



## Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)  
Approved by Government of Tamil Nadu and Accredited by NAAC with 'A++' Grade (3<sup>rd</sup> Cycle-3.64 CGPA)  
Dr. N.G.P. – Kalapatti Road, Coimbatore-641048, Tamil Nadu, India

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### 2025-26 for Post Graduate Programme

(Outcome Based Education model with Choice Based Credit System)

### M.Sc., Hospital Administration

(For the students admitted during the academic year 2025-26)

#### Programme: M.Sc., Hospital Administration

#### Eligibility

Candidates for admission to the first year of the M.Sc., Hospital Administration full time degree course shall be required to possess a pass in "Bachelor's Degree" of any University and as per the norms set by the Government of Tamil Nadu or an Examination accepted as equivalent hereto by the Academic Council, subject to such conditions as may be described there to are permitted to appear and qualify for the M.Sc., Hospital Administration Post Graduate Degree Examination of this College after a course of study of two academic years.

#### Programme Educational Objectives

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. To learn efficient methods of Hospital Administration
2. To understand the concepts of management with relation to modern hospitals
3. To prepare and train qualified and efficient administrators to manage hospitals
4. To prepare and understand the principles of management and apply, when providing Quality patient Care in selected areas of Clinical Specialty in the Hospital and Community

5. To offer platform for working professionals in hospitals to achieve desired knowledge, skills and attitude in the field of hospital administration and enhance culture of professionalism in their approach.
6. To improve the ability of hospital based professionals in ethical decision making and implementation in key result areas of Hospital Administration.

#### **PROGRAMME OUTCOMES:**

On the successful completion of the program, the following are the expected outcomes.

<b>PO Number</b>	<b>PO Statement</b>
<b>P01</b>	To understand the major concepts in the functional areas of accounting, marketing, finance, information technology, and management with relation to hospitals.
<b>P02</b>	To build skills in the use of managerial tools of planning, organizing, and achieve optimal resource utilization in hospital settings.
<b>P03</b>	Use oral and written communication skills to meet the needs of various audiences.
<b>P04</b>	Use team, and organizational skills, supervision, and coaching techniques to effectively lead across organization, department, and work group units to meet diverse stakeholder and organizational goals in a variety of healthcare environments.
<b>P05</b>	Develop innovative solutions to strategic, tactical and operational issues in managing healthcare systems and associated information technology through the combined use of information, data analytics, organizational knowledge, talent management, and critical and design thinking.

# M.Sc. HOSPITALADMINISTRATION

## Credit Distribution

Subjects	No.of Papers	Credit	Semester No.
Core	14	56	I to III
Elective	3	3 x 4 =12	I to III
EDC	1	1 x 3 =3	III
Computer practical	1	1 x 2 = 2	I
Hospital Internship	3	3 x 3 = 9	I to III
Hospital Training	1	1 x 2 = 2	III
Project work	1	1 x 8 = 8	IV
<b>Total</b>	<b>24</b>	<b>92</b>	



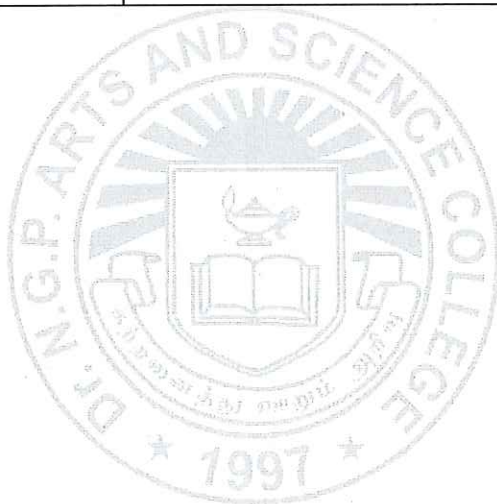
**PG CURRICULUM**  
**M.Sc. HOSPITAL ADMINISTRATION**  
**AY 25-26**

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credit
						Week	Total		CIA	ESE	Total	
First Semester												
25HAP1CA	Core - I	Management and Organisational Behaviour	4	1	-	5	60	3	25	75	100	4
25HAP1CB	Core - II	Concept of Health and Epidemiology	4	-	-	4	48	3	25	75	100	4
25HAP1CC	Core - III	Hospital Non-Clinical Operations Management	4	-	-	4	48	3	25	75	100	4
25HAP1CD	Core - IV	Hospital Clinical Operations Management	4	-	-	4	48	3	25	75	100	4
25HAP1CE	Core - V	Biostatistics and Operations Research	4	1	-	5	60	3	25	75	100	4
25HAP1CP	Core Practical	Spreadsheet Management	-	-	4	4	48	3	40	60	100	2
25HAP1CT	Hospital Internship-I	Hospital Clinical Services	-	-	-	-	-	3	40	60	100	3
25HAP1DA	DSE - I	Total Quality Management-Tools and Techniques	4	-	-	4	48	3	25	75	100	4
25HAP1DB		Entrepreneurship										
25HAP1DC		Technology in Healthcare										
Total			24	2	4	30	360				800	29

