

# **PROGRAM CURRICULUM**

(Applicable for the batches admitted from A.Y 2026-27)

## **THREE YEAR U.G PROGRAM**

**BACHELOR OF BUSINESS ADMINISTRATION  
(HEALTH CARE MANAGEMENT)**



**A D I T Y A**  
**U N I V E R S I T Y**

Aditya Nagar, ADB Road, Surampalem, Andhra Pradesh, India - 533 437



## **VISION & MISSION OF THE UNIVERSITY**

### **VISION**

To be a globally recognized University through excellence in Education, Innovation, and Sustainable Growth

### **MISSION**

Deliver collaborative education to prepare students for global challenges through

1. Transformative learning.
2. Vibrant research ecosystem.
3. Sustainable and inclusive community

## **VISION & MISSION OF THE SCHOOL OF BUSINESS**

### **VISION**

To be a world-class business school advancing academic excellence, innovation, and global talent to develop responsible leaders shaping an inclusive and sustainable future

### **MISSION**

**M1:** Deliver transformative business education that blends academic rigor with real-world relevance and ethical grounding.

**M2:** Nurture globally competent, entrepreneurial leaders through innovation, research, and interdisciplinary learning.

**M3:** Champion sustainability, social impact, and inclusive growth through collaborative industry and community engagement

## PROGRAM OUTCOMES (POs)

After successful completion of the program,

- PO1: Proficiency in Business Fundamentals:** Graduates will showcase a thorough grasp of essential business concepts, models, and practices spanning multiple functional areas of management.
- PO2: Competence in Solving Business Challenges:** Graduates will effectively diagnose and resolve complex business issues by applying research tools, data interpretation, and strategic decision-making approaches.
- PO3: Logical and Analytical Reasoning:** Graduates will demonstrate the capacity to critically assess business scenarios, apply structured thinking, and arrive at reasoned, evidence-based conclusions.
- PO4: Strong Communication Skills:** Graduates will be able to articulate ideas clearly and confidently through both written and spoken communication, suitable for diverse professional contexts including presentations, reports, and negotiations.
- PO5: Legal Awareness and Ethical Integrity:** Graduates will understand and apply business laws, uphold ethical standards in decision-making, and recognize the importance of corporate governance and compliance.
- PO6: Leadership and Team Engagement:** Graduates will develop key leadership attributes, including the ability to guide, influence, and collaborate with teams while embracing adaptability and shared problem-solving.
- PO7: Entrepreneurial Orientation:** Graduates will embody entrepreneurial thinking, demonstrating originality, proactive innovation, and the ability to pursue and develop new business ventures or opportunities.
- PO8: Commitment to Human Values:** Graduates will integrate core human values such as honesty, empathy, harmony, and scientific curiosity into their personal and professional conduct, promoting ethical and socially conscious leadership.
- PO9: Digital and Technological Literacy:** Graduates will possess the ability to leverage digital tools, business technologies, and analytics platforms to enhance decision-making and organizational efficiency.
- PO10: Teamwork and Global Business Dynamics:** Graduates will work productively within diverse and cross-cultural teams, contributing effectively to collective goals through cooperation, shared responsibility, and mutual respect, while demonstrating awareness of international business trends, cultural nuances, and the economic impact of globalization on business practices.
- PO11: Lifelong Learning Orientation:** Graduates will exhibit a proactive attitude toward continuous learning, professional growth, and staying aligned with evolving industry practices and innovations.

## PROGRAM SPECIFIC OUTCOMES (PSOs)

**After successful completion of the program,**

- PSO1: Foundational Business Acumen:** Graduates will demonstrate conceptual clarity and foundational knowledge in key business areas such as marketing, finance, HR, and operations, preparing them for entry-level corporate roles or higher studies.
- PSO2: Industry Readiness and Employability Skills:** Graduates will exhibit practical business competencies including problem-solving, team collaboration, communication, and adaptability—ensuring their readiness for corporate internships, placements, or entrepreneurial pursuits.
- PSO3: Ethical and Digital Citizenship:** Graduates will uphold ethical business practices and leverage digital tools responsibly, contributing meaningfully to organizations and society in a globally interconnected world.

## **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

**After successful completion, this program will support**

- PEO 1: Strong Foundation in Business Disciplines:** To equip students with comprehensive knowledge across essential business domains such as accounting, finance, marketing, operations, and management, fostering a robust understanding of core principles that drive business success.
- PEO 2: Development of Analytical and Problem-Solving Skills:** To build students' capacity for critical thinking and logical analysis, enabling them to address complex business challenges through informed decision-making and data-driven solutions.
- PEO 3: Mastery in Communication:** To strengthen students' written, verbal, and interpersonal communication skills, preparing them to articulate ideas clearly, craft professional business documents, and deliver impactful presentations.
- PEO 4: Fostering Collaboration and Leadership:** To instill a strong appreciation for teamwork and cooperative problem-solving, while also nurturing leadership abilities that empower students to effectively manage group dynamics and drive collective success.
- PEO 5: Encouraging Innovation and Entrepreneurial Thinking:** To inspire a spirit of innovation and cultivate an entrepreneurial outlook, encouraging students to think creatively, embrace risk, and recognize emerging opportunities in the business landscape.
- PEO 6: Commitment to Lifelong Learning and Growth:** To promote an enduring commitment to personal and professional development by encouraging students to remain agile, pursue advanced learning, and adapt continuously in a fast-changing business environment.

## **SCHOOL OF BUSINESS**

### **Program Curriculum – 2026**

**(Applicable for the batches admitted from A. Y. 2026-27)**

#### **U.G. Programs Offered**

- Bachelor of Business Administration in knowledge partnership with Deloitte
- Bachelor of Business Administration in Business Analytics in knowledge partnership with KPMG
- Bachelor of Business Administration in Global Finance in knowledge partnership with PwC
- Bachelor of Business Administration in FinTech in knowledge partnership with EY
- Bachelor of Business Administration in Health Care Management in knowledge partnership with Red Versity

#### **P.G. Programs Offered**

- Master of Business Administration in knowledge partnership with Deloitte
- Master of Business Administration in Business Analytics in knowledge partnership with KPMG
- Master of Business Administration in Global Finance in knowledge partnership with PwC
- Master of Business Administration in FinTech in knowledge partnership with EY
- Master of Business Administration in Health Care Management in knowledge partnership with Red Versity
- Master of Business Administration for Working Professionals

**Bachelor of Business Administration (Health Care Management)  
 Program Curriculum-2026**

**Credit Division:**

S. No	Category of Courses	Credits
		3 Year UG
1	Program Core Courses (PCC)	56
2	Discipline Specific Courses (DSC)	24
3	Ability Enhancement Courses (AEC)	08
4	Multi-Disciplinary Course (MDC)	09
5	Value Added Courses (VAC)	06
6	Skill Enhancement Courses (SEC)	09
7	Summer Internship (SI)	04
8	Capstone Project (CPROJ)	04
9	Mandatory courses (MC)	-
<b>Total Credits</b>		<b>120</b>

**FC-Foundation Courses**

**IC- Intermediate Level Courses**

**AC- Advanced Courses**

### Program Core Courses (PCC)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2621MS01	Principles of Management	2	0	1	3	50	50	100	-
2621MS02	Managerial Economics	2	0	1	3	50	50	100	-
2621MS03	Organizational Behavior	2	0	1	3	50	50	100	POM
2621MS04	Basics of Accounting	2	1	0	3	50	50	100	-
2621MS05	Patient Safety & Infection Control	2	0	1	3	50	50	100	-
2621MS06	Community Health Management	1	0	1	2	50	50	100	-
2621MS07	Financial Management	2	0	1	3	50	50	100	-
2621MS08	Marketing Management for Healthcare	2	0	1	3	50	50	100	-
2605MS10	Human Resource Management	2	0	1	3	50	50	100	OB
2621MS09	Health Communication & Counseling	2	0	1	3	50	50	100	-
2621MS10	Cost Accounting in Healthcare	2	0	1	3	50	50	100	BOA
2621MS11	Hospital Operations Management –I	2	0	1	3	50	50	100	-
2621MS12	Legal Aspects of Health & Medical Ethics	2	0	1	3	50	50	100	-
2621MS13	Entrepreneurship in Healthcare	2	0	1	3	50	50	100	-
2621MS14	Telemedicine & Digital Health	1	0	1	2	50	50	100	-
2621MS15	Hospital Operations Management – II	3	0	1	4	50	50	100	HOM-I
2621MS16	Strategic Management in Healthcare	2	0	1	3	50	50	100	-
2621MS17	Supply Chain & Inventory Management	2	0	1	3	50	50	100	-
2621MS18	Quality Management in Hospitals (NABH/JCI)	2	0	1	3	50	50	100	-

<b>Total</b>	<b>56</b>				
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### Discipline Specific Courses (DSC)

<b>Health Care Management (HCM)</b>										
S. No	Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
1	2621MS19	Introduction to Healthcare Systems	2	0	1	3	50	50	100	-
2	2621MS20	Medical Terminology & Human Biology	2	0	1	3	50	50	100	-
3	2621MS21	Computer Applications in Healthcare	2	0	1	3	50	50	100	-
4	2621MS22	Clinical & Support Services	2	0	1	3	50	50	100	-
5	2621MS23	Medical Records Management (MRD)	2	0	1	3	50	50	100	-
6	2621MS24	Introduction to Medical Tourism	2	0	1	3	50	50	100	-
7	2621MS25	Health Insurance & TPA Operations	2	0	1	3	50	50	100	-
8	2621MS26	Healthcare Laws & Bio- Ethics	2	0	1	3	50	50	100	LAHME
<b>Total</b>						<b>24</b>				

### Multi-Disciplinary Course (MDC)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2621MS27	Business Statistics	2	1	0	3	50	50	100	-
2621MS28	Disaster Management	2	0	1	3	50	50	100	-
2621MS29	Research Methodology	2	0	1	3	50	50	100	-
<b>Total</b>					<b>09</b>				

### Ability Enhancement Courses (AEC)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2621MS30	Business Communication	2	0	1	3	50	50	100	-
2605MS48	Fundamental Cognitive Skills for Managers	0	0	1	1	100	-	-	-
2605MS49	Advanced Cognitive skills for Managers	0	0	1	1	100	-	-	FCSM
2605MS50	Employability Skills V	0	0	1	1	100	-	-	ES-IV
2605MS51	Student Activity Based Learning	0	0	0	2	100	-	-	-
<b>Total</b>					<b>08</b>				

### Skill Enhancement Courses (SEC)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2621MS31	Soft Skills & Personality Development	1	0	1	2	50	50	100	-
2621MS32	Introduction to Artificial Intelligence in Health	1	0	1	2	50	50	100	-
2621MS33	Hospital Planning & Design	2	0	1	3	50	50	100	-
2621MS34	Hospital Information Systems (HIS)	1	0	1	2	50	50	100	TM & DH
<b>Total</b>					<b>09</b>				

### Value Added Courses (VAC)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2621MS35	Environmental Studies	1	0	1	2	50	50	100	-
2621MS36	Professional Ethics & Values	1	0	1	2	50	50	100	-
2621MS37	Public Health & Epidemiology	1	0	1	2	50	50	100	-

<b>Total</b>	<b>06</b>				
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### Summer Internship (SI)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2605MS59	Summer Internship	-	-	4	4	100	-	100	-
<b>Total</b>					<b>04</b>				

### Capstone Project (CPROJ)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2605MS60	Capstone Project	-	-	4	4	50	50	100	-
<b>Total</b>					<b>04</b>				

### Mandatory Courses (MC)

Course Code	Course Title	L	T	P	C	CIE	SEE	Total	Pre-requisite
2605MS61	Employability Skills-I	0	0	1	0	100	-	100	-
2605MS62	Employability Skills-II	0	0	1	0	100	-	100	ES-I
2605MS63	Employability Skills-III	0	0	1	0	100	-	100	ES-II
2605MS64	Employability Skills-IV	0	0	1	0	100	-	100	ES-III
<b>Total</b>					<b>0</b>				

### Suggestive Semester Wise Curriculum

#### SEMESTER-I

Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2621MS01	Principles of Management	FC	PCC	2	0	1	3	4	-
2621MS02	Managerial Economics	FC	PCC	2	0	1	3	4	
2621MS19	Introduction to Healthcare Systems	FC	DSC	2	0	1	3	4	-
2621MS27	Business Statistics	FC	MDC	2	1	0	3	3	
2621MS30	Business Communication	FC	AEC	2	0	1	3	4	-
2621MS35	Environmental Studies	FC	VAC	1	0	1	2	3	-
2621MS36	Professional Ethics & Values	FC	VAC	1	0	1	2	3	-
2605MS48	Fundamental Cognitive Skills for Managers	FC	AEC	0	0	1	1	2	-
2605MS61	Employability Skills I	FC	MC	0	0	1	0	2	-
<b>Total</b>							<b>20</b>	<b>29</b>	

