

UCHAE20 – HEALTH**CARE LAWS**

Year: II Sem: III	Course Code: UCHAE20	Title of the Course: Health Care Laws	Course Type: Theory	Course Category: Core	H/W 5	Credits 4	Marks 100
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Objectives

1. To understand the structure of judiciary in India and its functions.
2. To identify and understand various Acts applicable to labor relations.
3. To describe medical professionals and their duties to society.
4. To elaborate on various Acts applicable to Hospitals.
5. To understand various Acts applicable to Hospital Administration.

COURSE OUTCOMES (CO)

1. Understand the principles and nature of forming Society, basics of constitution required for the hospital and applicability of the Companies Act.
2. Recognize and interrelate various Labor laws and its applicability to Hospitals.
3. Gain knowledge in the duties of medical practitioners and Laws relating to it and list the Acts and Rules that are connected with medical practice.
4. Understand the Medical Jurisprudence in India and have in depth knowledge about precautionary steps to avoid litigation.
5. Recognize the applicability of Laws on Hospital Administration and understand the obligations pertaining to the implementation of Laws applicable to hospitals.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	M	M	M	H
CO2	H	M	M	L	H	H
CO3	H	M	M	M	M	M
CO4	H	M	M	L	M	M
CO5	H	M	M	L	M	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	H	M	M
CO2	H	H	M	M	M	M
CO3	H	H	M	H	M	M
CO4	H	H	M	H	M	M
CO5	H	H	M	H	M	H

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Promotion

Forming Society (K1, K2, K3)

The Companies Act (K1, K2, K3)

Law of Partnership (K1, K2, K3)

A Sample Constitution for the Hospital (K1, K2, K3, K4)

The Tamil Nadu Clinical Establishment (Regulation) Rules, 2018 (K1, K2, K3)

Clinical Trial Schedule of DAC Act 1940 – I.C.M.R.Guidelines (K1, K2, K3)

Unit II: Labor Relations

Factories Act Shops and Establishment Act (K1, K2, K3)

The Workmen's Compensation Act the Employee's State Insurance Act the Employees' Provident Funds Act (K1, K2, K3)

The Payment of Gratuity Act the Maternity Benefit Act the Payment of Wages Act (K1, K2, K3)

The Minimum Wages Act the Industrial Disputes Act the Industrial Employment (Standing Orders) Act (K1, K2, K3)

The Trade Union Act the Apprentices Act (K1, K2, K3)

The Employment Exchanges (Compulsory Notification of Vacancies) Act the Collection of Statistics Act (K1, K2, and K3)

Unit III: Medical Care

Medical Council of India Medical Licensure Law (K1, K2, K3)

Doctors Patient Relationship Medical Malpractice (K1, K2, K3)

Quality and Standard of Medical Care Negligence (K1, K2, K3)

Medical Consent Emergency Care (K1, K2, K3)

The Consumer Protection Act (K1, K2, K3)

Patient's Rights and Responsibilities Medical Ethics (K1, K2, K3)

Unit IV: Medico Legal Commitments

Mental Illness – Tuberculosis Drugs Addicts and Alcoholics (K1, K2, K3)

Legal Issue in Death Cases Legal Testimony in Medico legal cases Narcotic Laws (K1, K2, and K3)

The Drugs and Cosmetic Act Drug Control Policy Clinical Investigation Blood Transfusion (K1, K2, K3)

The Medical Termination of Pregnancy Act the Prenatal Diagnostic Techniques Act Dying Declaration Medical Jurisprudence (K1, K2, K3)

The Human Organ Transplantation Act – Toxicology – Mental Health Care Act 2017 (K1, K2, K3)

Abandon Children in Hospital and Procedure mandated in the Juvenile Justice (CARE AND PROTECTION OF CHILDREN) Act, 2015 (K1, K2, K3)

Unit V: Hospital Administration

The Biomedical Waste (Management and Handling) Rules (K1, K2, K3)

Radiation Safety System (K1, K2, K3)

Law of Insurance (K1, K2, K3)

Export Import Policy (K1, K2, K3)

Exemption of Income Tax for Donations (K1, K2, K3)

Tax Obligations: Filling Returns and Deductions at Source (K1, K2, K3)

Textbooks

1. Raj Kumar, Acts Applicable to Hospitals in India (The Christian Medical Association of India, New Delhi, 2017).
2. Samuel Abraham, Human Resource Management in Hospital (Jefflin Rimon Publications, Vellore),2017.

Reference Books

1. Ram Krishna Chaube, Consumer Protection and The Medical Profession with Legal Remedies, Jaypee Brothers, 2017.
2. Samuel Abraham, Laws on Hospital Administration (CMAI, Delhi),2017.
3. Dr Sairam Bhat Healthcare in India: An Introduction to Law and Legal System Hardcover, 2016.

UCHAF20 - HOSPITAL OPERATIONS MANAGEMENT – I

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
II Sem: III	UCHAF20	Hospital Operations Management I	Theory	Core	5	4	100

Objectives

1. To understand the hospital organization and management model.
2. To illustrate the importance and functions of Outpatient and Inpatient services in hospital.
3. To recognize the role of nursing services and factors which influence the number of nurses
4. To understand and determine the factors which contribute to the development of hospital.
5. To learn the infection and implementation of Hospital Infection Control programme.
6. To elaborate on various clinical support services in the hospital.

COURSE OUTCOMES (CO)

1. Understand the classifications of hospitals, roles of hospital administrators, essential hospital operations indicator and current trends in healthcare.
2. Recognize and interrelate functions and layout of OPD, inpatient services and different forms of ward.
3. Understand the role and tasks of a nurse and determine the nursing staff requirement in a hospital.
4. Gain knowledge in function of Hospital Infection Control Committee in the hospital and Understand the prevalence of infection and the role of Hospital Infection Control
5. Understand the functions of these clinical support services and able to categorize the same.

CO	PO					
	1	2	3	4	5	6
CO1	H	L	M	M	L	H
CO2	H	L	M	M	L	H
CO3	H	L	M	M	L	H
CO4	H	L	M	M	L	H
CO5	H	L	M	M	L	H

CO	PSO					
	1	2	3	4	5	6
CO1	H	M	L	H	H	M
CO2	H	M	L	M	L	M
CO3	M	M	L	H	M	M
CO4	H	M	L	M	L	M
CO5	M	M	L	H	M	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Organization of the Hospital

- Over view of health services Types of Patient (K1, K2, and K3)
- Healthcare Models and Emerging Models Types of Hospitals (K1, K2, K3)
- Management Structure of Hospitals (K1, K2, K3)
- Hospital Committees (K1, K2, K3)
- Relationship with other Organization Essential Hospital Operations Indicator (K1, K2, K3)
- Current trends in healthcare (K1, K2, and K3)

Unit II: Outpatient and Inpatient Service

- Outpatient Service Inpatient Service & Admitting Department (K1, K2, K3)
- Surgical Services and Operating Theatre – ICU (K1, K2, K3)
- Specialty Services Accident and Emergency (K1, K2, K3)
- Surgical Specialties and Anesthesiology Medical Specialties (K1, K2, K3)
- Community Medicine and Family Medicine Paramedical Services (K1, K2, K3)
- Alternative Health Care System (K1, K2, K3)

Unit III: Nursing Service

- Objectives (K1, K2, K3)
- Responsibilities of Nursing Services (K1, K2, K3)
- Organization of Nursing Services (K1, K2, K3)
- Nursing Process (K1, K2, K3)
- Patient Care (K1, K2, K3)

Ward Management (K1, K2, K3)

Unit IV: Hospital Infection Control

Surveillance and Reporting of Infection (K1, K2, K3)

Roots of spread of infection High Risk areas in Hospital

Employee Health (K1, K2, K3)

Preventing Transmission of Infection (K1, K2, K3)

Infection control committee Hospital infection control programme (K1, K2, K3)

Biomedical Waste Disposal (K1, K2, K3)

Unit V: Clinical Support Services

Chaplain and Counseling (K1, K2, K3)

Pharmacy – Laboratories Blood Bank (K1, K2, K3)

Occupational therapy – Physiotherapy Speech therapy (K1, K2, K3)

Radiology Diagnostics service (K1, K2, and K3)

Nuclear Medicine Catheterization Lab (K1, K2, K3)

Radiation therapy ALC (K1, K2, K3)

Textbooks

1. Harris M G & Assoc Managing Health Service: Concept & Practices. MacLennan & Petty: Sydney, 2003.
2. Kunders G.D Facilities Planning and Arrangement in Healthcare, Prison Books Pvt. LTD, 2004.

Reference Books

1. Sakharkar B.M Principles of Hospital Administration and Planning, 2nd edition, Jaypee, New Delhi, 2009.
2. Syed Amin Tablish, Hospital and Nursing Homes Planning, Organisations and Management, 1st edition, Jaypee, New Delhi, 2005.
3. Sharma Step By Step Hospital Designing and Planning With Photo Cd Rom (Dr.Malhotra'S Series), 2010.