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Second Semester												
25HAP2CA	Core - VI	Hospital Architecture Design and Planning	4	1	-	5	60	3	25	75	100	4
25HAP2CB	Core - VII	Healthcare Economics	4	-	-	4	48	3	25	75	100	4
25HAP2CC	Core - VIII	Human Resource Management and Industrial Relations	4	1	-	5	60	3	25	75	100	4
25HAP2CD	Core - IX	Materials Management	4	-	-	4	48	3	25	75	100	4
25HAP2CE	Core - X	Healthcare Marketing and Strategic Management	4	1	-	5	60	3	25	75	100	3
25HAP2CT	Hospital Internship II	Hospital Supportive Services	-	-	3	3	36	3	40	60	100	3
25HAP2DA	DSE - II	Application of Quality in Healthcare	4	-	-	4	48	3	25	75	100	4
25HAP2DB		Innovation in Entrepreneurship										
25HAP2DC		Healthcare Data Management										
Total			24	3	3	30	360				700	26

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Third Semester												
25HAP3CA	Core - XI	Quality Assurance in Healthcare	4	1	-	5	60	3	25	75	100	4
25HAP3CB	Core - XII	Healthcare Laws	4	-	-	4	48	3	25	75	100	4
25HAP3CC	Core - XIII	Hospital Information System	4	-	-	4	48	3	25	75	100	4
25COP3EA	EDC	Financial and Management Accounting	4	1	-	5	60	3	25	75	100	4
25HAP3CD	Core - XIV	Research Methods for Management	4	1	-	5	60	3	25	75	100	4
25HAP3CV	Hospital Internship-III	Minor Project	-	-	3	3	36	3	40	60	100	3
25HAP3DA	DSE - III	Quality Accreditations in Healthcare	4	-	-	4	48	3	25	75	100	4
25HAP3DB		Healthcare Entrepreneurship										
25HAP3DC		Data Visualization										
25HAP3CT	Hospital Training	Hospital Training	-	-	-	-	-	3	40	60	100	2
Total			24	3	3	30	360	-	-	-	800	29

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fourth Semester												
25HAP4CV	Project Work	Project and Viva voce	-	-	16	-	-	3	80	120	200	8
Total			-	-	16	-	-	3	80	120	200	8
												92





### DISCIPLINE SPECIFIC ELECTIVE

Students shall select the desired course of their choice in the listed elective course during Semesters I, II, III

#### Semester I (Elective I)

##### List of Elective Courses

S. No.	Course Code	Course Name
1	25HAP1DA	Total Quality Management-Tools and Techniques
2	25HAP1DB	Entrepreneurship
3	25HAP1DC	Technology in Healthcare

#### Semester II (Elective II)

##### List of Elective Courses

S. No.	Course Code	Course Name
1	25HAP2DA	Application of Quality in Healthcare
2	25HAP2DB	Innovation in Entrepreneurship
3	25HAP2DC	Healthcare Data Management

#### Semester III (Elective III)

##### List of Elective Courses

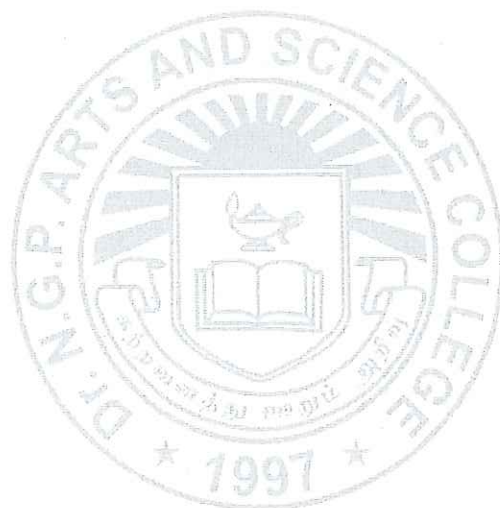
S. No.	Course Code	Course Name
1	25HAP3DA	Quality Accreditations in Healthcare
2	25HAP3DB	Healthcare Entrepreneurship
3	25HAP3DC	Data Visualization



### EXTRA CREDIT COURSES

The following are the courses offered under self study to earn extra credits:

S. No.	Course Code	Course Name
1	25HAPSSA	Innovation, IPR and Entrepreneurship
2	25HAPSSB	Brand Management
3	25HAPSSC	Hospital Hazards Management



**Semester - I**  
**CORE I: MANAGEMENT AND ORGANISATIONAL BEHAVIOUR**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1CA	MANAGEMENT AND ORGANISATIONAL BEHAVIOUR	CORE	60	-	-	4

<b>Preamble</b>	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> <li>• a basic framework to apply management theories and organizational behavior techniques in various types of healthcare organizations</li> <li>• the interpersonal and communication skills to be an effective leader</li> <li>• conceptual and technical frameworks of leadership and the role of managers</li> </ul>
<b>Prerequisite</b>	Knowledge about Organisation

**Course Outcomes (COs)**

CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand fundamental concepts of management	K3
CO2	Apply organizational planning systems and Decision making in health care	K3
CO3	Analyze functions of management, evaluate and develop organizational skills in health care management	K5
CO4	Analyze the principles of organizational behaviour dimensions in healthcare management	K5
CO5	Assess the effectiveness of healthcare administration skills using concepts of organizational climate	K5