#### SEMESTER-II

Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2621MS03	Organizational Behavior	IC	PCC	2	0	1	3	4	POM
2621MS04	Basics of Accounting	FC	PCC	2	1	0	3	3	-
	Patient Safety & Infection Control	FC	PCC	2	0	1	3	4	-
2621MS06	Community Health Management	FC	PCC	1	0	1	2	3	-
261MS20	Medical Terminology & Human Biology	FC	DSC	2	0	1	3	4	-
2621MS21	Computer Applications in Healthcare	FC	DSC	2	0	1	3	4	-
2621MS31	Soft Skills & Personality Development	FC	SEC	1	0	1	2	3	-
2605MS49	Advanced Cognitive Skills for Managers	IC	AEC	0	0	1	1	2	FCSM
2605MS62	Employability Skills II	IC	MC	0	0	1	0	2	ES-1
<b>Total</b>							<b>20</b>	<b>29</b>	

SEMESTER-III									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2621MS07	Financial Management	IC	PCC	2	0	1	3	4	-
2621MS08	Marketing Management for Healthcare	IC	PCC	2	0	1	3	4	-
2605MS10	Human Resource Management	IC	PCC	2	0	1	3	4	OB
2621MS22	Clinical & Support Services	IC	DSC	2	0	1	3	4	-
2621MS23	Medical Records Management (MRD)	IC	DSC	2	0	1	3	4	-
2621MS33	Hospital Planning & Design	AC	SEC	2	0	1	3	4	-
2621MS32	Introduction to Artificial Intelligence in Health	IC	SEC	1	0	1	2	3	-
2605MS63	Employability Skills III	IC	MC	0	0	1	0	2	ES-II
<b>Total</b>							<b>20</b>	<b>29</b>	

SEMESTER-IV									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2621MS09	Health Communication & Counseling	IC	PCC	2	0	1	3	4	-
2621MS10	Cost Accounting in Healthcare	IC	PCC	2	1	0	3	3	BOA
2621MS11	Hospital Operations Management -1	IC	PCC	2	1	0	3	3	-
2621MS12	Legal Aspects of Health & Medical Ethics	IC	PCC	2	0	1	3	4	-
2621MS13	Entrepreneurship in Healthcare	FC	PCC	2	0	1	3	4	-
2621MS24	Introduction to Medical Tourism	FC	DSC	2	0	1	3	4	-
2621MS14	Telemedicine & Digital Health	IC	PCC	1	0	1	2	3	-
2605MS64	Employability Skills IV	IC	MC	0	0	1	0	2	ES-III
<b>Total</b>							<b>20</b>	<b>27</b>	

SEMESTER-V									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2621MS15	Hospital Operations Management-II	AC	PCC	3	0	1	4	5	HOP-I
2621MS16	Strategic Management in Health Care	AC	PCC	2	0	1	3	4	-
2621MS25	Health Insurance & TPA Operations	AC	DSC	2	0	1	3	4	-
2621MS26	Healthcare Laws & Bio Ethics	AC	DSC	2	0	1	3	4	LAHME
2621MS37	Public Health & Epidemiology	IC	VAC	1	0	1	2	3	-
2605MS59	Summer Internship	IC	SI	-	-	4	4	-	-
2605MS50	Employability Skills V	IC	AEC	0	0	1	1	2	ES-IV
<b>Total</b>							<b>20</b>	<b>22</b>	

SEMESTER-VI									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2621MS17	Supply Chain & Inventory Management	AC	PCC	2	0	1	3	4	-
2621MS18	Quality Management in Hospitals (NABH/JCI)	AC	PCC	2	0	1	3	4	-
2621MS28	Disaster Management	IC	MDC	2	0	1	3	4	-
2621MS29	Research Methodology	AC	MDC	2	0	1	3	4	-
2621MS34	Hospital Information Systems (HIS)	AC	SEC	1	0	1	2	3	TM & DH
2605MS60	Capstone Project	AC	CPROJ	0	0	4	4	-	-
2605MS51	Student Activity Based Learning	AC	AEC	-	-	-	2	-	-
<b>Total</b>							<b>20</b>	<b>19</b>	

**PROGRAM CORE COURSES**  
**PRINCIPLES OF MANAGEMENT**

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS01</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain the evolution of management thought and foundational management principles
- CO2:** Apply the functions of planning, organizing, staffing, directing, and controlling in organizational settings
- CO3:** Analyze different leadership styles and their impact on organizational effectiveness
- CO4:** Evaluate decision-making processes and problem-solving techniques in management
- CO5:** Demonstrate awareness of contemporary management practices and emerging trends

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	3	1	2	2	1	1	2	1	3
<b>CO2</b>	3	2	2	1	2	1	1	1	2	1	3
<b>CO3</b>	2	1	2	2	3	2	1	1	2	1	3
<b>CO4</b>	2	3	3	1	2	1	1	1	2	1	2
<b>CO5</b>	2	1	2	1	2	2	2	2	3	1	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	3	1
<b>CO2</b>	2	3	1
<b>CO3</b>	2	3	1
<b>CO4</b>	2	2	1
<b>CO5</b>	2	3	1

**UNIT – I**

**Introduction to Management and Its Evolution:** Definition, nature, and scope of management; Management as a science, art, and profession; Evolution of management thought: Classical (Taylor, Fayol, Weber), Neo-classical (Hawthorne studies, Mayo), Modern approaches (Systems, Contingency); Levels and functions of management; Management roles (Mintzberg); Management skills; Business environment.

**UNIT – II**

**Planning and Decision Making:** Nature and importance of planning; Types of plans: strategic, tactical, operational; Planning process; Management by Objectives (MBO); Decision-making: types, process, and models; Rational and bounded rationality models;

Group decision-making; SWOT analysis; Forecasting techniques.

### UNIT – III

**Organizing and Staffing:** Principles of organizing; Organizational structure: functional, divisional, matrix; Departmentalization; Span of control; Delegation and decentralization; Authority and responsibility; Line and staff relationships; Staffing: recruitment, selection, training, and development; Manpower planning.

### UNIT – IV

**Directing and Leadership:** Nature of directing; Motivation theories: Maslow, Herzberg, McGregor, Vroom; Leadership: concept and styles (autocratic, democratic, laissez-faire); Transformational and transactional leadership; Communication: process, types, barriers; Supervision; Coordination: concept and techniques; Team building.

### UNIT – V

**Controlling and Contemporary Management:** Nature and process of controlling; Types of control: feedforward, concurrent, feedback; Techniques of control: budgetary, non-budgetary, PERT/CPM; Total Quality Management (TQM); Management of change; Corporate governance; Business ethics; Corporate Social Responsibility (CSR); Emerging trends in management.

#### Textbooks:

1. Koontz, Harold & Weihrich, Heinz (2015). *Essentials of Management: An International, Innovation, and Leadership Perspective* (10th ed.). McGraw Hill Education. ISBN: 978-93-392-2286-4
2. Robbins, Stephen P. & Coulter, Mary (2017). *Management* (14th ed.). Pearson Education. ISBN: 978-93-325-8760-1

#### Reference Books:

1. Stoner, James A.F., Freeman, R. Edward & Gilbert, Daniel R. (2009). *Management* (6th ed.). Pearson. ISBN: 978-81-317-1844-2
2. Tripathi, P.C. & Reddy, P.N. (2012). *Principles of Management* (5th ed.). Tata McGraw Hill. ISBN: 978-0-07-070044-5

#### Web Links:

1. <https://nptel.ac.in/courses/110105034>
2. <https://swayam.gov.in/>

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## MANAGERIAL ECONOMICS

**Course Code: 2621MS02**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain the fundamental concepts of microeconomics and macroeconomics relevant to business decisions
- CO2:** Analyze demand, supply, and market equilibrium in healthcare contexts
- CO3:** Apply production, cost, and revenue analysis for managerial decision-making
- CO4:** Evaluate different market structures and pricing strategies
- CO5:** Assess macroeconomic factors affecting business and healthcare industry

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	3	3	1	1	1	2	1	2	1	3
<b>CO2</b>	2	3	3	1	1	1	2	1	2	1	2
<b>CO3</b>	2	3	3	1	1	1	1	1	2	1	3
<b>CO4</b>	2	3	3	1	1	1	2	1	2	2	3
<b>CO5</b>	2	2	2	1	1	1	2	1	2	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	1	3	1
<b>CO2</b>	1	3	1
<b>CO3</b>	2	3	1
<b>CO4</b>	2	3	1
<b>CO5</b>	1	3	1

### UNIT – I

**Introduction to Managerial Economics:** Managerial economics: definition, nature, scope; Relationship with economics, accounting, statistics, and management; Role of managerial economist; Fundamental economic concepts: opportunity cost, incremental principle, time perspective, discounting principle; Economic optimization; Managerial economics in healthcare decision-making.

### UNIT – II

**Demand and Supply Analysis:** Demand: concept, law of demand, determinants; Demand function and demand curve; Elasticity of demand: price, income, cross; Demand forecasting: methods and applications; Supply: concept, law, determinants; Market equilibrium; Consumer behavior: utility analysis (cardinal and ordinal); Indifference curve analysis; Consumer surplus; Demand for healthcare services.

### UNIT – III

**Production and Cost Analysis:** Production function: short-run and long-run; Law of variable proportions; Returns to scale; Isoquants and isocost lines; Least cost combination; Cost concepts: fixed, variable, total, average, marginal; Short-run and long-run cost curves; Economies and diseconomies of scale; Break-even analysis; Cost analysis in hospital operations.

#### **UNIT – IV**

**Market Structure and Pricing:** Market structures: perfect competition, monopoly, monopolistic competition, oligopoly; Price determination under different market structures; Pricing strategies: cost-plus, penetration, skimming, differential pricing; Price discrimination; Pricing in healthcare: fee-for-service, capitation, bundled payments, DRG-based pricing; Government regulation of healthcare prices; Drug price control orders (DPCO).

#### **UNIT – V**

**Macroeconomic Environment and Business:** National income: concepts, measurement methods; GDP, GNP, NNP; Business cycles: phases, causes; Inflation: types, causes, effects, control; Fiscal policy: government expenditure, taxation; Monetary policy: RBI and money supply; Indian economic reforms and healthcare sector; FDI in healthcare; Impact of macroeconomic factors on healthcare industry.

#### **Textbooks:**

1. Dwivedi, D.N. (2018), Managerial Economics, 9th Edition, Published by Vikas Publishing, ISBN: 978-93- 259-5322-1
2. Varshney, R.L. & Maheshwari, K.L. (2019), Managerial Economics, 29th Edition, Published by Sultan Chand & Sons, ISBN: 978-93-515-1031-2

#### **Reference Books:**

1. Peterson, H. Craig & Lewis, W. Cris (2017), Managerial Economics, 4th Edition, Published by Pearson, ISBN: 978-0-13-299188-4
2. Mithani, D.M. (2018), Managerial Economics: Theory and Applications, 7th Edition, Published by Himalaya Publishing, ISBN: 978-93-5299-145-9

#### **Web Links:**

1. NPTEL: Managerial Economics (IIT Kharagpur, YouTube)
2. SWAYAM: Managerial Economics (UGC MOOCs)
3. Khan Academy: Economics and Finance (<https://www.khanacademy.org/economics-finance-domain>)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## ORGANIZATIONAL BEHAVIOR

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS03</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

#### At the end of the Course, Student will be able to:

- CO1:** Explain the fundamentals of organizational behaviour and individual behaviour in organizations.
- CO2:** Analyze personality, perception, motivation, and learning processes influencing workplace behaviour.
- CO3:** Evaluate group behaviour, team dynamics, and leadership styles in organizational settings.
- CO4:** Examine organizational culture, structure, and change management practices.
- CO5:** Apply organizational behaviour concepts to improve workplace effectiveness and performance.

#### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	2	2	1	1	2	1	2
<b>CO2</b>	3	3	3	1	2	2	1	1	2	1	2
<b>CO3</b>	2	2	2	2	3	2	1	1	2	1	3
<b>CO4</b>	2	2	3	1	2	3	2	1	2	1	2
<b>CO5</b>	3	3	3	2	3	2	2	2	3	1	3

#### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	1
<b>CO2</b>	2	2	2
<b>CO3</b>	2	3	2
<b>CO4</b>	2	2	2
<b>CO5</b>	3	3	2

### UNIT – I

**Introduction to Organizational Behaviour:** Meaning, nature, and scope of organizational behaviour; Importance of OB; Disciplines contributing to OB; OB models; Challenges and opportunities in OB; Individual behaviour: attitudes, values, job satisfaction.