UAHCE20 –ALLIED III: HEALTHCARE ECONOMICS

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
II Sem: III	UAHCE2 0	Healthcare Economics	Theory	Allied	5	5	100

Objectives

1. To enable and understand the basic concepts of economics.
2. To analyze how health care outcomes are influenced by changing market forces, social forces, and government forces.
3. To understand the fundamentals of hospital and physician services production, including the concepts of input factor substitution, economies of scale and scope, and technology adoption decision.
4. To develop skills to evaluate the economic condition and market of the healthcare industry.

- To evaluate various health programs and its impact on the economy.

COURSE OUTCOMES (CO)

- Gain Knowledge in basic concepts of economics including managerial economics, macro and microeconomics, types of economy and understand the size and relevance of health economics.
- Develop skills to manage demand for health care and understand behavior of consumers in the health care sector.
- Understand the concept fundamentals of hospital and physician services production including the concepts of economies of scale, and technology adoption decision.
- Acquire the ability to evaluate health economics and understand the concept of healthcare market and health insurance.
- Analyze the environmental influences on the health care sector and identify the impact of tobacco, alcohol, drugs and other communicable diseases on the economy.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	M	L	L	H
CO2	H	M	M	L	L	H
CO3	H	M	M	L	L	H
CO4	H	M	M	L	L	H
CO5	H	M	M	L	L	H

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	H	M	M	M
CO2	H	H	H	H	M	H
CO3	H	H	H	H	M	H
CO4	H	H	H	H	L	H
CO5	H	H	M	H	L	H

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction to Health Economics

- Introduction to Economics and Basic Problems of Economy (K1, K2, K3)
- Types of Economy and Microeconomics and Macroeconomics (K1, K2, K3)
- Circular Flow and Interdependence of Economic Activity, Scarcity and Efficiency (K1, K2, K3)
- Managerial Economics and basic economic concepts (K1, K2, K3)
- Introduction to Health Economics (K1, K2, K3)
- The relevance of Health Economics and the size and scope of the Health Economy (K1, K2, K3)

Unit II: Basic Microeconomics: Concepts in Health Economics

- Basic concepts of market (K1, K2, K3)
- Basic Elements of Demand and Supply (K1, K2, K3)
- Market equilibrium (K1, K2, K3)
- Elasticity of demand and supply (K1, K2, K3)
- Approaches to consumer behavior (K1, K2, K3)
- Demand for Health (K1, K2, K3)

Unit III: Production and Cost of Healthcare

- Production Function (K1, K2, K3)
- Isoquants and Marginal Products (K1, K2, K3)
- Elasticity of Substitution (K1, K2, K3)
- Cost Function (K1, K2, K3)
- Economies of Scale (K1, K2, K3)
- Technological Change (K1, K2, K3)

Unit IV: Economic Evaluation and Markets in Healthcare

- Economic Evaluation (K1, K2, K3)
- Types of market (K1, K2, K3)
- Markets in Healthcare (K1, K2, K3)
- Government Interventions in Healthcare (K1, K2, K3)
- Health Financing from Various Sources (K1, K2, K3)
- Health Insurance and TPA (K1, K2, K3)

Unit V: Economics of Health Programs

- Environmental Influences on Health and its Economic Impact (K1, K2, K3)

Healthcare System in Different Countries (K1, K2, K3)

Economics Impact of Tobacco use (K1, K2, K3)

Economics Impact of Alcohol use (K1, K2, K3)

Models of Addiction (K1, K2, K3)

Aging of Population (K1, K2, K3)

Textbooks

1. ShermanFolland, Allen C. Goodman and MironStano, The Economics of Health and Health Care, Prentice Hall Inc, New Jersey, 2017.
2. Michael Drummond and et al, Methods for Economics: Evaluation of Healthcare Programme, Oxford University Press, 4th Edition, 2015.

Reference Books

1. Shuvendu Bikash Dutta, Health Economics for Hospital Management, Jaypee Brothers Medical Publishers, 1st edition, 2013.
2. Government of India, Five Year Plans.
3. Charles E., Phelps Health Economics: International Edition Paperback, 2009.

UEHAA20 - ELECTIVE I A: BUSINESS ENVIRONMENT

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
II Sem: III	UEHAA20	Business Environment	Theory	Elective	5	5	100

Objectives

1. To understand the nature of business environment.
2. To gain insight regarding the business cycle and its impact on business.
3. To impart knowledge of the governing acts related to business.
4. To acquire knowledge about the strategic decision making involved in business environment.
5. To relate the measures adopted by various firms.

COURSE OUTCOMES (CO)

1. Understand the concepts in business environment globally and in Indian context
2. Learn the concept of business cycle.
3. Understand social responsibility and social audit.
4. Acquire an overview about the Consumer Protection Act.
5. Understand the concepts of privatization and liberalization.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	M	L	L	H
CO2	H	M	M	L	L	H
CO3	H	M	M	L	L	H
CO4	H	M	M	L	L	H
CO5	H	M	M	L	L	H

CO	PSO					
	1	2	3	4	5	6
CO1	H	L	L	L	L	M
CO2	M	L	L	M	L	M
CO3	M	L	L	M	L	M
CO4	H	L	M	L	L	M
CO5	M	L	L	L	L	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction

- The Concept of Business Environment (K1, K2, K3)
- Meaning and definition - nature and significance (K1, K2, K3)
- Brief overview of political, cultural, legal environment (K1, K2, and K3)
- Economic and social environment (K1, K2, K3)
- Impact on business and strategic decisions (K1, K2, K3)
- Cultural heritage (K1, K2, K3)

Unit II: Environment

- Political environment (K1, K2, K3)
- Rights according to Indian Constitution (K1, K2, K3)
- Economic roles of Government in business (K1, K2, K3)
- Legal environment (K1, K2, K3)
- Laws applicable in Indian context (K1, K2, K3)
- Environmental influence on business (K1, K2, K3)

Unit III: Business Cycle

- Economic Systems and their impact of business (K1, K2, K3)
- Business cycle (K1, K2, K3)
- Inflation and deflation – meaning – causes – effects control (K1, K2, K3)
- Measures to be adopted by business firms to reduce the evil effects of business cycle (K1, K2, and K3)
- Financial Environment (K1, K2, K3)

Financial system Commercial Banks. (K1, K2, K3)

Unit IV: Governing Acts

- Consumer Protection Act (K1, K2, K3)
- Environment Protection Act (K1, K2, K3)
- Social responsibility towards customers and community (K1, K2, K3)
- Business Giving (K1, K2, K3)
- Social Audit (K1, K2, K3)
- Corporate Social Responsibility (K1, K2, K3)

Unit V: Privatization and Liberalization

- Privatization – meaning (K1, K2, K3)
- Ways of privatization (K1, K2, K3)
- Privatization in India (K1, K2, K3)
- Liberalization – meaning (K1, K2, K3)

- Globalization – meaning – merits and demerits. (K1, K2, K3)
- Examples and case studies of Globalization (K1, K2, K3)

Textbooks

1. Sankaran S, Business Environment, Margham Publications, Chennai, Latest Edition.
2. Shaw William, Business Ethics, Delmar Thomas Learning, Latest Edition.

Reference Books

1. Francis Cherunilam, Business Environment: Text and Cases, Latest Edition.
2. Jayaprakash Reddy, Business Environment, APH Publishing Corporation, 2004.
3. Velasquez, Business Ethics, Prentice Hall of India, 5th Edition, 2004.

UCHAH20 - HUMAN RESOURCE MANAGEMENT AND DEVELOPMENT

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
II Sem: IV	UCHAH20	Human Resource Management and Development	Theory	Core	6	4	100

Objectives

1. To enable and understand the HR Management and system at various levels in general and in certain specific industries or organizations.
2. To focus and analyze the issues and strategies required to select and develop manpower resources.
3. To develop relevant skills necessary for application in HR related issues.
4. To integrate the understanding of various HR concepts along with the domain concept to make correct business decisions.
5. To understand the development, implementation, and evaluation of organizational health and safety policies and practices.