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓	✓	
CO2		✓		✓	✓
CO3	✓			✓	✓
CO4			✓	✓	
CO5		✓			✓

25HAP1CA	CORE I: MANAGEMENT AND ORGANISATIONAL BEHAVIOUR
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## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Introduction to Management Evolution of Management science: Definition- nature- principle and process of management - management as science or art - management as profession - Managerial Roles -Management Theories : Classical- Behavioral- Modern theory - Industry 4.0 and beyond	12	Text Book
II	Planning and Organising Planning: Basics of planning- steps- types of plans - Strategic Management process. Organization: Meaning and definition - organization structure - delegation of authority- Decision making- Centralization - Decentralization.	12	Reference Book 2
III	Directing and Controlling Staffing: Man power planning and resourcing - Direction: Principles- Motivation techniques - Hierarchy of needs theory - McClelland's theory - ERG theory - McGregor's Theory X and Theory Y - Control: process- quality- control techniques	12	Text Book
IV	Organisational Behaviour Definition- Key elements - Need - Scope of Organisational Behaviour - models - Personality- Perception - Learning and Behaviour - Group dynamics- Leadership - Leader Vs Manager- styles- Theories	12	Reference Book 1
V	Organisational Dynamics Organisational Climate - Power and Politics- Conflict- Organisational change - Resistance to change- Management of change- Organisational development - Organisational Communication- Principles- Channels- Barriers.	12	Reference Book 1
	<b>Total</b>	<b>60</b>	



<b>Text Book</b>	1.	Ramasamy.T. 2013. Principles of Management. Himalaya Publishing House, Mumbai.
<b>Reference Books</b>	1.	L.M.Prasad. Edition 2014. Organisational Behaviour. Sultan and Chand sons, Delhi. Reprinted 2004
	2.	Prasad.L.M. 2016. Principles and practice of Management. Sultan Chand and sons, New Delhi. (Ninth Edition).
	3.	Stephen.P.Robbins. 14th Edition. 2011. Organisational behaviour. PHI Publishers, New Delhi
	4.	David H. Holt. 1993. Management: principles and practices, Prentice Hall PTR, United States.

<b>Journal and Magazines</b>	<a href="https://www.gurukpo.com/principles-and-practices-of-management/">https://www.gurukpo.com/principles-and-practices-of-management/</a>
<b>E-Resources and Website</b>	<a href="https://www.du.ac.in/uploads/new-web/29122022_Appendix-122.pdf">https://www.du.ac.in/uploads/new-web/29122022_Appendix-122.pdf</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Entrepreneurial Development/Employability
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**Semester - I**  
**CORE II: CONCEPT OF HEALTH AND EPIDEMIOLOGY**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1CB	CONCEPT OF HEALTH AND EPIDEMIOLOGY	CORE	48	-	-	4

Preamble	This course has been designed for students to learn and understand <ul style="list-style-type: none"><li>• implications of personal and societal behavior on disease</li><li>• the broad view of epidemiological principles of disease</li><li>• the general aspects of health programmes</li></ul>	
Prerequisite	Basic knowledge about Health	
Course Outcomes (COs)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand about concept of health, different types of disease causation, and demonstrate knowledge	K4
CO2	Understand the knowledge on basic anatomy, physiology and different functions of human body	K4
CO3	Understand various epidemiological principles and strategic models in conducting field studies	K5
CO4	Understand various aspects related to Infection control and Isolation	K4
CO5	Understand various health programmes in India and criticize their current progress on public health	K4

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓			
CO2	✓				
CO3		✓		✓	✓
CO4		✓			
CO5	✓	✓			✓

## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	<p>Concept of Health and Diseases</p> <p>Concept of health - Definition and dimensions of health - Spectrum of Health - Determinants of Health- Indicators of health- Concept of disease - Causation of Disease - Natural History of Disease - Disease classification - Concept of disease control - Concept of prevention.</p>	8	Text Book
II	<p>Basic Anatomy and Physiology &amp; Human System</p> <p>Introduction -The Cell - The tissues - Organs and Systems - Skeletal system, Blood and Blood Components - Cardiovascular System - Excretory System - Respiratory System - Digestive System - Central Nervous System - Reproductive System</p>	10	Reference Book 1
III	<p>Epidemiology</p> <p>Definition and basic concepts of epidemiology- Basic measurement of disease frequency - Mortality and Morbidity - Infectious disease epidemiology - Epidemic outbreak Investigation</p>	12	Text Book
IV	<p>Infection Control</p> <p>Nosocomial infection- Asepsis- Reservoir- Carrier and mode of transmission of communicable diseases - Infection control measures - Host Defense - Immune response - Immunization agents - Hazards of Immunization - Disease Prevention and Control- Non communicable Disease- Barrier nursing- Isolation</p>	9	Text Book
V	<p>National and International Health Programmes</p> <p>Indian Health Policy - National Family welfare Programmes - Universal Immunization programme - Reproductive and Child Health</p>	9	Reference Book 2