### UNIT – II

**Individual Behaviour and Motivation:** Personality: determinants and theories (Big Five, MBTI); Perception: process and errors; Learning theories; Motivation theories: Maslow, Herzberg, McGregor, Vroom, Equity theory; Application of motivation in organizations.

### UNIT – III

**Group Behaviour and Team Dynamics:** Meaning and types of groups; Stages of group development; Group norms and roles; Group cohesiveness; Team building; Conflict management: sources, types, resolution techniques; Power and politics.

#### **UNIT – IV**

**Leadership and Organizational Structure:** Leadership theories: trait, behavioural, contingency; Leadership styles; Emotional intelligence; Organizational structure: types and design; Authority, responsibility, and delegation; Organizational communication.

#### **UNIT – V**

**Leadership and Organizational Structure:** Leadership theories: trait, behavioural, contingency; Leadership styles; Emotional intelligence; Organizational structure: types and design; Authority, responsibility, and delegation; Organizational communication.

#### **Textbooks:**

1. Robbins, Stephen P. & Judge, Timothy A. (2017). *Organizational Behaviour* (17th ed.). Pearson Education.
2. Luthans, Fred (2015). *Organizational Behaviour* (12th ed.). McGraw Hill Education.

#### **Reference Books:**

1. Newstrom, John W. (2018). *Organizational Behaviour: Human Behaviour at Work*. McGraw Hill.
2. Aswathappa, K. (2021). *Organizational Behaviour*. Himalaya Publishing House.

#### **Web Links:**

1. <https://nptel.ac.in/>
2. <https://swayam.gov.in/>

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit**

## BASICS OF ACCOUNTING

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS04</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

**CO1:** Explain the fundamental concepts, principles, and conventions of accounting

**CO2:** Prepare journal entries, ledger accounts, and trial balance

**CO3:** Prepare final accounts: Trading, Profit and Loss Account, and Balance Sheet

**CO4:** Apply accounting for depreciation, provisions, and reserves

**CO5:** Demonstrate awareness of accounting standards and computerized accounting basics

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	2	2	1	1	2	1	1	2	1	2
<b>CO2</b>	2	2	2	1	1	2	1	1	2	1	2
<b>CO3</b>	2	3	3	1	1	2	1	1	2	1	3
<b>CO4</b>	2	2	2	1	1	1	1	1	2	1	2
<b>CO5</b>	2	1	2	1	1	2	1	2	3	1	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	1	3	1
<b>CO2</b>	1	3	1
<b>CO3</b>	1	3	1
<b>CO4</b>	1	3	1
<b>CO5</b>	1	2	1

### UNIT – I

**Introduction to Accounting:** Accounting: meaning, objectives, scope, and functions; Users of accounting information; Branches of accounting; Accounting concepts and conventions: going concern, accrual, matching, conservatism, materiality, consistency; Accounting Standards: overview of Indian Accounting Standards (Ind AS); Double-entry system; Accounting equation; Classification of accounts: personal, real, nominal.

### UNIT – II

**Journal, Ledger, and Trial Balance:** Journal: rules of debit and credit, recording transactions; Subsidiary books: purchase book, sales book, returns books, cash book, petty cash book; Ledger: posting from journal and subsidiary books; Balancing of ledger accounts; Trial balance: preparation, objectives, and limitations; Rectification of errors: before and after preparation of trial balance; Bank reconciliation statement.

### **UNIT – III**

**Final Accounts:** Capital and revenue: expenditure, receipts, profits, and losses; Trading account: preparation and analysis; Profit and Loss account: preparation and analysis; Balance Sheet: preparation, classification, and marshalling of assets and liabilities; Adjustments: closing stock, outstanding and prepaid expenses, accrued and unearned income, depreciation, bad debts, provision for doubtful debts.

### **UNIT – IV**

**Depreciation and Inventory Valuation:** Depreciation: meaning, causes, and need; Methods of depreciation: straight line, diminishing balance, annuity; Accounting treatment of depreciation: with and without provision for depreciation account; Inventory valuation: FIFO, LIFO, weighted average, specific identification; Effect of inventory valuation on financial statements; Reserves and provisions: types and differences.

### **UNIT – V**

**Introduction to Computerized Accounting:** Computerized accounting: meaning and advantages; Introduction to Tally Prime / ERP systems; Creating company, ledger accounts, and voucher entry; Generating trial balance and financial reports; GST accounting basics; Introduction to accounting in healthcare organizations; Revenue recognition in hospitals; Fund-based accounting for healthcare NGOs.

#### **Textbooks:**

1. Maheshwari, S.N. & Maheshwari, Suneel K. (2020), Financial Accounting, 7th Edition, Published by Vikas Publishing, ISBN: 978-93-259-5285-9
2. Jain, S.P. & Narang, K.L. (2019), Advanced Accountancy (Volume I), 21st Edition, Published by Kalyani Publishers, ISBN: 978-93-272-2089-3

#### **Reference Books:**

1. Lal, Jawahar & Srivastava, Seema (2019), Financial Accounting, 5th Edition, Published by S. Chand, ISBN: 978-93-525-3345-7
2. Tulsian, P.C. (2020), Financial Accounting, 2nd Edition, Published by Pearson India, ISBN: 978-93-325- 7015-3

#### **Web Links:**

1. NPTEL: Financial Accounting (IIT Kanpur, YouTube)
2. SWAYAM: Basics of Accounting and Finance (UGC MOOCs)
3. ICAI: Accounting Standards and Resources: <https://www.icai.org>

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## PATIENT SAFETY & INFECTION CONTROL

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS05</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain patient safety principles
- CO2:** Implement infection control measures
- CO3:** Manage safety incidents
- CO4:** Develop safety culture
- CO5:** Apply standard precautions

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	2	3	2	1	2	3	1
<b>CO2</b>	3	3	3	1	2	3	2	1	2	3	1
<b>CO3</b>	3	2	2	2	2	3	2	1	2	3	1
<b>CO4</b>	3	2	2	1	2	3	2	2	2	3	1
<b>CO5</b>	3	2	2	2	2	3	2	1	3	3	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	1	3
<b>CO2</b>	3	1	3
<b>CO3</b>	3	1	3
<b>CO4</b>	3	1	3
<b>CO5</b>	3	1	3

### UNIT – I

**Patient Safety Framework:** Patient safety definition; Safety culture; Hierarchy of controls; Risk assessment; Hazard identification; Safety committees; Incident reporting; Non-punitive approach; Learning from errors; Safety communication; Blame- free culture.

### UNIT – II

**Common Safety Hazards and Prevention:** Fall prevention; Pressure ulcer prevention; Medication errors; Surgical site infections; Hospital-acquired infections; Healthcare-associated infections (HAIs); Nosocomial infections; Prevention measures; Environmental safety; Equipment safety.

### UNIT – III

**Infection Control and Prevention:** Chain of infection; Modes of transmission; Standard precautions; Droplet precautions; Airborne precautions; Contact precautions; Hand hygiene;

Personal protective equipment (PPE); Sterilization; Disinfection; Biomedical waste management.

#### **UNIT – IV**

**Outbreak Management and Epidemiology:** Outbreak definition; Investigation procedures; Source identification; Transmission route; Control measures; Isolation protocols; Quarantine; Vaccination programs; Disease surveillance; Contact tracing; Documentation.

#### **UNIT – V**

**Performance Monitoring and Quality Assurance:** Infection control surveillance; HAI rates; Safety metrics; Audit procedures; Compliance monitoring; Training programs; Awareness campaigns; Root cause analysis; Improvement initiatives; Regulatory compliance; Documentation.

#### **Textbooks:**

1. "Siegel, Jane D. et al." (2019), 1st, Published by CDC, ISBN: N/A
2. "Boyce, John M. & Pittet, Didier" (2020), 1st, Published by WHO, ISBN: 978-92-4-159810-8

#### **Reference Books:**

1. "Wenzel, Richard P." (2019), 5th, Published by Wolters Kluwer, ISBN: 978-1-4963-6629-6
2. "Teare, Elizabeth L." (2019), 1st, Published by Springer, ISBN: 978-3-030-16988-0

#### **Web Links:**

1. CDC: Infection Prevention and Control
2. WHO: Standard Precautions
3. NABH: Infection Control Standards

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## COMMUNITY HEALTH MANAGEMENT

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS06</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain community health needs
- CO2:** Plan community health programs
- CO3:** Implement health interventions
- CO4:** Manage community partnerships
- CO5:** Evaluate community health outcomes

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	2	2	2	1	2	3	1
<b>CO2</b>	3	3	2	2	2	1	2	1	2	3	1
<b>CO3</b>	3	2	3	2	2	2	2	1	2	3	2
<b>CO4</b>	3	2	2	2	3	2	2	2	2	3	2
<b>CO5</b>	3	2	2	2	2	2	2	1	3	3	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	1	3
<b>CO2</b>	2	1	3
<b>CO3</b>	3	2	3
<b>CO4</b>	3	1	3
<b>CO5</b>	2	1	3

### UNIT – I

**Community Health Fundamentals:** Community definition; Community health definition; Community health assessment; Needs assessment; Asset mapping; Community participation; Health equity; Social determinants; Community empowerment; Health promotion; Disease prevention; Community health workers.

### UNIT – II

**Community-Based Programs:** Maternal and child health programs; Immunization programs; Nutrition programs; Water and sanitation; School health programs; Occupational health; Mental health programs; Communicable disease programs; NCD prevention; AASHA and ASHA programs; ICDS programs.

### UNIT – III

**Community Organization and Engagement:** Community mobilization; Participatory

planning; Health committees; Community leaders; Voluntary organizations; NGO partnerships; Community-based organizations; Social capital; Advocacy; Policy influence; Stakeholder engagement.

#### **UNIT – IV**

**Health Promotion and Behavior Change:** Health education methods; IEC development; Community media; Social mobilization; Behavior change communication; Health literacy; Knowledge translation; Information dissemination; Awareness programs; Community engagement strategies.

#### **UNIT – V**

**Monitoring and Evaluation:** Program monitoring; Surveillance systems; Data collection; Indicator selection; Performance measurement; Outcome evaluation; Impact assessment; Cost-effectiveness analysis; Learning and adaptation; Documentation; Reporting; Sustainability planning.

#### **Textbooks:**

1. "Park, K." (2021), 26th, Published by Banarsidas Bhanot, ISBN: 978-81-7525-993-0
2. "Chakraborty, Tapas et al." (2020), 3rd, Published by Wolters Kluwer, ISBN: 978-93-90314-40-8

#### **Reference Books:**

1. "Naidoo, Jennie & Wills, Jane" (2020), 5th, Published by Elsevier, ISBN: 978-0-7020-7540-4
2. "Rootman, Irving et al." (2019), 1st, Published by Oxford, ISBN: 978-0-19-087894-6

#### **Web Links:**

1. WHO: Community Health Resources
2. NPTEL: Community Health (YouTube)
3. Ministry of Health: Community Health Programs

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## FINANCIAL MANAGEMENT

**Course Code: 2621MS07**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain financial management principles
- CO2:** Manage budgets and financial planning
- CO3:** Analyze financial statements
- CO4:** Make investment decisions
- CO5:** Manage cash flow and working capital

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	2	2	1	1	2	1	2
<b>CO2</b>	3	3	2	1	2	2	1	1	2	1	2
<b>CO3</b>	3	3	3	1	2	2	1	1	2	1	3
<b>CO4</b>	3	3	3	1	2	2	1	1	2	1	3
<b>CO5</b>	3	3	3	2	3	2	2	2	3	1	3

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	1
<b>CO2</b>	3	2	2
<b>CO3</b>	3	3	2
<b>CO4</b>	3	3	2
<b>CO5</b>	3	3	2

**UNIT – I**

**Introduction to Financial Management:** Meaning, objectives, and scope of financial management; Finance functions; Profit vs wealth maximization; Role of financial manager; Financial environment; Financial decisions.

**UNIT – II**

**Time Value of Money and Financial Analysis:** Concept of time value of money; Present value and future value; Annuity; Ratio analysis; Financial statements analysis; Cash flow analysis.

**UNIT – III**

**Capital Structure and Cost of Capital:** Capital structure concepts; Factors affecting capital structure; Cost of capital: cost of debt, equity, preference shares; Weighted average cost of capital (WACC); Leverage analysis.

#### **UNIT – IV**

**Capital Budgeting:** Meaning and importance; Capital budgeting techniques: Payback period, NPV, IRR, Profitability Index; Risk analysis in investment decisions.