COURSE OUTCOMES (CO)

1. Gain knowledge in basic concepts of Human Resource Management and enable in drafting an HR planning model.
2. Develop the competency to recruit select, train employees and appraise the performance of the employees.
3. Understand the nature of a job and role of employees using job analysis and job design to attain Quality Work Life and participate in the decision making process.
4. Understand the various employee benefits safety, health and welfare measures adopted in an organization to acquire the ability to handle employee issues and learn the new trends in HRM
5. Inculcate values and ethics in Human Resource Management.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	L	L	M	M
CO2	H	M	L	M	M	M
CO3	H	M	M	M	M	M
CO4	H	L	L	L	M	M
CO5	H	L	M	M	M	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	M	M	H
CO2	H	M	H	H	M	H
CO3	H	M	M	M	M	H
CO4	H	M	M	M	M	H
CO5	H	M	M	M	M	H

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction

- Introduction, scope and objectives of HRM (K1, K2, K3)
- HRM Planning need and advantages (K1, K2, K3)
- HRM planning process (K1, K2, K3)
- Human Resource Information System (K1, K2, K3)
- Difference between HRM and personnel management. (K1, K2, K3)
- Qualities of HR Manager (K1, K2, K3)

Unit II: HR Functions I

- Recruitment (K1, K2, K3)
- Selection (K1, K2, K3)
- Induction and Orientation (K1, K2, K3)
- Performance Appraisal (K1, K2, K3)
- Methods of Performance Appraisal (K1, K2, K3)
- Training (K1, K2, K3)

Unit III: HR Functions II

- Talent acquisition and retention (K1, K2, K3)
- Career planning (K1, K2, K3)
- Quality work life (K1, K2, K3)
- Job Analysis (K1, K2, K3)
- Job design (K1, K2, K3)
- Participative Management (K1, K2, K3)

Unit IV: Welfare Measures and Disputes

- Employee welfare (K1, K2, K3)
- Safety Programs (K1, K2, K3)
- Health (K1, K2, K3)
- Job stress (K1, K2, K3)
- Trade Union (K1, K2, K3)
- Causes and Settlement of Disputes (K1, K2, K3)

Unit V: Ethics and Challenges

- Separations (K1, K2, K3) HR
- audit (K1, K2, K3)

Values and Ethics in HRM (K1, K2, K3)

Ethical issues in HRM (K1, K2, K3)

Challenges in HRM (K1, K2, K3)

Evolution of Human Resource management and its role in hospitals (K1, K2, K3)

Textbooks

1. Aswatappa, Human Resource Management and Personnel Management, Tata McGraw Hill Publications, Eighth Edition, 2017.
2. V.S.P.Rao, Human Resource Management: Text and Cases, Excel Books, 3rd Edition, 2010.

Reference Books

1. P L Rao, Human Resource Management, Excel Books, 2004.
2. P C Tripathi, Human Resource Development, Sultan Chand & Sons, 1999.
3. R.C. Goyal and D. K. Sharma, Hospital Administration and Human Resource Management, 7th Revised Edition, 2017.

UCHAI20 - HOSPITAL OPERATIONS MANAGEMENT – II

Year: II Sem: IV	Course Code: UCHAI20	Title of the Course: Hospital Operations ManagementII	Course Type: Theory	Course Category: Core	H/ W 5	Credits 4	Marks 100
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Objectives

1. To understand the overall objectives of public relations in hospital.
2. To understand the importance of materials management in hospital.
3. To describe the role of Medical records and billing in hospital.
4. To understand the roles and functions of engineering services in hospital.
5. To elaborate on various support services in the hospital.

COURSE OUTCOMES (CO)

1. Understand the factors responsible for good public relations and discuss on common problems of public relations in the hospitals.
2. Recognize and interrelate the structure and the overall functioning of materials department.
3. Familiarize with the Billing system and payment systems in a hospital and understand the functions of MRD.
4. Perceive the functions of engineering service department and its service types.
5. Categorize various support services in a hospital and understand its functions.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	M	H	M	H
CO2	M	H	M	H	M	H
CO3	M	H	H	M	M	H
CO4	H	H	M	H	M	M
CO5	H	H	M	M	L	H

CO	PSO					
	1	2	3	4	5	6
CO1	M	H	M	M	M	M
CO2	M	H	M	M	L	M
CO3	M	H	M	M	L	M
CO4	M	H	M	M	L	M
CO5	M	H	M	M	L	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Public Relations and Marketing

PRO – Objectives (K1, K2, K3)

Functions (K1, K2, K3)

Methods of PRO (K1, K2, K3)

Dealing with the Press and the Public (K1, K2, K3)

Reception and Front Office (K1, K2, K3)

Duties of receptionist (K1, K2, K3)

Unit II: Material Management

Purchase (K1, K2, K3)

Procurement- Quote (K1, K2, K3)

2.3 CRS (K1, K2, K3)

Quality and Quantity (K1, K2, K3)

Stores (K1, K2, K3)

Warehouse & Distribution (K1, K2, K3)

Unit III: Medical Records & Billing and Insurance Function

& Importance of MRD (K1, K2, K3) Registration and

Appointment System (K1, K2, K3)

Storage and Organization of Medical Records Planning and Managing the MR Department (K1, K2, K3)

Billing system (OP and IP) & Cash Collection (K1, K2, K3)

Patient Deposit and Prepayment Systems- Smartcards (K1, K2, K3)

Company and Credit Patients Health Insurance (K1, K2, K3)

Unit IV: Engineering Services

Hospital Planning and Design (K1, K2, K3)

Civil Engineering and Buildings Maintenance (K1, K2, K3)

Electrical Engineering Mechanical Engineering (K1, K2, K3)

Biomedical Engineering-Water Supply and Sewage (K1, K2, K3)

Central Medical Gas- Environment Engineering- Bioengineering (K1, K2, K3)

Management information System- Air Condition Engineering (K1, K2, K3)

Unit V: Support Services

Central Sterile Supply- Department Human Resource (K1, K2, K3)
Finance Department – Laundry (K1, K2, K3)
Housekeeping- Estate Management (K1, K2, K3)

Transport- Nutrition & Dietary – Mortuary (K1, K2, K3)
 Telemedicine – Audit (K1, K2, K3)
 Security – Fire and Disaster (K1, K2, K3)

Textbooks

1. Kunders G.D, Facilities Planning and Arrangement in Healthcare, Prison Books Pvt. LTD, 2004.
2. B.M. Sagarkhar, Principles of Hospital Administration and Planning, Jaypee Publications, New Delhi, 2nd Edition, 2009.

Reference Books

1. Syed Amin Tablish, Hospital and Nursing Homes Planning, Organizations and Management, Jaypee Publications, New Delhi, 1st Edition, 2005.
2. Sharma, Step By Step Hospital Designing and Planning, Paperback, 2010.
3. Gupta Shakti, Modern Trends in Planning and Designing Of Hospitals: Principles And Practice With Cd Rom Hardcover, 2007.

UCHAL20 – QUALITY IN HEALTHCARE

Year: III Sem: V	Course Code: UCHAL20	Title of the Course: Quality in Healthcare	Course Type: Theory	Course Category: Core	H/ W 6	Credits 4	Marks 100
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Objectives

1. To understand the basic concepts and definitions of quality.
2. To understand the basic concepts and importance of Healthcare quality.
3. To recognize, evaluate and design patient safety considerations in healthcare.
4. To understand types, steps and benefits of auditing and accreditation.
5. To understand roles of quality steering committee in a hospital.

COURSE OUTCOMES (CO)

1. Gain Knowledge in the history of quality and quality principles and understand the seven tools of quality.
2. Analyze the need for healthcare quality management in hospitals and identify the variation in medical practice and implication for quality.
3. Recognize, categorize and evaluate clinical and operational issues and ways to address it for efficient patient safety.
4. Understand and differentiate types of audit and gain knowledge in various accreditations and its benefits.
5. Analyze, interpret and understand the role of quality team and quality steering committee in a hospital.

CO	PO					
	1	2	3	4	5	6
CO1	M	H	M	L	M	H
CO2	H	H	M	L	M	M
CO3	M	H	H	M	M	H
CO4	H	H	M	L	H	H
CO5	H	H	M	L	M	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	M	M	H
CO2	M	H	M	H	M	M
CO3	M	H	H	H	H	M
CO4	H	H	M	H	H	M
CO5	H	H	M	H	H	H

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction to Quality

- Concept and definitions - Dimensions of service quality (K1, K2, K3)
- History of quality principles (K1, K2, K3)
- Customer and types of customer - Continuous quality improvement (K1, K2, K3)
- Seven tools of quality - Check Sheet - Control chart (K1, K2, K3)
- Stratification - Pareto chart - Histogram - Scatter Diagram (K1, K2, K3)
- 5s - Six Sigma - Kaisen - Lean Management and Reengineering (K1, K2, K3)

Unit II: Healthcare Quality

- Healthcare Quality and the patients (K1, K2, K3)
- Basic concepts of Healthcare quality (K1, K2, K3)
- Variation in medical practice and implication for quality (K1, K2, K3)
- Quality improvement system (K1, K2, K3)
- Need for healthcare quality management in hospitals (K1, K2, K3)
- Measure and improve patient care experience (K1, K2, K3)

Unit III: Patient Safety and Medical Errors

- Scope of Patient Safety Considerations in Healthcare (K1, K2, K3)
- Use of Patient Safety Considerations in Healthcare (K1, K2, K3)
- Clinical and Operational Issues (K1, K2, K3)
- Improve patient safety (K1, K2, K3)
- Adverse event (K1, K2, K3)
- Using Technology to Improve Patient Safety (K1, K2, K3)

Unit IV: Audit & Accreditation in Healthcare

- Clinical quality (K1, K2, K3)
- Auditing - Meaning - Types (K1, K2, K3)

Auditing - steps and benefits (K1, K2, K3)

Accreditation ISO - NABH (K1, K2, K3)

JCI and other standards (K1, K2, K3)

Benefits of accreditation (K1, K2, K3)

Unit V: Organization and Roles in Quality

Quality Policy (K1, K2, K3)

Quality Steering committee (K1, K2, K3)

Quality Council (K1, K2, K3)

Quality team (K1, K2, K3)

Healthcare performance indicator (K1, K2, K3)

Importance and concept of patient safety - Implementing strategies (K1, K2, K3)

Textbooks

1. Bagad, V.S., Total Quality Management, Technical Publications, Pune, 1st Edition 2019.
2. Scott B. Ransom, The Healthcare Quality Book, Health Administration Press, Chicago, Illinois AUPHA Press, Washington, D.C., 2004.