	Programme - National Tuberculosis Control Programme - National Leprosy Eradication Programme - National AIDS Control programme - National Cancer Control Programme - National Mental Health Programme - National Diabetic Control Programme-International Health Programmes- Rockfeller Foundation- Ford Foundation - World Bank Programme		
	<b>Total</b>	<b>48</b>	

<b>Text Book</b>	1.	K. Park. 2007. Preventive and Social Medicine, 19th edition. M/S Banarsidas Bhanot Publishers
<b>Reference Books</b>	1.	N.Muruges. 1999. Basic Anatomy and Physiology, 5th edition. Sathya Publishers, Madurai
	2.	S.L. Goel. 2004. Healthcare Organization and structure. Deep and Deep Publications Pvt. Ltd, New Delhi
	3.	Ross and Wilson. 2006. Anatomy and Physiology in Health and illness, 19th edition. Churchill livingstone Elsevier
	4.	F.Douglas Scutchfield, C.William Keck, 2009. Public Health Practice . Cengage Learning India Private Limited, New Delhi.

<b>Journal and Magazines</b>	<a href="http://aiihph.gov.in/departments-of-preventive-and-social-medicine/">http://aiihph.gov.in/departments-of-preventive-and-social-medicine/</a>
<b>E-Resources and Website</b>	<a href="https://milonm28.files.wordpress.com/2017/08/parks-preventive-social-medicine-23rd-ed.pdf">https://milonm28.files.wordpress.com/2017/08/parks-preventive-social-medicine-23rd-ed.pdf</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Employability
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**Semester - I**  
**CORE III: HOSPITAL NON- CLINICAL OPERATIONS MANAGEMENT**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1CC	HOSPITAL NON-CLINICAL OPERATIONS MANAGEMENT	CORE	48	-	-	4

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"><li>the important functions of management in Hospitals</li><li>the Health Administration in India and Health Agencies</li><li>the designing and maintenance of Hospital Supportive Services</li></ul>	
<b>Prerequisite</b>	Basic knowledge about Supporting service in Hospitals	
<b>Course Outcomes (COs)</b>		
<b>CO Number</b>	<b>Course Outcomes (COs) Statement</b>	<b>Bloom's Taxonomy Knowledge Level</b>
<b>CO1</b>	Understand, Compare and analyze the changing role of hospitals.	K4
<b>CO2</b>	Understand compare and analyze the various levels of Indian healthcare system	K4
<b>CO3</b>	Learn the different types of functions performed in the patient related supportive areas of the Hospital.	K5
<b>CO4</b>	Learn the different types of services performed in the other Supportive areas of the Hospital	K4
<b>CO5</b>	Understand and analyze the various crisis and its management in health care management	K4

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓			
CO2	✓	✓			
CO3		✓		✓	
CO4	✓	✓			
CO5		✓	✓	✓	✓



25HAP1CC	CORE III: HOSPITAL NON- CLINICAL OPERATIONS MANAGEMENT
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### Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Introduction to Hospital Meaning of hospital - Classification of Hospital - Functions of hospital - Modern Hospital - Hospital Organization and Structure -Hospital administration as a career - Changing system of hospital services.	10	Text Book
II	Administrative Services Human resources - Marketing - Patient Relations - Medical Value Tourism - Finance - Information Technology - Purchase - Stores	9	Reference Book 1
III	Supportive Services Front Office - Housekeeping - Linen & Laundry - Transport - Security - Medical Records - Patient Counseling - Health Insurance - Biomedical waste management	9	Text Book
IV	Utility Services Engineering - Civil, Electrical, Plumbing - Bio-Medical - Medical Gas supply - HVAC System - Communication system	10	Text Book
V	Crisis Management Fire safety - Disaster Risks - Mock drills - Maintenance - Safety - Hazard Identification and Risk Assessment	10	Reference Book 1
	<b>Total</b>	<b>48</b>	

<b>Text Book</b>	1.	G.D.Kunders. 2004. Hospital and facilities planning and Design - Tata McGraw Hill Publishing Ltd, Delhi
<b>Reference Books</b>	1.	Goel S L & Kumar R. 2004. Hospital Core Services: Hospital Administration of the 21st Century. Deep Deep Publications Pvt Ltd: New Delhi
	2.	S.K. Joshi. Quality Management in Hospitals. Jaypee Brothers Medical Publishers (P) Ltd, 2014, Delhi
	3.	S.L. Goel. 2004. Healthcare Organization and structure. Deep and Deep Publications Pvt. Ltd, New Delhi
	4.	David H. Holt. 1993. Management: principles and practices, Prentice Hall PTR, United States.