#### **UNIT – V**

**Working Capital Management:** Meaning and importance of working capital; Components of working capital; Cash management; Receivables management; Inventory management; Working capital financing.

#### **Textbooks:**

1. Khan, M.Y. & Jain, P.K. (2020). *Financial Management* (8th ed.). McGraw Hill Education. ISBN: 978-9353161436
2. Chandra, Prasanna (2019). *Financial Management: Theory and Practice* (10th ed.). McGraw Hill Education. ISBN: 978-9353162396

#### **Reference Books:**

1. Khan, M.Y. & Jain, P.K. (2020). *Financial Management* (8th ed.). McGraw Hill Education. ISBN: 978-9353161436
2. Chandra, Prasanna (2019). *Financial Management: Theory and Practice* (10th ed.). McGraw Hill Education. ISBN: 978-9353162396

#### **Web Links:**

1. <https://nptel.ac.in/>
2. <https://swayam.gov.in/>

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## MARKETING MANAGEMENT FOR HEALTHCARE

Course Code: 2621MS08

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain healthcare marketing environment
- CO2:** Develop and implement marketing strategies
- CO3:** Analyze patient behavior and segmentation
- CO4:** Apply digital marketing in healthcare
- CO5:** Evaluate marketing effectiveness

### Mapping of Course Outcomes with Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	1	2	1	1	2	2	3
<b>CO2</b>	2	3	3	2	2	1	2	2	2	1	3
<b>CO3</b>	3	3	3	1	1	1	2	1	2	2	2
<b>CO4</b>	2	2	2	2	1	1	2	3	2	1	3
<b>CO5</b>	2	3	3	1	1	1	3	2	2	1	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO/PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	3	2
<b>CO2</b>	2	3	1
<b>CO3</b>	2	3	2
<b>CO4</b>	2	3	1
<b>CO5</b>	2	3	1

### UNIT – I

**Healthcare Marketing Fundamentals:** Healthcare marketing definition and scope; Healthcare consumer behavior; Patient expectations; Service marketing; Relationship marketing; Marketing mix in healthcare; Ethical considerations; Regulatory compliance; Brand building in healthcare.

### UNIT – II

**Strategic Marketing Planning:** Market analysis and assessment; Competitive analysis; SWOT analysis; Market segmentation; Target market selection; Positioning strategies; Marketing objectives; Patient acquisition strategies; Retention strategies; Loyalty programs.

### UNIT – III

**Service Marketing and Patient Experience:** Service quality in healthcare; Patient satisfaction; Experience design; Patient feedback systems; Service recovery; Complaint

management; Press and media relations; Community engagement; Health education; Awareness campaigns.

#### **UNIT – IV**

**Digital Marketing and Online Presence:** Healthcare digital marketing; Website design and optimization; Social media marketing; Email marketing; Content marketing; SEO in healthcare; Telemedicine promotion; Online reputation management; Mobile health applications; Analytics in digital marketing.

#### **UNIT – V**

**Market Research and Performance Evaluation:** Market research methods; Qualitative and quantitative research; Survey design; Focus group discussions; Patient feedback collection; Marketing ROI; Metrics and KPIs; Conversion rates; Campaign effectiveness; Continuous improvement.

#### **Textbooks:**

1. "Kotler, Philip et al." (2020), 6th, Published by Pearson, ISBN: 978-0-13-517669-4
2. "Srivastava, Sanjay K. & Srivastava, Priya" (2020), 2nd, Published by McGraw Hill, ISBN: 978-93-91526- 89-6

#### **Reference Books:**

1. "Berkowitz, Eric N." (2020), 9th, Published by McGraw Hill, ISBN: 978-0-07-738529-1
2. "Peattie, Sue et al." (2019), 1st, Published by Springer, ISBN: 978-3-030-13996-9

#### **Web Links:**

1. AMSRA: Healthcare Marketing Resources
2. Healthline: Patient Engagement Strategies
3. NPTEL: Marketing Management (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit**

## HUMAN RESOURCE MANAGEMENT

<b>Course Code: 2605MS10</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain HRM evolution, functions, and trends
- CO2:** Analyze HR planning, job analysis, recruitment, and selection.
- CO3:** Assess training needs, design training programs, and evaluate executive development
- CO4:** Appraise employee performance and evaluate wage administration.
- CO5:** Understand industrial relations, dispute causes, and trade union effectiveness.

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	3	3	2	3	3	3	3	2	3
<b>CO2</b>	3	3	3	2	3	3	3	3	2	3	3
<b>CO3</b>	3	3	3	3	3	2	3	3	2	3	3
<b>CO4</b>	3	3	3	3	3	3	2	3	3	3	3
<b>CO5</b>	3	2	3	3	3	3	3	3	3	3	3

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	3
<b>CO2</b>	3	3	3
<b>CO3</b>	3	3	3
<b>CO4</b>	3	3	3
<b>CO5</b>	3	2	3

#### UNIT – I

**Introduction to Human Resource Management (HRM):** Overview of HRM, Functions of HRM, HRM as a business partner, policies, and HRM in a competitive global environment. Introduction to functional and strategic HRM.

#### UNIT – II

**HR Planning and Talent Management:** Employee life cycle, HR planning, recruitment, selection, training and development, competency management, career management, and managing gig/virtual employees.

#### UNIT – III

**Employee Engagement, Performance, and Compensation:** Employee engagement, performance management, compensation strategies, benefits, compensation for special

groups, industrial relations, workplace laws, and employment relations.

#### **UNIT – IV**

**HR Technology and Analytics:** Human Resource Information Systems (HRIS), HR analytics, innovations in HRM, HRM in SMEs and the service sector, HR leadership, and organizational transformation.

#### **UNIT – V**

**Diversity, Inclusion, and HR Challenges:** Diversity, equity, and inclusion, workplace wellness, sustainability goals, green HRM, and the challenges faced in modern HRM.

#### **Textbooks:**

1. Gary Dessler, Biju Varkkey, Human Resource Management (2020), Pearson Education, 9789352862658; ISBN-13. 978-9352862658
2. R.C. Sharma & Nipun Sharma, Human Resource Management: Concepts, Theories and Contemporary Practices, Routledge India, ISBN: 978-1032623160

#### **Reference Books:**

1. Amitabha Sengupta, Human Resource Management: Concepts, Practices, and Paradigms, Cengage India, 2<sup>nd</sup> Edition, ISBN: 978-9355739438
2. Aswathappa K, Human Resource Management: Text and Cases (2021), Tata McGraw-Hill, ISBN- 10. 9354600212; ISBN-13. 978-9354600210

#### **Web Links:**

1. <https://archive.nptel.ac.in/courses/110/105/110105069/>
2. [https://onlinecourses.nptel.ac.in/noc21\\_mg21/preview](https://onlinecourses.nptel.ac.in/noc21_mg21/preview)

**Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit**

## HEALTH COMMUNICATION & COUNSELING

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS09</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

**CO1:** Explain health communication models

**CO2:** Apply counseling techniques

**CO3:** Develop health education programs

**CO4:** Manage health communication campaigns

**CO5:** Evaluate communication effectiveness

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	1	1	3	2	2	1	1	2	3	1
<b>CO2</b>	2	2	2	3	2	2	1	1	2	3	1
<b>CO3</b>	2	1	2	3	2	2	1	1	2	3	1
<b>CO4</b>	2	1	1	3	2	2	1	2	2	3	2
<b>CO5</b>	2	2	2	3	2	2	2	2	3	2	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	1	3
<b>CO2</b>	2	1	3
<b>CO3</b>	2	1	3
<b>CO4</b>	2	2	3
<b>CO5</b>	2	1	3

### UNIT – I

**Health Communication Fundamentals:** Health communication definition; Models and theories; Communication channels; Mass media; Digital media; Interpersonal communication; Doctor-patient communication; Health literacy; Cultural competence; Behavior change communication.

### UNIT – II

**Counseling Skills and Techniques:** Counseling principles; Active listening; Empathy; Rapport building; Non-verbal communication; Questioning techniques; Motivational interviewing; Crisis counseling; Stress management counseling; Grief counseling.

### UNIT – III

**Patient Education and Health Promotion:** Health education planning; Needs assessment; Educational program design; Learning objectives; Teaching methods; Patient education materials; Disease management education; Preventive health education; Lifestyle modification counseling; Community health education.

#### **UNIT – IV**

**Health Communication Campaigns:** Campaign planning; Target audience analysis; Message development; Media selection; Communication strategy; IEC materials development; Social media campaigns; Health awareness programs; Community engagement; Advocacy campaigns.

#### **UNIT – V**

**Communication in Special Contexts:** Communication in emergencies; Crisis communication; Communication with vulnerable populations; End-of- life communication; Sensitive health discussions; Sexual and reproductive health communication; Mental health communication; Communication for disease prevention; Cultural adaptation of messages.

#### **Textbooks:**

1. "Schiavo, Renata" (2020), 4th, Published by Routledge, ISBN: 978-0-367-46340-3
2. "Singhal, Arvind & Rogers, Everett M." (2020), 1st, Published by Springer, ISBN: 978-3-030-37419-6

#### **Reference Books:**

1. "Ong, Lian H. et al." (2019), 2nd, Published by Oxford, ISBN: 978-0-19-968846-3
2. "Aggarwal, Aarav & Jain, Nishi" (2020), 1st, Published by Springer, ISBN: 978-981-15-5306-7

#### **Web Links:**

1. WHO: Health Communication Resources
2. CDC: Health Communication Guidelines
3. NPTEL: Health Education (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## COST ACCOUNTING IN HEALTHCARE

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS10</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain healthcare cost structures
- CO2:** Apply costing methods in healthcare
- CO3:** Analyze departmental costs
- CO4:** Manage cost reduction
- CO5:** Prepare cost reports

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	1	2	1	1	2	1	2
<b>CO2</b>	3	3	3	1	1	1	2	1	2	1	2
<b>CO3</b>	3	3	3	1	1	1	2	1	2	1	2
<b>CO4</b>	2	3	3	1	1	2	2	1	2	1	2
<b>CO5</b>	2	2	3	2	1	1	2	2	3	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	2
<b>CO3</b>	3	3	2
<b>CO4</b>	3	3	2
<b>CO5</b>	3	3	3

### UNIT – I

**Healthcare Cost Fundamentals:** Cost definition; Cost classification; Fixed vs variable costs; Direct and indirect costs; Cost centers; Profit centers; Clinical costing; Overhead allocation; Cost drivers in healthcare; Activity analysis.

### UNIT – II

**Costing Methods and Techniques:** Absorption costing; Variable costing; Standard costing; Activity-based costing (ABC); Zero-based costing; Marginal costing; Comparative analysis; Application in hospital departments; Cost-benefit analysis.

### UNIT – III

**Departmental and Service Costing:** Department costing; Cost allocation methodologies; Step-down method; Direct allocation; Reciprocal services; Clinical department costing; Pharmacy costing; Laboratory costing; Diagnostic center costing; Support service allocation.

#### **UNIT – IV**

**Cost Control and Reduction:** Cost control strategies; Waste elimination; Efficiency improvement; Benchmarking; Value engineering; Process improvement; Resource optimization; Cost consciousness culture; Incentive programs; Cost reduction initiatives.

#### **UNIT – V**

**Reporting and Analysis:** Cost accounting reports; Departmental statements; Product line costing; DRG-based costing; Cost per patient day; Cost per procedure; Variance analysis; Performance reporting; Trend analysis; Comparative reporting.

#### **Textbooks:**

1. "Horngren, Charles T. et al." (2020), 17th, Published by Pearson, ISBN: 978-0-13-583355-9
2. "Jain, S.P. & Narang, K.L." (2021), 10th, Published by Kalyani, ISBN: 978-93-272-9891-7

#### **Reference Books:**

1. "Drury, Colin" (2021), 9th, Published by Cengage, ISBN: 978-1-4737-7652-9
2. "Banerjee, B.N." (2020), 14th, Published by PHI, ISBN: 978-81-203-5544-0

#### **Web Links:**

1. ICAI: Cost Accounting Standards
2. NPTEL: Cost Accounting (YouTube)
3. WHO: Healthcare Costing

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## HOSPITAL OPERATIONS MANAGEMENT - I

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS11</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain the fundamentals of hospital operations and healthcare service delivery.
- CO2:** Analyze the functioning of major hospital departments and their inter-dependencies.
- CO3:** Apply operations management techniques to optimize hospital workflows.
- CO4:** Evaluate facility management, housekeeping, and front office operations in hospitals.
- CO5:** Demonstrate knowledge of patient flow management and outpatient/inpatient processes.