Reference Books

1. Raj Kumar, Acts Applicable to Hospitals in India, The Christian Medical Association of India, New Delhi, 2009.
2. Jayakumar, Total Quality Management, Lakshmi Publication, 7th Edition, 2014.
3. Sharma Karun Dev, Quality System Implementation in Health Care Establishments, Jaypee Brothers Medical Publishers, 1st Edition, 2014.

UEHAC20 - ELECTIVE II A: HEALTHCARE INSURANCE

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
III Sem: V	UEHAC20	Health Care Insurance	Theory	Elective	5	5	100

Objectives

1. To understand the evolution of Health Insurance in India, the basics of Insurance and its role in economic development.
2. To familiarize with the role of regulatory bodies of Insurance sectors.
3. To comprehend the various policies of Health Insurance.
4. To equip with the knowledge of basic principles, tools, methods and process of underwriting.

5. To understand the claim management process in health insurance.

COURSE OUTCOMES (CO)

1. Acquire knowledge on basic terminologies of insurance and describe the role of health insurance for individuals.
2. Understand the various types of health insurance policies offered to individuals in India and the rules that govern and protect policy holders.
3. Familiarize with various health insurance policies offered by Government for poorer sections of the society.
4. Understand the basic tools and principles of underwriting and the rules governing the same.
5. Comprehend the claims management in insurance and understand the role of Third Party Administrators (TPA).

CO	PO					
	1	2	3	4	5	6
CO1	H	M	M	L	L	M
CO2	H	H	M	L	L	M
CO3	H	H	M	L	L	M
CO4	M	M	M	L	L	H
CO5	M	M	M	L	L	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	L	L	M
CO2	H	H	M	M	L	M
CO3	H	H	M	M	L	M
CO4	H	M	M	M	L	M
CO5	H	M	M	M	L	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction

- Introduction to Insurance (K1, K2, K3)
- Concept of Health insurance (K1, K2, K3)
- Health care - Determinants - Levels of Healthcare (K1, K2, K3)
- Types - Factors affecting Health system in India (K1, K2, K3)
- Evolution of Health Insurance in India (K1, K2)
- Health insurance market (K1, K2, K3)

Unit II: Products of Health Insurance I

- Health Insurance Products: Classification of Health Insurance products (K1, K2, K3)
- IRDA guidelines on Standardization in health insurance (K1, K2, K3)
- Hospitalization indemnity product (K1, K2, K3)

High Deductible plans – Senior citizen policy (K1, K2, K3)

Fixed benefit covers (K1, K2, K3)

Long term care Insurance (K1, K2, K3)

Unit III: Products of Health Insurance II

Combo products –Package policies (K1, K2, K3)

Health insurance for poorer sections –Government schemes (K1, K2, K3)

Personal accident - Overseas Travel Insurance (K1, K2, K3)

Group Health Cover – Special Products (K1, K2, K3)

Key terms in Health policies (K1, K2)

Diagnostic Related Groups (DRG) – Determination of DRGs – Benefits of DRGs.
(K1, K2, K3)

Unit IV: Underwriting

Health Insurance Underwriting - Need for underwriting (K1, K2, K3)

Principles and tools of underwriting in Health insurance (K1, K2, K3)

The underwriting process (K1, K2, K3)

Group health insurance (K1, K2, K3)

Underwriting of Overseas Travel Insurance (K1, K2, K3)

Underwriting of Personal Accident Insurance (K1, K2, K3)

Unit V: Health Insurance Claims

Claims Management (K1, K2, K3)

Management of Health Insurance Claims (K1, K2, K3)

Claim process - Cashless settlement process (K1, K2, K3, K4)

Documentation in Health Insurance Claims (K1, K2, K3)

Role of Third Party Administrators (TPA) (K1, K2, K3)

Claims management Personal Accident (K1, K2, K3, K4)

Text Books

1. Insurance Institute of India, IC 32, Health Insurance, 2015.

2. Insurance Institute of India, IC 27, Healthcare Insurance, 2016.

Reference Books

1. T Mahendran, Health Insurance Sector in India, Abhijeet Publications, 2009.

2. Benjamin S. Warren, Health Insurance: It's Relation to the Public Health, Biblio Bazaar, 2009.

3. Thomas K T, Sakthivel R, Health Insurance in India, LAP Lambert Academic Publishing, 2012.

UEHAD20 – ELECTIVE II B: E BANKING

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
III Sem: V	UEHAD20	E-Banking	Theory	Elective	5	5	100

Objectives

1. To familiarize the students with the fundamentals of E-banking such as ATM, Internet banking, ECS, EFT Tele banking, Electronic Cheques, Credit cards, Debit cards, MICR, etc.
2. To enable the students to understand the concept of online banking.
3. To understand the E-Banking services provided in India.
4. To understand the various problems related to security aspects in E-banking.

5. To make students aware of means to overcome security related aspects in E-banking.
6. To familiarize students with various banking correspondence related to E-banking.

COURSE OUTCOMES (CO)

1. Acquire conceptual knowledge of E-banking, describe its features and compare it with traditional banking.
2. Understand the need for computerization in banks and describe the advantages and disadvantages of online banking.
3. Introduce the need for security and apply those to overcome cybercrimes.
4. Familiarize the crypto system followed in E-banking.
5. Understand the E-Security solutions and the various software used as security in E-banking.

CO	PO					
	1	2	3	4	5	6
CO1	H	H	M	L	L	H
CO2	H	H	M	L	L	H
CO3	H	H	M	L	L	H
CO4	H	H	M	L	L	H
CO5	H	H	M	L	L	H

CO	PSO					
	1	2	3	4	5	6
CO1	H	M	M	H	M	M
CO2	H	M	M	H	L	M
CO3	H	M	M	M	M	M
CO4	H	M	M	H	L	M
CO5	H	M	M	M	L	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction

Electronic Banking: Traditional Banking Vs E-Banking (K1, K2, K3)

Facets of E-Banking (K1, K2, K3)

E-Banking transactions - Truncated cheque and Electronic cheque (K1, K2, K3)

Models for E-banking - Complete centralized solution - Features CCS - Cluster approach (K1, K2, K3)

Hi tech Bank with in Bank Advances of E-Banking (K1, K2, K3)

Constraints in E-Banking (K1, K2, K3)

Unit II: Online Banking

Online Banking - Introduction - Concept and meaning (K1, K2, K3)

The electronic delivery channels - Need for computerization (K1, K2, K3)

Automatic Teller Machine (ATM) at home –Electronic Fund Transfer (EFT) uses (K1, K2, K3)

Computerization in clearing houses (K1, K2, K3)

Tele banking on home computers (K1, K2, K3)

Electronic Money Transfer uses of EMT (K1, K2, K3)

Unit III: E Banking in India

Updating Bank saving accounts –Computer bank branches (K1, K2, K3)

Financial Transaction Terminals (FTT) (K1, K2, K3)

E-Cheque - Magnetic Ink Character Recognition (MICR) and Cheques (K1, K2, K3)

E-Banking in India – Procedure – Programmes - Components (K1, K2, K3)

How to go on net for Online Banking (K1, K2, K3)

Advantages - Limitations (K1, K2, K3)

Unit IV: Security I

E-Banking Security – Introduction - Need for security (K1, K2, K3)

Security concepts - Privacy –Survey - Findings on security attack - Cybercrimes (K1, K2, K3)

Reasons for Privacy Tampering Encryption –Meaning - The encryption process (K1, K2, K3)

Cryptogram – Cryptanalyst - Cryptography - Types of Cipher systems – Code systems (K1, K2, K3)

Cryptography – Cipher – Decipher – Jumbling - Asymmetric (K1, K2, K3)

Crypto system - Data Encryption Standard (DES) (K1, K2, K3)

Unit V: Security II

E-Builder solutions Digital certificate - Digital Signature & Electronic Signature (K1, K2, K3)

E-Security solutions — solutions providers – E-locking technique – E-locking services - Netscape security solutions (K1, K2, K3)

Pry Zone – E - software security - Internet Transactions - Transaction security (K1, K2, K3)

PKI Sierras - Internet solutions –security devices (K1, K2, K3)

Public Key Infrastructure (PKI) - Firewalls Secure Ledger (FSL) (K1, K2, K3)

Secure Electronic Transaction (SET) (K1, K2, K3)

Text Books

1. C.S. Rayudu, E-Business, Himalaya Publishing House. 2015
2. IIBF, Bank Financial Management, Paperback, 2018.

Reference Books

1. Peter Rose, Sylvia Hudgins Bank Management and Financial Services Paperback, 1 Jul 2017.
2. N S Toor, Arundeeep Toor, Skylark Publication's Bank Financial Management Guide For Caiib Q&A By N. S.Toor & Arundeeep Toor (9th Edition) Paperback, 2018.
3. Bhushan Dewan, E-Commerce, S Chand, 2001.