<b>Journal and Magazines</b>	<a href="https://www.iihmr.edu.in/event/report-healthcare-operations-management">https://www.iihmr.edu.in/event/report-healthcare-operations-management</a>
<b>E-Resources and Website</b>	<a href="https://www.scribd.com/document/262184850/Principles-of-Hospital-Management">https://www.scribd.com/document/262184850/Principles-of-Hospital-Management</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Entrepreneurial Development/Employability
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**Semester - I**  
**CORE IV: HOSPITAL CLINICAL OPERATIONS MANAGEMENT**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1CD	Hospital Clinical Operations Management	CORE	48	-	-	4

Preamble	This course has been designed for students to learn and understand <ul style="list-style-type: none"><li>• the specialties, sub specialties of medical field and various healthcare services</li><li>• the important clinical functions and its management in Hospitals</li><li>• the health policies of the nation and its impact on the Hospitals</li></ul>	
Prerequisite	Basic knowledge about Clinical services in Hospitals	
Course Outcomes (COs)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand, Compare and analyze the specialties of hospitals and various healthcare services	K4
CO2	Learn the different types of functions performed in the diagnostic areas and pharmacy of the Hospital.	K4
CO3	Learn the different types of services performed in the wards, ICU and OT areas of the Hospital.	K5
CO4	Learn the different types of services performed in the specialized clinical areas of the Hospital.	K4
CO5	Distinguish and analyze the various health policies and health committees	K5

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓			
CO2	✓	✓		✓	✓
CO3	✓	✓		✓	✓
CO4		✓		✓	
CO5		✓	✓		✓



25HAP1CD	CORE IV: HOSPITAL CLINICAL OPERATIONS MANAGEMENT
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### Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Overview of a Hospital Hospital - Specialties and sub-specialties of a Healthcare Industry - AYUSH Healthcare Services - Outpatient and Inpatient Services	8	Text Book
II	Hospital Facilities Laboratory- Blood Bank- Radiology and Imaging- Pharmacy- Nutrition and Dietary Services - Rehabilitative Services	10	Reference Book 4
III	Clinical Services Ambulatory Care - Ward Services- Operation Theatre- Intensive Care Unit - Nursing Services - Accident and Emergency- Quality Department - Clinical Trial - Ethics Committee	10	Text Book
IV	Special Services Central Sterile Supply Department - Nuclear Medicine - Dialysis - Mortuary - Tele Medicine - Committees in Hospitals- functions - Safety codes followed in Hospitals	10	Text Book
V	Health Policy Health Planning in India - National Health Policy - Overview of health policy (NHP-1986-2015-HFA2000) - National Housing Policy - National Nutritional Policy - National Population Policy and five year plans - Health Committees and recommendations - National Health Budget Programmes- Rockfeller Foundation- Ford Foundation - World Bank Programme	10	Reference Book 2
	<b>Total</b>	<b>48</b>	



<b>Text Book</b>	1.	G.D.Kunders. 2004. Hospital and facilities planning and Design - Tata McGraw Hill Publishing Ltd, Delhi
<b>Reference Books</b>	1.	S.K. Joshi. Quality Management in Hospitals. Jaypee Brothers Medical Publishers (P) Ltd, 2014, Delhi
	2.	S.L. Goel. 2004. Healthcare Organization and structure. Deep and Deep Publications Pvt. Ltd, New Delhi
	3.	James R. Langabeer. 2008. Health Care Operations Management: Jones & Bartlett Learning
	4.	Syed Amin Tabish, 2001. Hospital and Health services Administration: Principles and practices, Oxford University.

<b>Journal and Magazines</b>	Journal of Hospital and Medical Management
<b>E-Resources and Website</b>	<a href="https://www.edureka.co/blog/operations-management-in-hospitals">https://www.edureka.co/blog/operations-management-in-hospitals</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Entrepreneurial Development/Employability
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## Semester - I

## CORE V: BIOSTATISTICS AND OPERATIONS RESEARCH

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1CE	Biostatistics and Operations Research	CORE	48	12	-	4

<b>Preamble</b>	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> <li>• various concepts of Probability Distributions</li> <li>• how to compare Means of variations of more than two populations using ANOVA</li> <li>• the models of Transportation, Assignment and Queueing theory</li> </ul>
<b>Prerequisite</b>	Knowledge on Basic Mathematics, Statistics and management.

## Course Outcomes (COs)

CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Demonstrate the concept of probability distribution	K2
CO2	Compare the relation between Correlation and Regression	K2
CO3	Apply chi-square test and Analysis of Variance.	K3
CO4	Apply the concept of transportation and Assignment problem	K3
CO5	Analyze the concept of project network scheduling	K4

## Mapping with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓		✓	✓
CO2	✓	✓		✓	✓
CO3	✓	✓		✓	✓
CO4		✓			✓
CO5		✓	✓		✓



## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	<b>Probability Distributions:</b> Probability distribution - Observed theoretical distributions - Binomial distribution - Pascal's Triangle - Multinomial Expression-Poisson distribution - Continuous probability distribution - Normal distribution - Standard Normal distribution - Measures of deviation from the Normal Distribution - Kurtosis	12	Text Book 1
II	<b>Correlation and Regression:</b> Introduction- Correlation - significance of correlation - Bivariate and Multivariate Distribution - Types of Correlation - positive and negative correlation - Linear and Non-linear Correlation- Simple partial and multiple correlation- Measure of correlation - Objectives of Regression analysis- Regression coefficients- Difference between regression analysis and correlation analysis- Coefficient of determination.	12	Text Book 1
III	<b>Chi - Square Test and Analysis of Variance:</b> Formula for Determination of Chi - Square - Alternative formula - Chi - Square Distribution - Characteristics of Chi - Square Distribution - Working Rule for Chi - Square Test - 2x2 Contingency table - Calculation of Probability value - Assumptions of ANOVA - Test of ANOVA - Computation of Analysis of Variance ANOVA	12	Text Book 1
IV	<b>Transportation Problem and Assignment Model:</b> Definition- To represent Transportation problem as Linear Programming Problem Transportation Algorithm- North West Corner Rule to obtain Initial Basic Feasible Solution -Inspection Method to obtain Initial Basic Feasible Solution - Vogel's Approximation Methods to obtain Initial Basic Feasible Solution - Assignment problems - Difference between transportation and Assignment Models -To represent Assignment problems and transportation problems - Hungarian Algorithm	12	Text Book 2
V	<b>Queueing theory and CPM, PERT:</b> Introduction - Elements or Parameters of Queuing System - Steady state Balance Equation- Kendall's Notation for representing Queuing Models- Model 1: Single Server Model. Project planning using Critical path method - Terms used in CPM and PERT - Critical path method - Program Evaluation Review techniques - Difference between PERT and CPM	12	Text Book 2
	<b>Total</b>	60	

<b>Text Book</b>	1.	Veer Bala Rastogi., 2011, "Fundamentals of Bio-Statistics", 2 <sup>nd</sup> Edition. Ane Books Pvt.Ltd, New Delhi
	2.	Rajagopal K, 2012, "Operations Research" , First Edition, PHI Learning Pvt Ltd., New Delhi
<b>Reference Books</b>	1.	Annadurai, B., 2015, "A Text Book of Bio Statistics", 1 <sup>st</sup> Edition, New Age International Pvt. Ltd, New Delhi
	2.	Crossand, and Moscardini A.O, 1976, "The Art of Mathematical Modeling", Ellis Harwood and John Wiley, New york
	3.	KantiSwarup, Gupta. P. K. and Man Mohan., 2007, " Operations Research", 5 <sup>th</sup> Edition. S. Chand & Sons Education Publications, New Delhi
	4.	Hamdy A. Taha., 2014, "Operations Research: An Introduction" 9 <sup>th</sup> Edition, Pearson Education Publishers Pvt Ltd, New Delhi

<b>Journal and Magazines</b>	<a href="https://www.worldscientific.com/worldscinet/bms">https://www.worldscientific.com/worldscinet/bms</a>
<b>E-Resources and Website</b>	<a href="https://nptel.ac.in">https://nptel.ac.in</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Employability/Entrepreneurial development
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<b>SEMESTER I</b> <b>CORE PRACTICAL -I :</b> <b>SPREADSHEET MANAGEMENT</b>							
Semester	Course Code	CourseName	Category	L	T	P	Credits
I	25HAP1CP	SPREADSHEET MANAGEMENT	CORE	-	-	48	2

### S.No List of Programs

- 1 Prepare a Patient Record in Excel and perform the following: i. Prepare the Bill for the patient including the consultation fee and the no. of Tests taken.
- 2 Prepare an invoice excel sheet which consists of items, quantity and rate of the medicines purchased and do the following.
  - i. Using of Product Formula for Calculate Amount = Qty\*Rate
  - ii. How Many Items qty Greater Then > 20 and Less Then <20
  - iii. Calculate Item Qty, Rate and Amount using Sumif Formula
- 3 Calculate patient bill amount based on patient ID using Vlookup functions.
- 4 Using nested if allot grade for nurses based on their marks.
- 5 Compare patient's data in excel using countif() functions.
- 6 Using Filter option extract the patient disease wise data
- 7 Apply multiple filtering criteria to extract the patient summary data.
- 8 Use pivot table option to summarize data in two or more sheets
- 9 Prepare a disease wise report using pivot table.
- 10 Calculate mean, standard deviation and standard error of the mean.
- 11
  - i. Generate random numbers using random function.
  - ii. Identify the relation among variables using regression.
- 12 Plot different types of charts to visualize the patient details.

**Semester - I****DSE 1: TOTAL QUALITY MANAGEMENT- TOOLS AND TECHNIQUES**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1DA	TOTAL QUALITY MANAGEMENT- TOOLS AND TECHNIQUES	DSE	48	-	-	4

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"> <li>the Fundamentals of Total Quality Management in a Hospital</li> <li>the various tools and techniques used in TQM</li> <li>the importance of documentation and role of auditing in TQM</li> </ul>
<b>Prerequisite</b>	Basic knowledge about concept of Quality

Course Outcomes (COs)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	understand the concept and origin of TQM	K3
CO2	analyze various strategies of TQM (TEL, GLP, WITs, GMP)	K4
CO3	evaluate the various role in continuous improvement in TQM	K5
CO4	create and evaluate the various documentation on Quality Manual and Procedure	K6
CO5	understand and analyze various Internal Auditing in ISO systems	K4

Mapping with Program Outcomes:					
COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓		✓	
CO2		✓	✓		✓
CO3		✓		✓	✓
CO4			✓	✓	✓
CO5	✓	✓			✓