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	3	3	1	2	2	1	2
<b>CO2</b>	3	3	2	2	3	3	1	2	2	1	2
<b>CO3</b>	3	3	3	2	2	2	2	2	2	1	2
<b>CO4</b>	3	2	2	2	2	2	1	2	2	1	2
<b>CO5</b>	3	2	2	2	2	2	1	2	2	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	3
<b>CO3</b>	3	2	2
<b>CO4</b>	3	2	3
<b>CO5</b>	3	2	1

### UNIT – I

**Introduction to Hospital Operations:** Hospital definition, types, and classification; Evolution of hospitals in India; Hospital as a system (inputs, processes, outputs); Organizational structure; Role of hospital administrator; Functions of hospital management; Hospital committees and governing bodies; Medical staff organization; Ethical considerations in hospital operations.

### UNIT – II

**Clinical Departments and Services:** Overview of clinical departments (medicine, surgery, pediatrics, obstetrics, orthopedics); Emergency department (triage, workflow, management); Operation theatre management (scheduling, sterilization, protocols); ICU

(types, management, staffing); Laboratory services (workflow, quality control); Radiology and imaging; Pharmacy services (procurement, storage, dispensing).

### **UNIT – III**

**Support Services in Hospitals:** CSSD (Central Sterile Supply Department); Dietary and nutrition services; Laundry and linen management; Housekeeping and infection control; Biomedical equipment management; Ambulance and transport services; Security services; Hospital waste management; Mortuary services.

### **UNIT – IV**

**Front Office and Patient Flow Management:** Reception, registration, admission, discharge processes; OPD and IPD management; Bed management and occupancy optimization; Appointment scheduling; Billing and cashiering; Medical records overview; Patient rights and responsibilities; Grievance redressal mechanisms.

### **UNIT – V**

**Facility Management and Maintenance:** Hospital planning and infrastructure; Utilities (power, water, HVAC, medical gases); Maintenance systems; Fire safety and disaster preparedness; Biomedical equipment maintenance; Signage and navigation; Green hospital concepts; Energy management; Outsourcing; Performance metrics.

#### **Textbooks:**

1. Sakharkar, B.M. (2019). *Principles of Hospital Administration and Planning* (3rd ed.). Jaypee Brothers. ISBN: 978-93-5270-515-3
2. Srinivasan, A.V. (2018). *Managing a Modern Hospital* (2nd ed.). Sage (Response Books). ISBN: 978-81-7829-847-9

#### **Reference Books:**

1. Goel, S.L., & Kumar, R. (2017). *Hospital Administration and Management* (5th ed.). Deep & Deep Publications. ISBN: 978-81-7629-902-0
2. Griffin, Donald J. (2018). *Hospitals: What They Are and How They Work* (4th ed.). Jones & Bartlett Learning. ISBN: 978-1-284-05739-2

#### **Web Links:**

1. NABH Standards: <https://www.nabh.co>
2. National Health Systems Resource Centre: <http://nhsrcindia.org>
3. NPTEL – Hospital Management (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## LEGAL ASPECTS OF HEALTH & MEDICAL ETHICS

**Course Code: 2621MS12**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Understand healthcare law and regulations
- CO2:** Apply medical ethics principles
- CO3:** Manage legal and ethical issues
- CO4:** Handle medical malpractice
- CO5:** Ensure compliance with regulations

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	1	3	1	1	2	3	1
<b>CO2</b>	3	3	3	2	1	3	2	1	2	2	1
<b>CO3</b>	3	2	3	2	1	3	1	1	2	2	1
<b>CO4</b>	3	2	2	2	1	3	1	1	2	3	1
<b>CO5</b>	3	2	2	2	1	3	2	1	3	3	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	3
<b>CO2</b>	3	2	2
<b>CO3</b>	3	2	3
<b>CO4</b>	3	2	3
<b>CO5</b>	3	2	3

**UNIT – I**

**Healthcare Law and Regulations:** Fundamentals of law; Criminal, civil law; Constitution of India; Articles 21 and 47; Bharatiya Nyaya Sanhita; Indian Penal Code provisions; Medical Negligence; Tort law; Contract law; Consumer Protection Act; Statute of limitations; Jurisdiction.

**UNIT – II**

**Medical Professional Regulations:** Medical Council regulations (NMC); Professional conduct; License and registration; Disciplinary procedures; Nursing Council; Allied health regulations; AYUSH regulations; Scope of practice; Professional standards; Competency requirements; Continuing education.

**UNIT – III**

**Healthcare Facilities Regulations:** Clinical Establishment Act; Hospital licensing; Accreditation standards; Biomedical Waste Management Rules; Labor laws for healthcare;

Environmental regulations; Fire safety; NABH standards; State regulations; Compliance documentation.

#### **UNIT – IV**

**Ethical Principles and Medical Ethics:** Principles of ethics (Autonomy, Beneficence, Non-maleficence, Justice); Informed consent; Confidentiality; Doctor-patient relationship; Research ethics; IRB approval; Clinical trials; End-of-life care; Euthanasia; Abortion laws; Disability and ethics.

#### **UNIT – V**

**Medical Malpractice and Legal Issues:** Medical negligence definition; Standard of care; Causation; Damages; Informed consent issues; Surgical complications; Medication errors; Diagnostic errors; Liability insurance; Medico-legal autopsies; Victim compensation; Defense strategies; Dispute resolution.

#### **Textbooks:**

1. "Johal, Ranjit & Menon, V." (2021), 5th, Published by Wolters Kluwer, ISBN: 978-93-90314-23-1
2. "Soni, Rashmi et al." (2020), 2nd, Published by Jaypee, ISBN: 978-93-89923-54-8

#### **Reference Books:**

1. "Parikh, Sarojini et al." (2020), 2nd, Published by Orient Blackswan, ISBN: 978-93-222-5748-6
2. "Srivastava, K.C." (2020), 2nd, Published by McGraw Hill, ISBN: 978-93-91526-23-0

#### **Web Links:**

1. MCI: Medical Law and Ethics Resources
2. NHRC: Human Rights in Healthcare
3. WHO: Medical Ethics Guidelines

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## ENTREPRENEURSHIP IN HEALTHCARE

**Course Code: 2621MS13**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain entrepreneurial mindset
- CO2:** Develop healthcare business ideas
- CO3:** Create business plans
- CO4:** Manage healthcare startups
- CO5:** Secure funding for healthcare ventures

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	2	2	2	2	2	2	2	2	2	3
<b>CO2</b>	2	3	3	1	1	1	2	2	2	1	3
<b>CO3</b>	2	3	3	2	2	1	3	2	2	2	3
<b>CO4</b>	2	2	2	2	2	2	2	2	2	2	3
<b>CO5</b>	2	2	3	2	2	2	2	2	3	2	3

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	3	1
<b>CO2</b>	1	3	1
<b>CO3</b>	2	3	2
<b>CO4</b>	2	3	2
<b>CO5</b>	2	3	2

**UNIT – I**

**Entrepreneurship Fundamentals:** Entrepreneurship definition; Entrepreneur traits; Opportunity identification; Feasibility analysis; Market research; Business model development; Value proposition; Customer segmentation; Revenue models; Competitive advantage; Innovation mindset.

**UNIT – II**

**Healthcare Business Opportunities:** Healthcare market trends; Unmet needs; Service gaps; Diagnostic services; Telemedicine platforms; Home care services; Health tech startups; Fitness and wellness; AYUSH services; Medical devices; Drug delivery systems.

**UNIT – III**

**Business Planning and Development:** Executive summary; Market analysis; Competitive analysis; Product/service description; Marketing strategy; Operations plan; Financial projections; Risk assessment; Implementation timeline; Milestones; Success factors;

Growth strategy.

#### **UNIT – IV**

**Financial Management for Startups:** Financial planning; Startup funding; Bootstrap financing; Angel investment; Venture capital; Loan financing; Government grants; Financial projections; Break-even analysis; Cash flow management; Profitability; Scaling strategies.

#### **UNIT – V**

**Operations and Growth Management:** Operations setup; Legal structure; Registration and compliance; Team building; Resource management; Quality assurance; Scale-up strategies; Market expansion; Customer acquisition; Retention; Exit strategies; Case studies of healthcare startups.

#### **Textbooks:**

1. "Hisrich, Robert D. et al." (2020), 11th, Published by McGraw Hill, ISBN: 978-0-07-765518-5
2. "Taneja, Shikha & Singh, Madan Lal" (2020), 2nd, Published by Excel Books, ISBN: 978-93-87034-75-5

#### **Reference Books:**

1. "Kuratko, Donald F." (2020), 11th, Published by Cengage, ISBN: 978-0-357-02235-0
2. "Timmons, Jeffrey A. & Spinelli, Stephen Jr." (2020), 11th, Published by McGraw Hill, ISBN: 978-1-260-32626-4

#### **Web Links:**

1. Startup India: Healthcare Programs
2. NASSCOM: Healthcare Startups
3. Coursera: Entrepreneurship (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## TELEMEDICINE & DIGITAL HEALTH

**Course Code: 2621MS14**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain telemedicine concepts
- CO2:** Implement telemedicine platforms
- CO3:** Manage digital health services
- CO4:** Ensure quality in telemedicine
- CO5:** Apply regulations in digital health

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	1	2	3	3	3	2	2
<b>CO2</b>	3	3	3	1	1	1	2	3	2	2	2
<b>CO3</b>	3	2	2	2	2	2	2	3	2	2	2
<b>CO4</b>	3	2	3	1	1	3	2	3	2	2	2
<b>CO5</b>	3	2	2	2	2	2	3	3	3	2	3

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	2
<b>CO3</b>	3	2	3
<b>CO4</b>	3	2	3
<b>CO5</b>	3	3	2

**UNIT – I**

**Telemedicine Fundamentals:** Telemedicine definition; Types (Consultation, Monitoring, Treatment); Synchronous and asynchronous; Advantages and barriers; Equipment requirements; Connectivity; Platform selection; Mobile health (mHealth); Wearable technology; Remote monitoring; Tele-consultation models.

**UNIT – II**

**Clinical Applications:** Telemedicine in primary care; Specialist consultation; Dermatology; Radiology; Pathology; Mental health counseling; Diabetes management; Hypertension monitoring; Cardiology; Orthopedics; Emergency services; Critical care.

**UNIT – III**

**Technology and Infrastructure:** Communication technologies; Video conferencing; Cloud platforms; Security requirements; Encryption; HIPAA compliance; EHR integration; Medical devices; IoT sensors; Wearables; AI applications; Machine learning in diagnostics.

#### **UNIT – IV**

**Implementation and Operations:** Telemedicine strategy; Business model; Revenue generation; Workflow design; Licensure and credentialing; Reimbursement policies; Patient education; Technology support; Training programs; Quality assurance; Performance metrics.

#### **UNIT – V**

**Regulations and Challenges:** Telemedicine regulations (India); Licensing across states; Cross-border practice; Privacy regulations; Data security; Informed consent; Liability issues; Ethical considerations; Digital divide; Infrastructure gaps; Future outlook.

#### **Textbooks:**

1. "Howe, Neil et al." (2020), 1st, Published by Springer, ISBN: 978-3-030-29120-6
2. "Steinhubl, Steven R. et al." (2020), 1st, Published by Academic Press, ISBN: 978-0-12-819314-3

#### **Reference Books:**

1. "Papadopoulos, Inès et al." (2020), 1st, Published by Routledge, ISBN: 978-0-367-02895-1
2. "Serdarevic, Farrokh" (2020), 1st, Published by Springer, ISBN: 978-3-030-38159-1

#### **Web Links:**

1. BMA: Telemedicine Guidance
2. WHO: Telemedicine Resources
3. NPTEL: Digital Health (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## HOSPITAL OPERATIONS MANAGEMENT – II

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS15</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>4</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain advanced hospital operational strategies and performance management systems
- CO2:** Analyze and optimize workflows in specialized hospital departments
- CO3:** Apply resource allocation and capacity planning techniques in healthcare settings
- CO4:** Evaluate quality improvement and patient safety programs in hospital operations
- CO5:** Implement operational excellence methodologies including Lean and Six Sigma in hospitals

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	3	1	2	1	2	2	2	1	2
<b>CO2</b>	3	3	2	1	2	1	1	2	2	1	2
<b>CO3</b>	3	3	3	1	1	1	1	2	2	1	3
<b>CO4</b>	3	3	3	1	2	3	2	1	2	2	2
<b>CO5</b>	3	2	3	1	2	1	3	3	3	1	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	2
<b>CO3</b>	3	3	1
<b>CO4</b>	3	2	3
<b>CO5</b>	3	2	2

### UNIT – I

**Advanced Operations Strategy in Hospitals:** Strategic planning in hospital operations; Capacity planning and demand forecasting; Service line management and clinical program planning; Benchmarking and best practices in healthcare operations; Balanced Scorecard for hospitals; Key Performance Indicators (KPIs) in hospital operations; Competitive advantage through operational excellence; Hospital performance dashboards.