Practical II E-banking

1. Commenting on the correctness of documents like Cheque.
2. Responding to stimulated exercises on Customer/ Bank Employee Complaints.
3. Format of Letter of Credit.
4. Examining the working Mechanisms of ATMs and ETAs.
5. Working Knowledge of Telebanking

6. Knowledge of working Mechanisms of Encryption and E-Security.
7. Learning Internet Transactions Firewalls.

SEMESTER I

UCHAA20 – FUNDAMENTALS OF MANAGEMENT

Year: I	Course Code: UCHAA20	Title of the Course: Fundamentals of Management	Course Type: Theory	Course Category: Core	H/W 5	Credits 4	Marks 100
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OBJECTIVES

1. To understand the evolution and fundamental concepts related to business.
2. To develop cognizance of the importance of management principles.
3. To demonstrate the roles, skills and functions of a manager.
4. To diagnose issues and develop optimal managerial decisions in an organizational set up.
5. To understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities.

COURSE OUTCOMES (CO)

1. Understand the management theories, functions and responsibilities of managers.
2. Formulate and design plans by suitably applying SWOT in decision making.
3. Relate and discuss the process of organising, delegating and staffing in an organisation.
4. Recognise the need of directing, coordinating and controlling in the work environment.
5. Classify and determine reporting and budgeting process.

CO	PO					
	1	2	3	4	5	6
CO1	H	H	M	L	L	M
CO2	H	H	M	M	L	M
CO3	H	H	M	L	L	M
CO4	H	H	M	L	L	M
CO5	H	H	M	L	L	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	L	M	M	M	H
CO2	M	M	H	M	H	H
CO3	H	L	M	H	M	M
CO4	H	L	M	M	M	H
CO5	H	L	M	M	M	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction

- Introduction - Definition - Nature (K1, K2)
- Scope of Management (K1, K2)
- Functions of Management (K1, K2)
- Contributions of F W Taylor (K1, K2)
- Contributions of Henry Fayol (K1, K2)
- Contributions of Peter Drucker (K1, K2)

Unit II: Planning

- Planning – characteristics - Importance (K1, K2)
- Types of planning – Process (K1, K2)
- SWOT Analysis to formulate strategy (K1, K2, K3, K4)
- Decision Making - Types of decision (K1, K2)
- Process of decision making (K1, K2)
- Barriers to decision and steps to overcome (K1, K2)

Unit III: Organizing and Staffing

- Organizing - Types of organization (K1, K2, K3)
- Organization charts - Formal and informal organization (K1, K2, K3)
- Authority – sources – types of authority – pros and cons (K1, K2)
- Delegation – principles of delegation – distinction between centralization and decentralization (K1, K2)
- Staffing – Meaning – Nature – Importance - Recruitment (K1, K2)
- Selection – Training (K1, K2, K3)

Unit IV: Direction, Coordination and Controlling

- Directing – Nature – Meaning - Significance (K1, K2, K3)
- Coordination Principles – Distinction between coordination and cooperation (K1, K2)
- Need for coordination Techniques (K1, K2)
- Control – principles Types (K1, K2, K3, K4)
- Control Techniques (K1, K2, K3, K4)
- Principles of control process – pros and cons (K1, K2, K3, K4)

Unit V: Reporting and Budgeting

- Reporting – Meaning - Nature (K1, K2, K3, K4)
- Types of Reports (K1, K2, K3, K4)
- Budgeting Principles (K1, K2, K3, K4)
- Objective and Purpose of Budgeting (K1, K2, K3, K4)
- Modern Types of budgeting (K1, K2, K3, K4)
- Traditional Procedures (K1, K2, K3, K4)

Case Study for all chapters

Textbooks

1. L.M. Prasad, Principles of Management, Sultan Chand and Sons, 8th Edition, 2012.
2. C.B. Gupta, Business Management, Sultan Chand and Sons, 7th Edition, 2013.

Reference Books

1. Stephens R. Robbins and David A Decenzo, Fundamentals of Management Pearson Education 7th Edition, 2013
 2. H. Koontz and Weihrich, Essentials of Management, Tata McGraw Hill, 8th Edition, 2010.
- Samuel C.Certo, Modern management: concepts and skills 15th Edition, 2019.

SEMESTER I

UCHAB20 – FOUNDATION IN HOSPITAL ADMINISTRATION

Year : I Sem: I	Course Code: UCHAB20	Title of the Course: Foundation in Hospital Administration	Course Type: Theory	Course Category: Core	H/W 5	Credits 4	Marks 100
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Objectives

1. To understand the overall healthcare systems.
2. To develop effective communication skills.
3. To develop essential analytical skills.
4. To develop effective computer skills.
5. To develop the personality skills of an individual.

COURSE OUTCOMES (CO)

1. Understand the functions of various healthcare systems and learn relevant medical terminology.
2. Understand, recognize the importance of communication skills and develop it effectively.
3. Understand and enhance analytical skills.
4. Understand, recognise the importance of computer skills and develop it.
5. Develop the personality skills of an individual.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	M	L	L	M
CO2	H	M	M	L	L	M
CO3	H	H	M	L	L	M
CO4	H	M	M	L	L	M
CO5	H	M	M	L	L	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	L	L	L
CO2	L	M	L	L	L	M
CO3	M	H	H	L	M	L
CO4	L	M	L	M	L	L
CO5	L	L	M	M	L	L

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Over view of health services

- Medicine - Alternative Medicine (K1, K2)
- Hospitals - Types of Hospitals (K1, K2, K3)
- Types of Patient - Hospital Departments (K1, K2, K3)
- Diseases, treatment and technology (K1, K2, K3)
- Medical Vocabulary (K1, K2, K3)
- Current Trends in Healthcare (K1, K2, K3)

Unit II: Communication skills

- Communication - Compelling Communication (K1, K2, K3)
- Enhancing group activity – Interpersonal Listening (K1, K2, K3)
- Teamwork - Verbal Communication (K1, K2, K3)
- Written Communication (K1, K2, K3)
- Audio-visual Presentations (K1, K2, K3)
- Etiquette (K1, K2, K3)

Unit III: Analytical Skills

- Creativity - Problem-solving (K1, K2, K3)
- Critical Thinking- Solve problems - Decision making (K1, K2, K3)
- Logical thinking - Understanding and analyzing issues and problems (K1, K2, K3)
- Diagramming Numerical techniques and analysis (K1, K2, K3)
- Study and research skills (K1, K2, K3)
- SWOT Analysis (K1, K2, K3)

Unit IV: Computer skills

- Microsoft Office - Spreadsheets (K1, K2, K, K4)
- PowerPoint (K1, K2, K, K4)
- Access (K1, K2, K, K4)
- Excel (K1, K2, K, K4)
- Email Web and Social Skills (K1, K2, K, K4)
- Graphic and Writing Skills (K1, K2, K, K4)

Unit V: Personality Development

- Time management (K1, K2, K, K4)
- Thinking Skills - Determination and Persistence (K1, K2, K, K4)
- Presentation Skills (K1, K2, K, K4)

Developing Leadership Skills (K1, K2, K, K4)

Interpersonal Skills (K1, K2, K, K4)

Positive attitude – Integrity – Treat people with respect (K1, K2, K, K4)

Text Books

1. Asha Kaul, Effective Communication Methods, PHI Learning, 2000.
2. Peter Norton, Introduction to Computers, Tata McGraw-Hill, 6th Edition, 2008.

Reference Books

1. V.K.Mahajan, Health Education, 2002.
2. John Adair, Effective Communication (Revised Edition): The most important management skill of all (Most Important Management Tool of All) Paperback–Unabridged, 2009.
3. B.S. Sijwalii and Indu Sijwali, A new approach to reasoning verbal & nonverbal, 2014.

SEMESTER I

UCHAD20 - MEDICAL TERMINOLOGY FOR ADMINISTRATION

Year: I Sem: I	Course Code: UCHAD20	Title of the Course: Medical Terminology for Administration	Course Type: Theory	Course Category: Core	H/W 5	Credits 4	Marks 100
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Objectives

1. To understand and recognize the whole organization of the body.
2. To understand and distinguish the various Muscular-Skeletal system.
3. To understand and distinguish the various Digestive system.
4. To understand and read standard medical abbreviations.
5. To understand and implement right usage of medical terms.