25HAP1DA	DSE 1: TOTAL QUALITY MANAGEMENT- TOOLS AND TECHNIQUES
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### Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Introduction to TQM Concept of Quality in emerging scenario of TQM – Origin and Philosophy of TQM –Factors motivating introduction of TQM –Role of HRD in TQM – Role of Participatory culture in TQM – Importance of TQM	9	Text Book
II	Role of Quality in Employee Involvement TEI (Total Employee Involvement) Strategy in TQM – Role of TEI – small group activities in TQM – Role of Quality Circles and Work Improvement teams (WITs). Good Laboratory Practices (GLP) and Good Manufacturing Practices (GMP)	10	Reference Book 1
III	Continuous Improvement in Quality Role of Continuous Improvement in TQM – Benchmarking and Business process reengineering – Zero defects – Quality costs and Planket Burman method – Kaizen – JIT, TAGUCHI, SMED, CEDAC.	10	Text Book
IV	Documentation Apex (Quality System) Manual / Procedure and Departmental manuals and work Instructions preparations- Policy amendment and documentation	9	Reference Book 2
V	Auditing Auditing – Audit team and responsibilities – Audit protocol – Types of Auditing – Internal Auditing – Second and Third party auditing – Role of Internet Auditing in ISO Systems – Patient satisfaction survey	10	Reference Book 1
	<b>Total</b>	<b>48</b>	



<b>Text Book</b>	1.	Bester field H. Dale. 2005. Total Quality Management. Pearson, London
<b>Reference Books</b>	1.	S.K.Joshi. 2009. Quality Management in Hospitals. Jaypee Brother Medical Publishers (P) Ltd, Delhii
	2.	Quality Management in Health Care, Principles and Methods, Donald Lighter and Douglas C Fair, Jones and Bartlett Publishers, 2004
	3.	Dr. R. Kiran. 2016.Total Quality Management: Key Concepts and Case Studies. 1st edition. Butterworth-Heinemann
	4.	John S. Oakland. 2014. Total Quality Management and Operational Excellence, 4th edition. Routledge.

<b>Journal and Magazines</b>	<a href="https://www.toolshero.com/quality-management/total-quality-management-tqm/">https://www.toolshero.com/quality-management/total-quality-management-tqm/</a>
<b>E-Resources and Website</b>	<a href="http://www.uop.edu.pk/ocontents/pdf">http://www.uop.edu.pk/ocontents/pdf</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Entrepreneurial Development/Employability/Innovations
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**Semester - I**  
**DSE -I: ENTREPRENEURSHIP**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1DB	Entrepreneurship	DSE	48	-	-	4

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"> <li>• the concept of Entrepreneurship</li> <li>• the methods to create and start ventures</li> <li>• the role of Institutional support to Entrepreneurship</li> </ul>
<b>Prerequisite</b>	Basic knowledge about Business

**Course Outcomes (COs)**

CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	understand the overview of Entrepreneurship	K3
CO2	Create ideas for venture planning and development	K4
CO3	evaluate feasibility for various business plan	K5
CO4	evaluate the financial aspects of new venture	K5
CO5	analyse the role of Institutional support to Entrepreneurship	K5

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓		✓	
CO2	✓			✓	✓
CO3	✓	✓	✓	✓	✓
CO4			✓	✓	✓
CO5	✓	✓	✓		✓

## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Introduction to Entrepreneurship Entrepreneurship- Concepts and Overview- Evolution of Entrepreneurship in India- Entrepreneurial Traits- Models of Entrepreneurship- Entrepreneur vs. Manager- Opportunities for Entrepreneurs- women entrepreneurship- rural entrepreneurship	10	Text Book
II	Creating and Starting the Venture Entrepreneurial decision process- Sources of new Ideas- Methods of generating ideas- Problem solving- Venture planning and development process	9	Reference Book 1
III	Business Plan Nature and scope of Business plan- Writing Business Plan- Evaluating Business plans- Implementing business plans- Market Feasibility- Technical Feasibility-Project Report Preparation- Launching formalities.	10	Text Book
IV	Financing and Managing the new venture Sources of capital-Financial viability and control- Marketing and sales controls - Joint ventures- Acquisitions- Mergers- Franchising- Public issues- Rights issues - Bonus issues and Stock splits.	10	Reference Book 2
V	Institutional support to Entrepreneurship Role of Directorate of Industries- District Industries Centers (DICs)- Industrial Development Corporation (IDC)- State Financial corporation (SFCs)- Commercial banks Small Scale Industries Development Corporations (SSIDCs)- Khadi and village Industries Commission (KVIC)- National Small Industries Corporation (NSIC)- Small Industries Development Bank of India (SIDBI)	9	Reference Book 1
	<b>Total</b>	<b>48</b>	



<b>Text Book</b>	1.	Robert D Hisrich, M P Peters, D A Shepherd. 2017. Entrepreneurship,, 10 edition, McGraw Hill
<b>Reference Books</b>	1.	Rajeev Roy. 2011 Entrepreneurship, 2 nd edition, Oxford Higher Education
	2.	David H Holt, 2019, Entrepreneurship, New Venture Creation, Prentice Hall
	3.	Alexander Osterwalder & Yves Pigneur, 2010. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers (The Strategyzer series), 1st edition), John Wiley and Sons
	4.	Robert D. Hisrich, Michael P. Peters, Dean A. Shepherd, 2018, "Entrepreneurship", 10th Edition, Tata McGraw Hill.