### UNIT – II

**Specialized Department Management:** ICU management: staffing, protocols, equipment; Emergency department: triage systems (MTS, ESI), flow management; Operation theatre scheduling and utilization; Day surgery and ambulatory care management; Dialysis unit operations; Cath lab and interventional suite management; Neonatal ICU (NICU) management; Outpatient department optimization; Modular OT concepts.

### **UNIT – III**

**Resource and Inventory Management in Hospitals:** Hospital inventory management systems; ABC and VED analysis for medical supplies; Procurement processes and vendor management; Medical equipment lifecycle management; Pharmacy inventory: drug formulary management; Just-in-time (JIT) systems in hospitals; Economic Order Quantity (EOQ) for hospital supplies; Consignment and implant management; RFID and barcode applications in hospitals; Green procurement practices.

### **UNIT – IV**

**Quality Improvement and Patient Safety:** Patient safety programs and culture; Incident reporting and learning systems; Root cause analysis (RCA) and failure mode effects analysis (FMEA); Clinical risk management; Medication safety: preventing medication errors; Surgical safety: WHO checklist; Hospital-acquired infections (HAIs); Quality improvement methodologies: PDCA, DMAIC; NABH and JCI accreditation process overview; Quality indicators and metrics.

### **UNIT – V**

**Operational Excellence and Innovation:** Lean management in hospitals: value stream mapping, 5S, Kaizen; Six Sigma applications in healthcare; Process mapping and redesign; Automation and technology in hospital operations; Robotic process automation (RPA) in healthcare admin; Telemedicine integration in hospital operations; Digital transformation: paperless hospitals; Change management for operational transformation; Sustainability in hospital operations; Future trends in hospital operations management.

#### **Textbooks:**

1. Ozcan, Yasar A. (2017), Quantitative Methods in Health Care Management, 2nd Edition, Published by Jossey-Bass, ISBN: 978-1-119-06075-8
2. Langabeer, James R. & Helton, Jeffrey (2016), Health Care Operations Management, 2nd Edition, Published by Jones & Bartlett Learning, ISBN: 978-1-284-05062-1

#### **Reference Books:**

1. Graban, Mark (2016), Lean Hospitals: Improving Quality, Patient Safety, and Employee Engagement, 3rd Edition, Published by Productivity Press, ISBN: 978-1-138-03152-1
2. Kumar, Satyanarayana & Bano, Shahina (2017), Hospital Management and Administration, 1st Edition, Published by Jaypee Brothers, ISBN: 978-93-5270-026-4

#### **Web Links:**

1. IHI: Institute for Healthcare Improvement Resources: <http://www.ihl.org>
2. NABH: Hospital Accreditation Standards: <https://www.nabh.co>
3. WHO: Hospital Operations Guidelines: <https://www.who.int>

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## STRATEGIC MANAGEMENT IN HEALTHCARE

**Course Code: 2621MS16**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

**CO1:** Explain strategic management process

**CO2:** Develop healthcare strategies

**CO3:** Analyze competitive environment

**CO4:** Implement strategic initiatives

**CO5:** Evaluate strategic performance

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	3	1	2	1	2	1	2	1	3
<b>CO2</b>	3	3	3	1	2	1	2	1	2	1	3
<b>CO3</b>	3	3	3	1	2	1	2	2	2	1	3
<b>CO4</b>	3	3	3	1	3	1	2	1	2	1	3
<b>CO5</b>	3	3	3	1	2	1	2	1	3	2	3

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	3	1
<b>CO2</b>	3	3	1
<b>CO3</b>	3	3	2
<b>CO4</b>	3	3	1
<b>CO5</b>	3	3	2

**UNIT – I**

**Strategic Management Fundamentals:** Strategy definition; Strategic management process; Vision, mission, values; Strategic objectives; Levels of strategy (Corporate, Business, Functional); Strategic planning cycles; Internal and external analysis; SWOT analysis; Porter's Five Forces; Competitive advantage.

**UNIT – II**

**Healthcare Environment and Analysis:** Healthcare industry analysis; Market trends; Regulatory environment; Technology trends; Demographic changes; Competitive landscape; Market positioning; Competitive analysis; Stakeholder analysis; Environmental scanning; Scenario planning.

**UNIT – III**

**Strategy Formulation:** Growth strategies; Market expansion; Service development; Diversification; Partnership strategies; Merger and acquisition; Network building; PPP

models; Franchise models; Niche positioning; Cost leadership; Differentiation strategy.

#### **UNIT – IV**

**Strategy Implementation:** Implementation planning; Organizational structure; Resource allocation; Change management; Leadership role; Culture alignment; Performance management; Balanced scorecard; KPIs; Strategic initiatives; Program management; Stakeholder communication.

#### **UNIT – V**

**Strategic Evaluation and Adaptation:** Performance monitoring; Financial and operational metrics; Competitive monitoring; Market feedback; Patient satisfaction; Balanced scorecard implementation; Strategic review process; Adaptation mechanisms; Scenario- based planning; Future trends; Sustainability strategy.

#### **Textbooks:**

1. "David, Fred R. & David, Forest R." (2021), 17th, Published by Pearson, ISBN: 978-0-13-578281-3
2. "Hill, Charles W. et al." (2021), 14th, Published by McGraw Hill, ISBN: 978-1-260-57199-9

#### **Reference Books:**

1. "Wheelen, Thomas L. et al." (2021), 15th, Published by Pearson, ISBN: 978-0-13-685689-5
2. "Hax, Arnaldo C. & Wilde, Dean L." (2020), 2nd, Published by MIT Press, ISBN: 978-0-262-04327-0

#### **Web Links:**

1. ACHE: Healthcare Strategic Management
2. HBR: Strategy Articles
3. NPTEL: Strategic Management (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## SUPPLY CHAIN & INVENTORY MANAGEMENT

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS17</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain healthcare supply chain
- CO2:** Manage inventory effectively
- CO3:** Optimize procurement processes
- CO4:** Reduce supply chain costs
- CO5:** Implement supply chain technologies

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	1	2	1	1	1	1	2	2	1
<b>CO2</b>	3	3	2	1	1	2	2	1	3	1	1
<b>CO3</b>	3	3	2	1	2	2	2	1	2	1	1
<b>CO4</b>	3	3	3	1	2	3	2	2	2	2	2
<b>CO5</b>	2	3	2	2	1	3	3	2	3	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	1
<b>CO2</b>	3	3	2
<b>CO3</b>	3	3	2
<b>CO4</b>	3	3	2
<b>CO5</b>	3	3	3

#### UNIT – I

**Healthcare Supply Chain Fundamentals:** Supply chain definition; Participants and stakeholders; Supply chain functions; Procurement; Inventory; Logistics; Distribution; Supply chain planning; Demand forecasting; Supplier selection; Vendor management; Relationship management.

#### UNIT – II

**Inventory Management Systems:** Inventory classification (ABC analysis); Inventory models; Economic order quantity (EOQ); Reorder point; Safety stock; Inventory control methods; Perpetual systems; Periodic systems; FIFO/LIFO methods; Obsolescence management; Turnover ratios; Storage and handling.

#### UNIT – III

**Procurement and Vendor Management:** Procurement process; Requisition; Quotation; Evaluation; Purchase order; Receiving; Quality checks; Payment processing; Vendor

evaluation; Performance metrics; Contract management; Negotiation skills; Price management.

#### **UNIT – IV**

**Logistics and Distribution:** Logistics management; Transportation modes; Warehouse management; Material handling; Just-in-time (JIT) systems; Pull systems; Push systems; Cross-docking; Third-party logistics; Distribution networks; Route optimization; Cost reduction.

#### **UNIT – V**

**Digital Supply Chain and Optimization:** Supply chain digitization; RFID tracking; Barcode systems; Supply chain visibility; Blockchain in healthcare; AI and predictive analytics; Supply chain analytics; Sustainability; Green supply chain; Resilience; Risk management.

#### **Textbooks:**

1. "Chopra, Sunil & Meindl, Peter" (2021), 7th, Published by Pearson, ISBN: 978-0-13-576818-1
2. "Wisner, Joel D. et al." (2020), 8th, Published by Cengage, ISBN: 978-0-357-02233-6

#### **Reference Books:**

1. "Christopher, Martin" (2020), 5th, Published by Pearson, ISBN: 978-0-273-77325-9
2. "Mangan, John et al." (2020), 4th, Published by Routledge, ISBN: 978-0-367-14121-6

#### **Web Links:**

1. APICS: Supply Chain Management
2. NPTEL: Supply Chain Management (YouTube)
3. WHO: Healthcare Supply Chain

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## QUALITY MANAGEMENT IN HOSPITALS (NABH/JCI)

**Course Code: 2621MS18**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain quality management in healthcare
- CO2:** Apply NABH/JCI standards
- CO3:** Implement quality improvement programs
- CO4:** Manage patient safety
- CO5:** Conduct quality audits

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	3	1	2	3	2	1	2	2	2
<b>CO2</b>	3	3	3	1	2	2	2	1	2	2	2
<b>CO3</b>	3	3	3	1	2	3	2	2	2	2	2
<b>CO4</b>	3	2	2	1	2	3	2	2	2	2	2
<b>CO5</b>	3	3	3	1	2	2	3	2	3	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	3
<b>CO2</b>	3	2	3
<b>CO3</b>	3	2	3
<b>CO4</b>	3	2	3
<b>CO5</b>	3	3	3

### UNIT – I

**Quality Management Fundamentals:** Quality definition; Quality dimensions; Quality planning; Quality assurance; Quality control; Customer focus; Process approach; Leadership role; Continuous improvement; Quality culture; Baldrige framework; PDCA cycle.

### UNIT – II

**NABH Standards and Implementation:** NABH overview and objectives; NABH standards; Governance and management; Patient rights and safety; Patient assessment and care planning; Quality of care; Management of human and physical resources; Infection control; Accreditation process; Documentation requirements.

### UNIT – III

**JCI Standards and Requirements:** JCI standards overview; International quality standards; Patient safety standards; Care and treatment standards; Communication and

coordination; Infection prevention; Medication management; Patient and family education; Performance improvement; Leadership standards.

#### **UNIT – IV**

**Patient Safety and Risk Management:** Patient safety culture; Safety incident classification; Adverse event reporting; Root cause analysis; Preventive measures; Medication safety; Surgical site infection prevention; Fall prevention; Sentinel events; Never events management; Safety improvement initiatives.

#### **UNIT – V**

**Quality Improvement Programs and Measurement:** QI methodologies; Benchmarking; Performance indicators; Data collection and analysis; Dashboard development; Patient satisfaction measurement; Outcome measurement; Process metrics; Quality improvement teams; Kaizen; Lean methodology; Documentation of improvements.

#### **Textbooks:**

1. "Lough, Mark E. et al." (2020), 1st, Published by Springer, ISBN: 978-3-030-35571-3
2. "Wheeler, Donald J. & Chambers, David S." (2019), 3rd, Published by SPC Press, ISBN: 978-0-945320-35-7

#### **Reference Books:**

1. "Bisognano, Maureen & Spath, Patrice" (2020), 2nd, Published by Springer, ISBN: 978-3-030-02854-7
2. "Marques, Paulo & Borba, Mário" (2019), 1st, Published by Springer, ISBN: 978-3-030-05254-4

#### **Web Links:**

1. NABH: Quality Standards and Guidelines
2. JCI: International Accreditation Standards
3. IHI: Quality Improvement Methods

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

**DISCIPLINE SPECIFIC COURSES**  
**INTRODUCTION TO HEALTHCARE SYSTEMS**

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS19</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain the structure, organization, and functioning of healthcare systems globally and in India
- CO2:** Compare different healthcare delivery models and their financing mechanisms
- CO3:** Analyze the roles of key stakeholders in the Indian healthcare ecosystem
- CO4:** Evaluate health policy frameworks and regulatory bodies governing healthcare in India
- CO5:** Assess emerging trends and challenges in healthcare system development

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	1	2	2	1	2	3	1
<b>CO2</b>	3	3	3	1	1	1	2	1	2	2	1
<b>CO3</b>	3	2	2	2	2	1	1	1	2	3	1
<b>CO4</b>	2	2	3	1	1	3	2	1	2	2	1
<b>CO5</b>	2	2	3	1	1	1	2	2	3	2	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	2	2	2
<b>CO3</b>	3	2	3
<b>CO4</b>	2	2	2
<b>CO5</b>	3	2	2

**UNIT – I**

**Introduction to Healthcare Systems:** Definition and concept of health; Dimensions of health: physical, mental, social, spiritual; Determinants of health; Healthcare system: meaning, goals, and components; Types of healthcare systems globally: Beveridge, Bismarck, National Health Insurance, Out-of-Pocket models; World Health Organization (WHO) framework for health system building blocks.