COURSE OUTCOMES (CO)

1. Understand and recognize the fundamentals of Anatomy and Physiology.
2. Comprehend various Musculoskeletal System of a human body.
3. Recognize and understand cardiovascular system, respiratory system, digestive system and excretory system.
4. Develop ability to read and understand medical documentation and medical literature.
5. **Recognize and learn the meanings of Standard Medical Abbreviations.**

CO	PO					
	1	2	3	4	5	6
CO1	H	L	H	L	L	M
CO2	H	L	H	L	L	M

CO3	H	L	H	L	L	M
CO4	H	L	H	L	L	M
CO5	H	L	H	L	L	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	L	L	L	L
CO2	M	H	L	L	L	L
CO3	M	H	L	L	L	L
CO4	H	H	L	L	M	M
CO5	M	H	L	L	L	L

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Anatomy and Physiology

Definition of the terms Anatomy (K1, K2)

Definition of the terms Physiology (K1, K2)

Types of Anatomy Definition of terms used to describe the parts of the body (K1, K2)

Definition of various regions of the body (K1, K2)

The body as a whole organization of the body: Cells, tissues, organs (K1, K2)

Membranes and glands. (K1, K2)

Unit II: Anatomic and Physiological Description

Musculoskeletal System Bone types, structure, functions Joints, structure and functions Ligaments, and tendons Muscles, types, structure and functions of muscles – Related Diseases, types of fractures. (K1, K2, K3)

Nervous System functions of neurons – Central, Peripheral nervous and Autonomous nerves systems Related Diseases (K1, K2, and K3)

Cardiovascular System Heart position, structure, conduction system, functions and cardiac cycle Blood vessels, Circulation of blood; Systemic, pulmonary and portal Blood pressure and pulse – Related Diseases (K1, K2, K3)

Lymphatic system Lymph vessels, glands, ducts and lymph circulation Lymph nodes in the body, spleen – Related Diseases (K1, K2, K3)

Respiratory System Structure and function of respiratory organs Physiology of respiration –Related Diseases. (K1, K2, K3)

Sensory organs: Structure and function of the Eye [vision], the Ear [hearing],and Taste [tongue]. (K1, K2, K3)

Unit III: Anatomic and Physiological Description

Digestive System Structure and functions of organs of digestion and accessory organs Process of digestion and absorption – Related Diseases (K1, K2, K3)

Excretory Systems Structure and function of the organs of the Urinary system Structure and functions of Skin [Integumentary System] Regulation of body temperature – Related Diseases (K1, K2, K3)

Endocrine System Structure and functions of endocrine glands (Pituitary Pancreas, thyroid, parathyroid, thymus, adrenal) – Related Diseases (K1, K2, K3)

Sense Organs Structure and functions of Eye, Ear, Nose and tongue Physiology of vision, hearing and equilibrium – Related Diseases (K1, K2, K3)

Genito Urinary System Female reproductive system: Structure and functions of female reproductive organs [Uterus, fallopian tube, and ovary] menstrual cycle, menopause and process of reproduction Male reproductive system: Structure and functions of organs Diseases related to reproductive system, antenatal, maternal and neonatal conditions (K1, K2, and K3)

Psychiatry conditions – Anxiety, depression, mental retardation, personality disorder, psychosis, psycho physiologic disorder (K1, K2, K3)

Unit IV: Basic Medical Terminology

Basic concepts (K1, K2)

Definition of medical terminology (K1, K2)

Purpose of learning Medical Terminology (K1, K2)

Origin of Medical Terms (K1, K2)

Derivations from other languages, living creatures, colors, weapons (K1, K2)

Phobias (K1, K2)

Unit V: Components of Medical Terms

Roots Prefixes Suffixes (K1, K2)

Systems wise Symptomatic (K1, K2)

Diagnostic Terms related to whole body (K1, K2)

Operative Terms related to whole body (K1, K2)

Analysis of medical terms (K1, K2)

Standard Medical Abbreviations (K1, K2)

Text Books

1. Mr. Immanuel Ratinaraj Asher – Introduction to Medical Terminology.
2. Mr. Immanuel Ratinaraj Asher – Handbook of Medical Record Policies and procedures – for Medical Record professionals.

Reference Books

1. Barbara J. Cohen and Ann De Petris, An Illustrated Guide: Medical Terminology, 1 February 2016.
2. Medical Review – Medical Abbreviations For Medical Students And Healthcare Professionals Kindle Edition, 2014.
3. Dorland – Dorland's Pocket Medical Dictionary, 29th Edition, 2013.

SEMESTER III
UEHAB20 – ELECTIVE I B: LOGISTICS & SUPPLY CHAIN
MANAGEMENT

Year: II Sem: III	Course Code: UEHAB20	Title of the Course: Logistics & Supply Chain Management	Course Type: Theory	Course Category: Elective	H/W 5	Credits 4	Marks 100
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Objectives

1. To acquire insight in the fundamentals of supply chain management.
2. To learn the drivers involved in Supply Chain.
3. To correlate the network design options suitable for various organisations.
4. To describe the impact of revenue management and coordination in managerial levels.
5. To relate the logistics concept in a healthcare set up.

COURSE OUTCOMES (CO)

1. Understand and identify the stages and scope of logistics and supply chain management.
2. **Develop the conceptual knowledge about the process of supply chain and its drivers.**
3. Relate the various network decision options available.
4. Compare the pricing strategies adopted by various firms.
5. Identify and relate the stakeholders and their impact on supply chain in healthcare sector.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	H	L	M	M
CO2	H	M	H	L	M	M
CO3	H	M	H	L	M	M
CO4	H	M	H	L	M	M
CO5	H	M	H	L	M	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	M	L	M	L	M
CO2	H	M	M	M	L	M

CO3	H	M	M	M	L	M
CO4	H	M	M	M	L	M
CO5	H	M	M	M	L	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Understanding Supply Chain

Introduction – Definition- Importance of supply chain (K1, K2, K3)

Objective- Process of Supply chain Decision Phases (K1, K2, K3)

Competitive and Supply Chain Strategies (K1, K2, K3)

Value Chain (K1, K2, K3)

Efficiency and Responsiveness (K1, K2, K3)

Achieving Strategic Fit- Scope (K1, K2, K3)

Unit II: Drivers of Supply Chain and Distribution Network

Framework Facilities Inventory (K1, K2, K3)

Transportation Information (K1, K2, K3)

Sourcing Pricing (K1, K2, K3)

Factors influencing distribution network (K1, K2, and K3)

Types of Distribution Network (K1, K2, K3)

Service factor and Cost factor (K1, K2, and K3)

Unit III: Demand and Planning in Supply Chain

Forecasting- Meaning- Definition (K1, K2, K3)

Forecasting Methods (K1, K2, K3)

Aggregate planning in supply chain management (K1, K2, and K3)

Levers in aggregate planning (K1, K2, K3)

Pricing in supply chain management- Multiple Customer Segment (K1, K2, K3)

Perishable Products Seasonal Demand Bulk and Spot Contracts (K1, K2, K3)

Unit IV: IT and Coordination in Supply Chain Management

Role of IT in supply chain management (K1, K2, K3)

Customer Relationship Management (K1, K2, K3)

Internal Supply Chain Management (K1, K2, K3)

Supplier Relationship Management (K1, K2, K3)

Coordination in supply chain management- Bullwhip Effect (K1, K2, K3)

Obstacles and Levers in coordination (K1, K2, K3)

Unit V: Logistics Management in Healthcare Sector

Flow of Logistics in Healthcare sector (K1, K2, K3)

Application in Hospitals (K1, K2, K3)

Features in LSCM in health sector (K1, K2, K3)

Models (K1, K2, K3)

Analysis in the logistics system. (K1, K2, K3)

Framework of logistics in Healthcare sector (K1, K2, K3)

Textbooks

1. Chopra S and P Mendil, Supply Chain Management: Strategy, Planning and Operations, Pearson Education, 2nd Edition, 2006.
2. Ronald H Ballou and Samir K. Srivastava, Business Logistics/ Supply Chain Management, 5th Edition, 2012.

Reference Books

1. Donald J. Bowersox and David J. Closs, Logistical Management, Tata McGraw Hill, 2nd Edition, 2013.

David Simchi, Levi, Designing and Managing Supply Chain, Tata McGraw Hill, New Delhi, 3rd Edition, 2008.

SEMESTER IV

UAHSM20 - ALLIED IV: HEALTH SERVICES MARKETING

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
II Sem: IV	UAHSM20	Health Services Marketing	Theory	Allied	5	5	100

Objectives

1. To understand the concepts, functions, and techniques of the craft of marketing services.
2. To identify critical issues in service design including the nature of service products & markets, building the service model and creating customer value.
3. To develop relevant skills to identify and manage demand, customer expectation, perception, customer service experiences and outcomes.
4. To provide an in-depth appreciation and understanding of the unique challenges inherent in managing and delivering quality services.
5. To evaluate the intertwined role of service personnel and customers concerning service delivery, failures, and recovery issues.

COURSE OUTCOMES (CO)

1. Understand the similarities and differences in service based and physical product based marketing activities.
2. Develop the competency to plan, create, price and distribute new service.
3. Understand the various strategies used for competition analysis, promotion and branding the service to avoid service failure.
4. Acquire the ability to manage and improve service quality and customer relationships.
5. Understand and identify the role of employee and consumer in service delivery process to manage critical issues in demand and capacity of service.