<b>Journal and Magazines</b>	<a href="https://xime.org/jme/jme-home">https://xime.org/jme/jme-home</a>
<b>E-Resources and Website</b>	<a href="https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_Entrepreneurial_Development_NOTES.pdf">https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_Entrepreneurial_Development_NOTES.pdf</a>

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
<b>Focus of the Course</b>	Skill Development/Entrepreneurial Development/Employability/Innovations

**Semester - I**  
**DSE -I: TECHNOLOGY IN HEALTHCARE**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25HAP1DC	TECHNOLOGY IN HEALTHCARE	DSE	48	-	-	4

<b>Preamble</b>	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> <li>• The functionals of the office Automation Applications &amp; Database Management System</li> <li>• Knowledge in IOT &amp; Hospital Information System</li> <li>• The Development of Mobile Health Care Services.</li> </ul>
<b>Prerequisite</b>	Knowledge on Computer Fundamentals

**Course Outcomes (COs)**

CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand functionals of the office Automation Applications	K3
CO2	Obtain knowledge on database environment	K3
CO3	Know the functions of IOT in Health Care	K3
CO4	Learn the concepts of Hospital Information System	K4
CO5	Analyze the various Applications in Health Care.	K5

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓			✓	✓
CO2		✓			✓
CO3	✓	✓		✓	✓
CO4			✓		
CO5	✓	✓			✓

## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Office Automation Applications Office Automation Applications – Word Processor (MS - Word), Spreadsheet (MSExcel), Graphics & Presentation (MS-Powerpoint); Database Management System (ACCESS)-Internet & Advanced Communication-Internet applications for Health care- Case Study: Case Study on general Automation Office Applications.	10	Text Book1
II	Database Management System Database – Definition, terms, common function, Basic data processing, Database and spreadsheet operations - Database Management System – Introduction to database management system, design, development, deployment, and evaluation of database systems, data integrity, security- Electronic Health Records- Case Study on Database Management System.	8	Reference Book1
III	Introduction to IoT Introduction of Internet of Things (IoT): Physical Design of IoT, Logical Design of IoT, IoT Enabling Technologies, IoT Levels & Deployment Templates- IoT Design Methodology. IoT Physical Devices & Endpoints: Basic building blocks of an IoT device IoT Applications for Health & Lifestyle-IoT devices in health - Tele Health – Tele medicine- Case Study on IoT in Telemedicine.	10	Reference Book2
IV	Hospital Information System (HIS) Hospital Information System (HIS)- Advantages- Structuring Medical Records - Automated Clinical Laboratory Systems & Radiology Information System- Role of Database in HIS- Need of Networking in HIS-Inventory Management Systems (IMS) – main purpose of inventory management- types of inventory management essentials of a good Inventory Management Software- Benefits of an Inventory Management System in Healthcare - Case Study: Hospital Information System Case study on Process and Operations	10	Reference Book 3
V	Mobile Health Services Mobile Health Services-Medical Uses- Mobile Device Operating System Technology- Air Quality Sensing Technologies- Open Source Software Packages For Mhealth- Health Insurance Portals- Social Health Insurance- Community Based Health Insurance- Voluntary Health Insurance-Benefits- Key Features For Health Insurance Portals-Different Types Insurance Portal-Pros And Cons of Web Portals – Case Study: A case study of Mobile Health Units in Tamil Nadu.	10	Reference Book4
	<b>Total</b>	<b>48</b>	



<b>Text Book</b>	1.	Andra Cable, Steven M. Freund, Ellen Monk, Susan L. Sebok, Joy L. Starks, and Misty E. Vermaat, 2019 "Microsoft Office 365 & Office (2019) Introductory
<b>Reference Books</b>	1.	ElmasriRamez and NavatheShamkant.B,2017, "Fundamentals of Database Systems", (7th Edn.), Addison Wesley
	2.	ArshdeepBahga, Vijay Madisetti, ,2015,"Internet of Things" – A hands-on approach Universities Press
	3.	Joydeep Das Gupta, 2015, "Hospital Administration and Management", Jaypee Brothers Medical Publishers
	4.	Robert Istepanian , Swamy Laxminarayan , (2010),"M-Health: Emerging Mobile Health Systems", Springer

<b>Journal and Magazines</b>	<a href="https://www.inderscience.com/jhome.php?jcode=ijhtm">https://www.inderscience.com/jhome.php?jcode=ijhtm</a>
<b>E-Resources and Website</b>	<a href="https://www.javatpoint.com/iot-healthcareHealth">https://www.javatpoint.com/iot-healthcareHealth</a> (who.int)

<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
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<b>Focus of the Course</b>	Skill Development/Employability/Innovations
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