**UNIT – II**

**Indian Healthcare System:** Evolution of healthcare in India; Constitutional provisions for health; Three-tier healthcare delivery system: primary, secondary, tertiary; Public healthcare infrastructure: PHC, CHC, sub-centres, district hospitals; National Health Mission (NHM); Ayushman Bharat Scheme; Role of private sector in Indian healthcare; Public- private partnerships (PPP) in health.

### **UNIT – III**

**Healthcare Delivery and Services:** Types of healthcare facilities: hospitals, clinics, nursing homes, diagnostic centres; Classification of hospitals: by ownership, bed strength, specialty; Allopathic and AYUSH systems; Ambulatory care and home healthcare; Preventive, promotive, curative, and rehabilitative services; Role of NGOs and voluntary organizations in healthcare delivery.

### **UNIT – IV**

**Healthcare Financing and Economics:** Healthcare expenditure in India; Sources of healthcare financing: government, private, insurance, out-of-pocket; National Health Accounts; Health budgeting; Role of health insurance; Government health schemes: CGHS, ESIS, PMJAY; Challenges of healthcare affordability and access; Universal Health Coverage (UHC) concept.

### **UNIT – V**

**Health Policy and Regulation:** National Health Policy 2017; Health regulatory bodies: MCI/NMC, Pharmacy Council, Nursing Council, NABH; Clinical Establishments Act 2010; Drugs and Cosmetics Act; Consumer Protection Act in healthcare; Digital Health Mission; Global health initiatives: SDGs and health; Emerging trends: telemedicine, AI in health, value-based care.

#### **Textbooks:**

1. Park, K. (2023), Preventive and Social Medicine, 27th Edition, Published by Banarsidas Bhanot Publishers, ISBN: 978-93-82219-08-2
2. Kishore, J. (2020), National Health Programs of India, 13th Edition, Published by Century Publications, ISBN: 978-81-8837-400-6

#### **Reference Books:**

1. Srinath Reddy, K. et al. (2011), Towards Achievement of Universal Health Care in India, Published by The Lancet/PHFI, ISBN: 978-0-19-808398-7
2. Duggal, Ravi (2019), Healthcare in India: Issues and Challenges, 1st Edition, Published by Academic Foundation, ISBN: 978-93-327-0415-3

#### **Web Links:**

1. Ministry of Health and Family Welfare (MoHFW), India: <https://mohfw.gov.in>
2. WHO India: Country Cooperation Strategy: <https://www.who.int/india>
3. NPTEL: Health Systems and Management (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## MEDICAL TERMINOLOGY & HUMAN BIOLOGY

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS20</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain the standard medical terminology including roots, prefixes, and suffixes
- CO2:** Identify the structure and function of major organ systems of the human body
- CO3:** Analyze common diseases, diagnostic procedures, and treatment modalities using correct medical vocabulary
- CO4:** Interpret medical abbreviations and documentation used in clinical settings
- CO5:** Apply knowledge of human biology and medical terminology in healthcare management contexts

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	1	2	1	1	1	1	3	1	1
<b>CO2</b>	3	1	2	2	1	1	1	1	2	1	1
<b>CO3</b>	3	2	2	2	1	1	1	1	2	1	1
<b>CO4</b>	3	1	1	3	1	1	1	1	2	1	1
<b>CO5</b>	3	2	2	2	1	1	1	2	3	2	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	1	3
<b>CO2</b>	2	1	3
<b>CO3</b>	2	1	3
<b>CO4</b>	2	1	3
<b>CO5</b>	2	1	3

### UNIT – I

**Foundations of Medical Terminology:** Introduction to medical terminology; Word building: roots, prefixes, suffixes, combining forms; Rules of medical word construction; Pronunciation and spelling of medical terms; Medical abbreviations and symbols; Terminology used in medical records, prescriptions, and clinical documentation; Greek and Latin origins of medical terms.

### UNIT – II

**Musculoskeletal and Integumentary Systems:** Overview of cell structure and body organization; Tissues: types and functions; Skeletal system: bones, joints, classification; Muscular system: types, structure, function; Common musculoskeletal disorders: fractures, arthritis, osteoporosis; Integumentary system: skin structure and functions; Common skin

conditions; Related medical terminology and diagnostic tests.

### **UNIT – III**

**Cardiovascular, Respiratory, and Circulatory Systems:** Heart: anatomy, chambers, blood flow; Blood vessels: arteries, veins, capillaries; Blood: composition, blood groups, clotting mechanism; Cardiovascular diseases: hypertension, coronary artery disease, heart failure; Respiratory system: lungs, gas exchange, breathing mechanism; Respiratory disorders: asthma, COPD, pneumonia, tuberculosis; Related diagnostic procedures and terminology.

### **UNIT – IV**

**Digestive, Urinary, and Endocrine Systems:** Digestive system: organs, digestive process, accessory organs; Common GI disorders: ulcers, hepatitis, cirrhosis, gallstones; Urinary system: kidneys, nephron, urine formation; Urinary disorders: UTI, kidney stones, renal failure; Endocrine system: glands, hormones, regulation; Endocrine disorders: diabetes mellitus, thyroid disorders; Related terminology and diagnostics.

### **UNIT – V**

**Nervous, Reproductive, and Special Sense Systems:** Nervous system: central and peripheral divisions; Brain, spinal cord, neurons, reflexes; Neurological disorders: stroke, epilepsy, Parkinson's, Alzheimer's; Reproductive system: male and female anatomy; Common reproductive disorders; Obstetric terminology; Special senses: eye, ear; Common visual and auditory disorders; Introduction to diagnostic imaging and laboratory investigations.

#### **Textbooks:**

1. Chabner, Davi-Ellen (2022), The Language of Medicine, 12th Edition, Published by Elsevier, ISBN: 978-0- 323-55147-2
2. Sembulingam, K. & Sembulingam, Prema (2019), Essentials of Medical Physiology, 8th Edition, Published by Jaypee Brothers, ISBN: 978-93-5270-468-2

#### **Reference Books:**

1. Ehrlich, Ann & Schroeder, Carol L. (2017), Medical Terminology for Health Professions, 8th Edition, Published by Cengage, ISBN: 978-1-305-63435-0
2. Tortora, Gerard J. & Derrickson, Bryan (2017), Principles of Anatomy and Physiology, 15th Edition, Published by Wiley, ISBN: 978-1-119-32064-7

#### **Web Links:**

1. NPTEL: Human Anatomy and Physiology (IIT Madras, YouTube)
2. Khan Academy: Health and Medicine (<https://www.khanacademy.org/science/health-and-medicine>)
3. MedlinePlus Medical Encyclopedia: <https://medlineplus.gov>

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## COMPUTER APPLICATIONS IN HEALTHCARE

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS21</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain the fundamentals of computer systems, operating systems, and office productivity tools
- CO2:** Apply spreadsheet, database, and presentation software for healthcare data management
- CO3:** Demonstrate awareness of healthcare IT systems and electronic health records (EHR)
- CO4:** Utilize internet, email, and digital tools for healthcare administration tasks
- CO5:** Apply data handling and basic analytics for healthcare decision support

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	1	1	1	1	1	1	3	2	1	1
<b>CO2</b>	2	2	1	1	2	1	1	3	2	1	1
<b>CO3</b>	3	1	2	1	1	1	2	3	2	1	1
<b>CO4</b>	2	1	1	1	1	2	1	3	2	1	1
<b>CO5</b>	2	2	2	1	1	1	2	3	3	1	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	1
<b>CO2</b>	2	2	1
<b>CO3</b>	3	2	2
<b>CO4</b>	2	2	1
<b>CO5</b>	2	2	2

### UNIT – I

**Computer Fundamentals:** Introduction to computers: hardware, software, classifications; Operating systems: Windows, basics of Linux; Input/output devices; Storage devices; Computer memory: RAM, ROM, cache; Computer networks: LAN, WAN, MAN; Internet basics: browsers, search engines, email; Cyber security awareness; Cloud computing basics.

### UNIT – II

**Office Productivity Tools:** Word processing: MS Word for reports, letters, mail merge; Spreadsheets: MS Excel for data entry, Formulae, functions, charts, pivot tables; Presentation software: MS PowerPoint for creating effective presentations; Database basics: MS Access, simple queries; Google Workspace: Docs, Sheets, Slides, Forms; Collaborative tools for healthcare teams.

### **UNIT – III**

**Healthcare Information Technology:** Introduction to Health IT; Electronic Health Records (EHR) and Electronic Medical Records (EMR); Hospital Information Systems (HIS) overview; Telemedicine platforms and tools; mHealth applications; Health data standards: HL7, DICOM; National Digital Health Mission; Aadhaar-based health ID; e-Hospital and eRaktkosh initiatives; IT infrastructure in hospitals.

### **UNIT – IV**

**Data Handling and Management:** Introduction to data and information; Data types and data collection methods; Data entry and validation; Database concepts: tables, fields, records; Data storage and retrieval; Data backup and recovery; Data privacy and confidentiality in healthcare; HIPAA awareness; Information Technology Act 2000 and digital data protection in India.

### **UNIT – V**

**Internet Applications and Emerging Technologies:** Internet applications in healthcare: online appointment scheduling, patient portals; Social media in healthcare communication; Web-based health information systems; Introduction to Business Intelligence (BI) tools; Basics of data visualization using Excel and Google Data Studio; Introduction to emerging technologies: IoT in healthcare, wearable devices, AI-assisted diagnostics; Blockchain basics in health records.

#### **Textbooks:**

1. Rajaraman, V. (2018), Fundamentals of Computers, 6th Edition, Published by PHI Learning, ISBN: 978-93- 878-0024-3
2. Sinha, Pradeep K. & Sinha, Priti (2018), Computer Fundamentals, 8th Edition, Published by BPB Publications, ISBN: 978-93-869-5103-2

#### **Reference Books:**

1. Wager, Karen A., Lee, Frances W. & Glaser, John P. (2017), Health Care Information Systems: A Practical Approach for Health Care Management, 4th Edition, Published by Jossey-Bass, ISBN: 978-1-119-33796-6
2. Coiera, Enrico (2015), Guide to Health Informatics, 3rd Edition, Published by CRC Press, ISBN: 978-1-444- 17049-5

#### **Web Links:**

1. NPTEL: Computer Science and Engineering Courses (YouTube)
2. Digital India Health: <https://digitalindia.gov.in/health>
3. SWAYAM: Introduction to Computers (UGC MOOCs)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## CLINICAL & SUPPORT SERVICES

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS22</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain the organization and functioning of clinical departments in hospitals
- CO2:** Analyze the workflow and management of diagnostic and therapeutic support services
- CO3:** Evaluate the role of nursing services, CSSD, and pharmacy in patient care
- CO4:** Apply management principles to optimize clinical and support service delivery
- CO5:** Demonstrate knowledge of quality and safety standards in clinical support services

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	2	2	1	1	2	2	1
<b>CO2</b>	3	3	2	1	1	1	2	2	2	1	1
<b>CO3</b>	3	2	2	1	2	2	1	1	2	2	1
<b>CO4</b>	3	2	2	1	2	2	1	1	2	2	1
<b>CO5</b>	3	3	3	1	2	3	2	1	2	2	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	1	3
<b>CO2</b>	3	1	2
<b>CO3</b>	3	1	3
<b>CO4</b>	3	1	3
<b>CO5</b>	3	2	3

### UNIT – I

**Clinical Services Overview:** Organization of clinical departments in hospitals; Medical services: general medicine, surgery, and specialties; Pediatrics and neonatology services; Obstetrics and gynecology services; Emergency medicine and trauma care; Intensive care services: medical, surgical, cardiac ICU; Outpatient and inpatient care processes; Clinical pathways and protocols; Role of medical director and clinical governance.

### UNIT – II

**Diagnostic Support Services:** Clinical laboratory services: pathology, microbiology, biochemistry, hematology; Laboratory workflow and quality control; Pre-analytical, analytical, and post-analytical errors; NABL accreditation for laboratories; Radiology and imaging services: X-ray, CT, MRI, ultrasound; Nuclear medicine; Point-of-care testing

(POCT); Teleradiology and telepathology; Turnaround time management.