CO	PO
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	1	2	3	4	5	6
CO1	H	M	M	L	L	H
CO2	H	M	M	L	L	H
CO3	H	M	M	L	L	H
CO4	H	M	M	L	L	H
CO5	H	M	M	L	L	H

CO	PSO					
	1	2	3	4	5	6
CO1	H	M	M	H	M	M
CO2	H	M	H	H	H	M
CO3	H	M	H	H	H	M
CO4	H	M	H	H	H	M
CO5	H	M	H	H	H	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction to Marketing and Service Marketing

- Basic Marketing concepts (K1, K2, K3)
- Evolution of marketing concepts (K1, K2, K3)
- Marketing and service marketing mix (K1, K2, K3)
- Concept of service (K1, K2, K3)
- Classification of service (K1, K2, K3)
- Challenges and issues in services marketing. (K1, K2, K3)

Unit II: Building Service Model

- Growth of service (K1, K2, K3)
- Career opportunities in service sector (K1, K2, K3)
- Planning and creating services (K1, K2, K3)
- Development of new services (K1, K2, K3)
- Distribution of services (K1, K2, K3)
- Pricing Service (K1, K2, K3)

Unit III: Competition Analysis and Strategies

- Competitive Threats (K1, K2, K3)
- Competition analysis (K1, K2, K3)
- Competitive Advantage (K1, K2, K3)
- Service failures and Recovery (K1, K2, K3)
- Service branding (K1, K2, K3)
- Promotion (K1, K2, K3)

Unit IV: Customer Behavior

- Consumer behavior in services (K1, K2, K3)
- Customer expectations and perceptions of service (K1, K2, K3)
- Service quality (K1, K2, K3)

Determinants of service quality (K1, K2, K3)
 CRM (K1, K2, K3)
 Framework of CRM (K1, K2, K3)

Unit V: Delivering and Performing of Services

Managing service demand (K1, K2, K3)
 Managing service capacity (K1, K2, K3)
 A Service encounter (K1, K2, K3)
 Moment of truth (K1, K2, K3)
 Service Interaction Process (K1, K2, K3)
 Enhancing employee participation and customer participation (K1, K2, K3)

Textbooks

1. Rama Mohana Rao. K, Services Marketing, 2nd Edition, 2011.
2. Philip Kotler et al, Marketing, 14th Edition, 2013.

Reference Books

1. K.Douglas Hoffman et al, Essentials of Service Marketing: Concepts, Strategies and Cases, Thomsor Learning, 2nd Edition, 2010.
2. Kenneth E Clow, et al, Services Marketing Operation Management and Strategy, Biztantra, New Delhi, 2nd Edition, 2011.
3. Lovelock, Services Marketing: People, Technology and Strategy, 7th Edition, 2011.

SEMESTER V

UCHAM20 - ORGANIZATIONAL BEHAVIOUR

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
III Sem: V	UCHAM20	Organizational Behavior	Theory	Core	6	4	100

Objectives

1. To enable and understand the basic concepts of Organizational behavior.
2. To analyze individual and group behavior, and understand the implications of organizational behavior on the process of management.
3. To understand the concept of perception and learning and demonstrate skills required for working in groups.
4. To develop skills to resolve organizational conflicts and to overcome stress.
5. To evaluate the appropriateness of various leadership styles and Motivational concepts.

COURSE OUTCOMES (CO)

1. Understand the basic concepts, theories and models of Organizational behavior.
2. Develop the perceptual skills and its application in the decision making process and gain knowledge in the factors affecting learning and effective learning process.
3. Understand the group dynamics and acquire skills required for working in groups.
4. Understand the various determinants of Stress and coping strategies to develop skills to resolve organizational conflicts.
5. Analyze and compare different theories used to explain individual behavior.

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	M	M	H
CO2	H	M	H	H	M	H
CO3	H	M	M	M	M	H
CO4	H	M	M	M	M	H
CO5	H	M	M	M	M	H

CO	PO					
	1	2	3	4	5	6
CO1	H	M	L	L	M	M
CO2	H	M	L	M	M	M
CO3	H	M	M	M	M	M
CO4	H	L	L	L	M	M
CO5	H	L	M	M	M	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction

- Nature and concept of OB (K1, K2, K3)
- Challenges of OB (K1, K2, K3)
- Ethical issues in OB (K1, K2, K3)
- Role of OB (K1, K2, K3)
- OB model (K1, K2, K3)
- Hawthorne Experiments (K1, K2, K3)

Unit II: Perception and Learning

- Nature of human behavior (K1, K2, K3)
- Models of man (K1, K2, K3)
- Perception (K1, K2, K3)
- Managerial applications of developing perceptual skills (K1, K2, K3)
- Learning (K1, K2, K3)
- Factors affecting learning (K1, K2, K3)

Unit III: Personality and Group Dynamics

- Personality theories (K1, K2, K3)
- Measurement of personality (K1, K2, K3)
- Attitude (K1, K2, K3)
- Attitudes relevant for OB (K1, K2, K3)
- Group Dynamics (K1, K2, K3)
- Types of group dynamics (K1, K2, K3)

Unit IV: Conflict

Organization Conflict (K1, K2, K3)

Role conflict (K1, K2, K3)

Conflict resolution (K1, K2, K3)

Stress (K1, K2, K3)

Coping strategies of stress (K1, K2, K3)

Management by objectives (K1, K2, K3)

Unit V: Motivation and Leadership Theories

Maslow's need hierarchy theory (K1, K2, K3)

Herzberg two factor theory (K1, K2, K3)

Vroom's expectancy theory and McClelland's need theory (K1, K2, K3)

X and Y theory (K1, K2, K3)

Leadership theories (K1, K2, K3)

Leadership styles (K1,

K2, K3)**Case study for**

all chapters. Textbooks

1. Keith Davis and John W. Newstrom, Organizational Behavior: Human Behavior at Work, Tata McGraw Hill, Delhi, 12th Edition, 2017.

2. L.M.Prasad, Organizational Behavior, Sultan Chand & Sons, 5th Edition, 2014.

Reference Books

1. Stephen. P. Robbins and Timothy A Judge, Organizational Behavior, Prentice Hall India, 18th Edition, 2018.

2. Udai Pareek, Understanding Organizational Behavior, Oxford University Press, 3rd Edition, 2011.

3. Stephen P. Robbins and Seema Sanghi, Organizational Behaviour, Pearsons Education, 11th Edition, 2005.

SEMESTER V

UCHAN20 – GLOBAL HEALTHCARE SYSTEM

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
III Sem: V	UCHAN20	Global Healthcare System	Theory	Core	5	4	100

Objectives

1. To understand the role of medical tourism in the global healthcare system.
2. To understand, recognize and distinguish various aspects of healthcare delivery of developed nations from Indian healthcare system.
3. To understand, recognize and distinguish various aspects of healthcare delivery of developing nations from Indian healthcare system.
4. To understand, recognize and compare the governance, finance and technology aspects of healthcare systems of various countries.
5. To appraise the healthcare systems of other countries and apply the best aspects of their system to hospital systems for improved outcomes.

COURSE OUTCOMES (CO)

1. Realize the challenges faced by hospitals which have implemented medical tourism in their system.
2. Recognize and distinguish various aspects of healthcare delivery of NHS UK from Indian healthcare system and compare the governance, finance and technology aspects of NHS UK with other countries.
3. Recognize and distinguish various aspects of healthcare delivery of Canadian healthcare from Indian healthcare system and compare the governance, finance and technology aspects of Canadian healthcare with other countries.
4. Recognize and distinguish various aspects of healthcare delivery of Japanese healthcare from Indian healthcare system and compare the governance, finance and technology aspects of Japanese healthcare with other countries.
5. Recognize and distinguish various aspects of healthcare delivery of Malaysian healthcare from Indian healthcare system and compare the governance, finance and technology aspects of Malaysian healthcare with other countries.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	L	L	M	L
CO2	H	M	L	L	M	L
CO3	H	M	L	L	M	L
CO4	H	M	L	L	M	L
CO5	H	M	L	L	M	L

CO	PSO					
	1	2	3	4	5	6
CO1	H	H	M	L	L	H
CO2	H	H	M	L	L	H
CO3	H	H	M	L	L	H
CO4	H	H	M	L	L	H
CO5	H	H	M	L	L	H

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction and Medical Tourism

Global healthcare - Meaning - History (K1, K2, K3)

Evaluation of Global healthcare (K1, K2, K3)

Medical Tourism (K1, K2, K3)

Global Economy in Healthcare (K1, K2, K3)

Medical Tourism Destination (K1, K2, K3)

Challenges and Opportunities (K1, K2, K3)

Unit II: National Health Service

- Leadership and Governance (K1, K2, K3)
- Health information system (K1, K2, K3)
- Health Financing (K1, K2, K3)
- Medical products and technologies (K1, K2, K3)
- Human resource for health (K1, K2, K3)
- Service Delivery (K1, K2, K3)

Unit III: Canadian Healthcare

- Leadership and Governance (K1, K2, K3)
- Health information system (K1, K2, K3)
- Health Financing (K1, K2, K3)
- Medical products and technologies (K1, K2, K3)
- Human resource for health (K1, K2, K3)
- Service Delivery (K1, K2, K3)

Unit IV: Japan Healthcare

- Leadership and Governance (K1, K2, K3)
- Health information system (K1, K2, K3)
- Health Financing (K1, K2, K3)
- Medical products and technologies (K1, K2, K3)
- Human resource for health (K1, K2, K3)
- Service Delivery (K1, K2, K3)

Unit V: Malaysia Healthcare

- Leadership and Governance (K1, K2, K3)
- Health information system (K1, K2, K3)
- Health Financing (K1, K2, K3)
- Medical products and technologies (K1, K2, K3)
- Human resource for health (K1, K2, K3)
- Service Delivery (K1, K2, K3)

Textbooks

1. Helen Deresky, International Management: Managing Across Borders and Cultures, Text and Cases, Pearson Education, 8th Edition, 2014.
2. Haruka Sakamoto et al, Health Care in Japan: Volume 9 (Rutledge Library Editions: Japan) Hardcover, 2010.

