare Information System; Caroline Carlisle; Arts and Science Academic Publications, 1990; 978-93-5686-609-6

(b) Open-source software and website:

- a) <https://www.adroitinfosystems.com/products/ehospital-system>
- b) https://alison.com/tag/healthcare-management?utm_source=chatgpt.com
- c) https://www.worldhospitaldirectory.com/wpdirectory.php?utm_source=chatgpt.com

Suggested Project List:

The projects serve as practical learning experiences for students in the field of Biomedical engineering. These projects integrate theoretical knowledge with hands-on application, fostering competency development across various Course Outcomes (COs). Below are guidelines for designing and executing projects:

- **Project Types:**
 - It can be industry-based, internet-based, workshop-based, laboratory-based, or field-based.
 - Each project should align with specific COs and address real-world challenges.
- **CO Integration:**
 - It should encompass two or more COs.
 - Integration involves aligning Program Outcomes (PrOs), Unit Outcomes (UOs), and Assessment and Design Outcomes (ADOs).



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- **Project Duration:**

- Students are encouraged to maintain a dated work diary to document their individual contributions and sufficient engagement time for each project should be allocated by faculty during the course.

- **Seminar Presentation:**

- Before submission, students must give a seminar presentation on their project.
- The presentation should highlight the project's objectives, methodology, results, and relevance to industry-oriented COs.

Following are suggestive projects, and additional ones can be tailored to specific course objectives. Encourage students to explore innovative solutions and apply their engineering skills effectively.

Projects:

- a) Patient Registration and Appointment Management
- b) Appointment Reminder and Notification System
- c) RFID / Barcode Based Hospital Asset Tracking
- d) Telemedicine / Virtual Consultation System

Suggested Activities for Students:

In addition to classroom and laboratory learning, students are encouraged to engage in co-curricular activities that enhance their understanding and practical skills. These activities can be conducted in groups and should be documented in 5-page reports. Collecting physical evidence of their work will also contribute to their portfolio, which can be valuable during placement interviews.

- A. Hospital Visit
- B. Case Study Analysis
- C. Medical Records Management Activity
- D. Hospital Department Role-Play
- E. Health Camp / Outreach Program.
- F. Group Discussion / Quiz

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