Reference Books

1. Hardwar Praveen, Latest in Healthcare Management Paperback, 2015.
2. NHS, The Handbook to the NHS Constitution , 2019.
3. Richard Nadeau , Eric Beranger, et al, Health Care Policy and Opinion in the United States and Canada, 2014.

SEMESTER V**UGHAA521 – NON MAJOR ELECTIVE I: MANAGEMENT INFORMATION SYSTEMS**

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
III Sem: V	UGHAA521	Management Information Systems	Theory	Non Major Elective I	3	4	100

Objectives

1. To enable and understand the basic concepts of management information systems.
2. To analyze operational and tactical information systems in functional areas of business.
3. To develop skills in planning and development with the management information system.
4. To acquire skills to organize management information systems.
5. To learn and understand the concept of Hospital Information System.

COURSE OUTCOMES (CO)

1. Identify strategic uses of information systems in management.
2. Evaluate operational and tactical information systems in functional areas of business including marketing, finance and human resource.
3. Enhance skills in planning, analyzing and designing information systems.
4. Realize the roles and responsibility of information system professionals to control issues related to information theft.
5. Gain Knowledge in various Hospital Management software used for prescribing medicines, laboratory reports and logistics and inventory management.

CO	PO					
	1	2	3	4	5	6
CO1	H	M	H	H	L	H
CO2	H	M	M	M	M	H
CO3	L	L	L	L	L	H
CO4	H	H	L	M	M	H
CO5	M	M	M	M	M	H

CO	PSO					
	1	2	3	4	5	6
CO1	H	L	M	M	H	H
CO2	H	L	H	H	H	H
CO3	H	L	M	L	H	H
CO4	H	L	M	M	H	H
CO5	H	L	M	M	H	H

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Introduction to Information Systems and application in Functional Business Areas

A Manager's view of Information Systems (K1, K2, K3)

An Introduction to concepts of system and Organizations (K1, K2, K3)

Strategic Uses of Information Technology (K1, K2, K3)

Business Process in Engineering (K1, K2, K3)

Information Technology (K1, K2, K3)

Information Technology and Business Process (K1, K2, K3)

Unit II: Applications of Information Systems

Applications to Operational Information systems to Business - Operation marketing information system (K1, K2, K3)

Operational human resource information system (K1, K2, K3)

Tactical and Strategic Information systems to Business (K1, K2, K3)

Tactical accounting and financial information system (K1, K2, K3)

Tactical marketing information system (K1, K2, K3)

Tactical human resource information system (K1, K2, K3)

Unit III: Planning and Development of Information Systems

Information systems Planning (K1, K2, K3)

Critical Success Factors (K1, K2, K3)

Business System Planning (K1, K2, K3)

System development life cycle (K1, K2, K3)

System Analysis. (K1, K2, K3)

Evaluating alternative design (K1, K2, K3)

Unit IV: Organization of Information systems

Introduction - Centralized/ De-Centralized/ Distributed Data Processing (K1, K2, K3)

Allocation of Responsibilities in Distributed Data Processing (K1, K2, K3)

Effective Organization of Information Processing Activities (K1, K2, K3)

Roles & Responsibilities of Information Systems Professionals (K1, K2, K3)

Career paths and Management of Data Processing (K1, K2, K3)

The Organization and Management of End-User Computing (K1, K2, K3)

Unit V: Hospital Information systems (HIS)

Introduction to HIS- Definition - Need of HIS- Functional areas of HIS -

Utilization of HIS - Structure of HIS - Importance of HIS (K1, K2, K3)

Managing information in hospitals, Functional areas in a hospital, structuring of HIS, users and access control - Development and implementation (K1, K2, K3)

Hospital Management Software (HMS) - Application of MIS - Hospital

Information Systems (HIS) or Hospital Information Technology (HIT) –

Telemedicine (K1,K2,K3)

Laboratory Information System (LIS)

Health information management - Logistic and Supply chain

Data analytics - Electronic Health - E-governance (K1, K2, K3)

Textbooks

1. Robert Schulthesis, Mary Sumner, Management Information Systems: The Manager's view, Tata McGraw Hill, 2006.

2. Haag, Cummings and McCubbrey, Management Information Systems for the Information Age, Tata McGraw Hill, 6th Edition, 2005.

Reference Books

1. Gordon Davis, Management Information Systems: Conceptual Foundations, Structure and Development, Tata McGraw Hill, 2000.

2. James A, O'Brien, Management Information Systems, Tata McGraw Hill, 6th Edition 2004.
3. S.A Kelkar, Hospital Information Systems: A Concise Study, Prentice Hall India Learning Private Limited, 2010.

SEMESTER VI

UCHAQ20 - MATERIALS AND EQUIPMENT MANAGEMENT

Year: III Sem: VI	Course Code: UCHAQ20	Title of the Course: Materials and Equipment Management	Course Type: Theory	Course Category: Core	H/W 8	Credits 4	Marks 100
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Objectives

1. To understand the structure and overall functioning of the materials management.
2. To identify, differentiate and analyze the functions of materials management departments.
3. To recognize, evaluate and design the inventory control system for economical functioning of the hospital.
4. To categorize, plan and implement audits of inventory and materials system.
5. To develop, organize and implement the materials management system in the hospital.

COURSE OUTCOMES (CO)

1. Understand the need and importance of materials management in the hospital.
2. Develop and manage a purchase system for the hospital.
3. Plan and implement equipment purchase and develop audit and maintenance systems for hospital equipment.
4. Understand, interrelate various aspects of receiving and inspection and stores in materials management.
5. **Recognize the importance of value and inventory management in materials management and select the appropriate methods for sustainable economic functioning.**

CO	PO					
	1	2	3	4	5	6
CO1	H	M	H	L	M	M
CO2	H	M	H	L	M	M
CO3	H	M	H	L	M	M
CO4	H	M	H	L	M	M
CO5	H	M	H	L	M	M

CO	PSO					
	1	2	3	4	5	6
CO1	H	M	L	M	L	M
CO2	H	M	M	M	L	M
CO3	H	M	M	M	L	M
CO4	H	M	M	M	L	M
CO5	H	M	M	M	L	M

(Low - L, Medium - M, High - H)

Syllabus

Unit I: Materials Management

- Introduction Definition and Function (K1,K2,K3)
- Goals and Objectives of Materials Management (K1,K2,K3)
- Materials Cycle (K1,K2,K3)
- Functions of Materials Manager (K1,K2,K3)
- Problems and Issues in Hospitals (K1,K2,K3)
- Information Systems for Materials Management (K1,K2,K3)

Unit II: Purchasing

- Objectives and Elements of Purchasing (K1,K2,K3)
- Purchasing System (K1,K2,K3)
- Purchasing Cycle (K1,K2,K3)
- Purchase Procedures Legal and Ethical Aspects (K1,K2,K3)
- Conditions of Contract (K1,K2,K3)
- Financial Rules - Arbitration (K1,K2,K3)

Unit III: Equipment Purchase and Maintenance

- Planning of Equipment (K1,K2,K3)
- Selection of Equipment (K1,K2,K3)
- Import of Equipment (K1,K2,K3)
- Equipment Utilization and Operation (K1,K2,K3)
- Equipment Repair and Maintenance (K1,K2,K3)
- Equipment Audit (K1,K2,K3)

Unit IV: Inspection, Storage and Distribution of Materials

- Planning - Consideration of Stores (K1,K2,K3)
- Inspection of Materials (K1,K2,K3)
- Verification of Materials (K1,K2,K3)
- Storage of Materials (K1,K2,K3)
- Distribution of Materials (K1,K2,K3)
- Condemnation and Disposal (K1,K2,K3)

Unit V: Scientific Inventory Management

- Codification and Standardization (K1,K2,K3)
- Value Analysis (K1,K2,K3)
- Inventory Control - Lead Time - Safety Stock and Reorder level (K1,K2,K3)
- Economic Order Quantity (EOQ) (K1,K2,K3)

Selective Controls (K1,K2,K3)

Case Studies on Inventory Control (K1,K2,K3, K4)

Textbooks

1. Shaki Gupta and Sunil Kant, Hospital Stores Management: An Integrated Approach, Jaypee Publications, New Delhi, India, 2004.
2. WHO, Maintenance and Repair of Laboratory, Diagnostic, Imaging and Hospital Equipment (WHO, Geneva), 2014.

Reference Books

1. Donald J. Bowersox and David J. Closs, Logistical Management, Tata McGraw Hill, 2nd Edition, 2013.
2. David Simchi, Levi, Designing and Managing Supply Chain, Tata McGraw Hill, New Delhi, 3rd Edition, 2008.
3. Ajay Kaul, Hospitality Logistics Management, Hardcover, 2012.