### **UNIT – III**

**Therapeutic and Rehabilitation Support Services:** Pharmacy services: drug formulary, procurement, storage, dispensing; Clinical pharmacy and pharmacovigilance; Blood bank services: collection, storage, cross-matching, transfusion; Physiotherapy and rehabilitation services; Occupational therapy; Dialysis services; Radiation oncology services; Operation theatre management; Anesthesia services; Day care and ambulatory surgery.

### **UNIT – IV**

**Nursing and Patient Care Services:** Nursing administration: organization, staffing, scheduling; Nursing standards and protocols; Patient assessment and care planning; Medication administration: rights of medication administration; Patient education and counseling; Infection control practices in nursing; Central Sterile Supply Department (CSSD): workflow, sterilization methods; Dietary and nutrition services; Medical social services; Palliative care.

### **UNIT – V**

**Quality and Safety in Clinical Support Services:** Quality indicators for clinical and support services; Clinical audit and peer review; Incident reporting and root cause analysis in clinical services; Patient safety goals in clinical departments; Standard operating procedures (SOPs) for support services; Biomedical equipment safety and maintenance; Outsourcing of support services: advantages and challenges; Lean management in clinical services; Key performance indicators (KPIs) for support services.

#### **Textbooks:**

1. Sakharkar, B.M. (2019), Principles of Hospital Administration and Planning, 3rd Edition, Published by Jaypee Brothers, ISBN: 978-93-5270-515-3
2. Tabish, S.A. (2019), Hospital and Health Services Administration: Principles and Practice, 2nd Edition, Published by Oxford University Press, ISBN: 978-0-19-949310-6

#### **Reference Books:**

1. Gupta, S.K. & Kant, Suraj (2018), Hospital Store Management: An Integrated Approach, 3rd Edition, Published by Jaypee Brothers, ISBN: 978-93-5270-216-9
2. Kunders, George D. et al. (2017), Hospitals: Planning, Design and Management, 1st Edition, Published by Tata McGraw Hill, ISBN: 978-0-07-048765-1

#### **Web Links:**

1. NABH: Clinical Support Services Standards: <https://www.nabh.co>
2. WHO: Patient Safety Resources: <https://www.who.int/teams/integrated-health-services/patient-safety>
3. NPTEL: Healthcare Services (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## MEDICAL RECORDS MANAGEMENT (MRD)

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS23</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain medical records systems
- CO2:** Manage patient documentation
- CO3:** Ensure data quality and security
- CO4:** Apply coding and classification systems
- CO5:** Comply with regulations and standards

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	1	2	1	2	2	2	2	1	1
<b>CO2</b>	3	2	1	2	1	2	1	2	2	1	1
<b>CO3</b>	3	2	2	1	1	3	1	3	2	1	1
<b>CO4</b>	3	3	2	1	1	1	2	2	2	1	1
<b>CO5</b>	3	2	2	1	1	3	1	2	2	1	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	1	3
<b>CO2</b>	3	1	3
<b>CO3</b>	3	1	2
<b>CO4</b>	3	2	2
<b>CO5</b>	3	1	2

### UNIT – I

**Medical Records Systems:** Medical records definition; Types of records; Paper-based systems; Electronic health records (EHR); Transition from paper to digital; Record organization; Classification systems; Document management; Retention policies; Archival systems.

### UNIT – II

**Clinical Documentation Standards:** Documentation requirements; Clinical note standards; Progress notes; Discharge summaries; Medical coding basics; ICD-10 classification; CPT coding; DRG understanding; Documentation quality; Completeness checks.

### UNIT – III

**Data Quality and Validation:** Data accuracy; Data integrity; Data validation procedures;

Error detection; Audit trails; Record completeness; Timely documentation; Consistency checks; Quality assurance; Performance metrics for MRD.

#### **UNIT – IV**

**Privacy, Security and Compliance:** Patient privacy protection; Data security measures; Access controls; Encryption; Backup and disaster recovery; Confidentiality agreements; HIPAA equivalent regulations; Data retention laws; Patient access to records; Regulatory compliance.

#### **UNIT – V**

**Digital Transformation and Innovation:** EHR implementation; PACS integration; Interoperability standards; Cloud storage for medical records; AI in medical coding; Analytics from health data; Patient portals; Telemedicine records; Future trends in healthcare documentation.

#### **Textbooks:**

1. "Ozbolt, Judith G. & Saba, Violet K." (2020), 2nd, Published by Springer, ISBN: 978-3-030-00550-9
2. "Abdelhak, Mervat et al." (2020), 8th, Published by Cengage, ISBN: 978-1-337-67607-3

#### **Reference Books:**

1. "Green, Michelle A. et al." (2020), 8th, Published by Cengage, ISBN: 978-1-337-67611-0
2. "Hoglund, Paul E. & Hanson, Cheryl L." (2019), 4th, Published by AHIMA, ISBN: 978-1-58426-537-6

#### **Web Links:**

1. AHIMA: Medical Records Standards
2. NIC: Clinical Documentation Guidelines
3. WHO: Electronic Health Records Standards

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## INTRODUCTION TO MEDICAL TOURISM

**Course Code: 2621MS24**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain medical tourism industry
- CO2:** Analyze patient pathways
- CO3:** Develop medical tourism services
- CO4:** Manage medical tourism operations
- CO5:** Apply marketing for medical tourism

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	1	2	1	1	2	2	3
<b>CO2</b>	3	3	3	2	1	1	2	1	2	2	3
<b>CO3</b>	3	2	2	2	2	2	1	2	2	2	3
<b>CO4</b>	3	2	2	2	1	3	1	2	2	2	3
<b>CO5</b>	3	2	3	2	2	2	2	2	3	2	3

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	3	2
<b>CO2</b>	2	3	1
<b>CO3</b>	2	3	2
<b>CO4</b>	2	3	2
<b>CO5</b>	3	3	2

**UNIT – I**

**Medical Tourism Fundamentals:** Medical tourism definition; Global trends; India's position; Types of tourism (wellness, treatment, surgery); Patient motivations; Economic impact; Growth drivers; Challenges; Regulatory framework; India's medical tourism potential; Ayushman Bharat impact.

**UNIT – II**

**Key Specialties and Procedures:** Orthopedic surgery; Cardiac surgery; Oncology treatments; Dental procedures; Eye surgery; Fertility treatments; Cosmetic surgery; Ayurveda and wellness; Success rates; Cost comparisons; Quality standards.

**UNIT – III**

**Patient Management and Services:** Patient assessment and selection; Visa and travel

arrangements; Accommodation facilities; Meal arrangements; Transportation; Language support; Cultural orientation; Family involvement; Post-operative care; Follow-up mechanisms; Aftercare support.

#### **UNIT – IV**

**Marketing and Promotion:** Target market identification; Digital marketing strategies; Medical tourism portals; Healthcare websites; Social media marketing; SEO optimization; International partnerships; Medical tour operators; Travel agencies; Referral networks.

#### **UNIT – V**

**Quality Assurance and Compliance:** Quality standards; Accreditation importance; NABH standards; Patient safety; Infection control; Documentation; Medical records management; Ethical issues; Insurance and payment; Regulatory compliance; Risk management; Patient satisfaction.

#### **Textbooks:**

1. "Crooks, Valorie A. et al." (2020), 1st, Published by Springer, ISBN: 978-3-030-42669-6
2. "Hall, Carly M. & Prayag, Girish" (2019), 1st, Published by Routledge, ISBN: 978-0-367-13735-6

#### **Reference Books:**

1. "Turner, Louis" (2019), 2nd, Published by Routledge, ISBN: 978-0-367-00147-5
2. "Ehrbeck, Tilman et al." (2020), 1st, Published by McKinsey, ISBN: N/A

#### **Web Links:**

1. India Medical Tourism Portal
2. ATHA: Medical Tourism Accreditation
3. NPTEL: Medical Tourism (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## HEALTH INSURANCE & TPA OPERATIONS

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS25</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Understand health insurance systems
- CO2:** Manage insurance operations
- CO3:** Handle TPA functions
- CO4:** Process claims effectively
- CO5:** Apply regulations in insurance

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	1	2	1	2	2	3	2
<b>CO2</b>	3	3	3	2	1	2	1	2	2	2	2
<b>CO3</b>	3	2	3	2	2	2	1	2	2	3	2
<b>CO4</b>	3	2	2	2	1	2	2	2	2	2	3
<b>CO5</b>	3	3	3	1	1	2	1	2	2	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	3	2
<b>CO2</b>	2	3	2
<b>CO3</b>	3	3	2
<b>CO4</b>	2	3	2
<b>CO5</b>	2	3	2

### UNIT – I

**Health Insurance Fundamentals:** Insurance principles; Types of health insurance (Indemnity, HMO, PPO, IPA); Insurance terminology; Risk pooling; Premium calculation; Underwriting; Medical underwriting; Pre-existing conditions; Coverage and exclusions; Self-insurance; Reinsurance.

### UNIT – II

**Insurance Products and Schemes:** Indemnity insurance; Mediciam policies; Critical illness insurance; Group health insurance; Government schemes (RSBY, PMJAY); Ayushman Bharat coverage; State insurance schemes; Personal accident insurance; Disability insurance; Long-term care insurance.

### UNIT – III

**Third-Party Administrator (TPA) Operations:** TPA definition and role; Network

development; Empanelment process; Rate negotiation; Claims processing; Authorization; Pre-authorization; Cashless facility; Reimbursement; Grievance handling; Customer service; Regulatory compliance

#### **UNIT – IV**

**Claims Management:** Claims submission process; Documentation requirements; Claim validation; Medical review; Adjudication; Approval and denial; Reimbursement process; Payment cycles; Fraud detection; Subrogation; Appeals process; Dispute resolution.

#### **UNIT – V**

**Regulations and Compliance:** IRDAI regulations; Insurance Act; Regulatory requirements; Disclosure norms; Complaint procedures; Consumer protection; Grievance redressal; Data security; HIPAA compliance; Actuarial standards; Solvency requirements.

#### **Textbooks:**

1. "Satpathy, Chandan et al." (2020), 1st, Published by Springer, ISBN: 978-981-15-1456-4
2. "Bhattacharyya, Ashish & Mukerji, Sourav" (2020), 1st, Published by Excel Books, ISBN: 978-93-87034-64-9

#### **Reference Books:**

1. "Kumar, A." (2019), 2nd, Published by Wolters Kluwer, ISBN: 978-93-88958-65-5
2. "Dey, Narendra K." (2020), 1st, Published by S. Chand, ISBN: 978-81-219-2847-9

#### **Web Links:**

1. IRDAI: Insurance Regulations
2. NITI Aayog: Ayushman Bharat
3. WHO: Health Financing

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## HEALTHCARE LAWS & BIO-ETHICS

**Course Code: 2621MS26**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

**CO1:** Master healthcare legal frameworks

**CO2:** Apply bioethical principles

**CO3:** Navigate ethical dilemmas

**CO4:** Ensure compliance

**CO5:** Protect patient rights

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	1	3	1	1	2	3	1
<b>CO2</b>	3	3	3	2	1	3	2	1	2	2	1
<b>CO3</b>	3	2	3	2	1	3	1	1	2	2	1
<b>CO4</b>	3	2	2	2	1	3	1	1	2	3	1
<b>CO5</b>	3	2	3	2	1	3	2	1	3	3	1

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	3
<b>CO2</b>	3	2	2
<b>CO3</b>	3	2	3
<b>CO4</b>	3	2	3
<b>CO5</b>	3	2	3

**UNIT – I**

**Healthcare Legal Framework:** Legal system overview; Constitutional provisions; Medical Negligence Law; Tort Law; Contract Law; Administrative Law; Criminal liability; Civil liability; Compensation mechanisms; Legal recourse; Consumer Protection Act.

**UNIT – II**

**Regulatory Bodies and Compliance:** NMC regulations; State Medical Councils; IRDAI; CDSCO; Regulatory standards; Licensing; Disciplinary procedures; Complaint handling; Professional conduct; Ethical standards; Compliance documentation.

**UNIT – III**

**Bioethics Principles:** Autonomy and informed consent; Beneficence; Non-maleficence; Justice and equity; Veracity and transparency; Confidentiality; Conflict of interest; Professional boundaries; Ethical frameworks; Decision-making models.

#### **UNIT – IV**

**Clinical Ethics Dilemmas:** End-of-life care; Euthanasia and assisted suicide; Abortion ethics; Genetic testing and counseling; Organ transplantation; Research involving human subjects; Informed consent issues; Vulnerable populations; Pediatric ethics; Geriatric ethics.

#### **UNIT – V**

**Healthcare Policy and Social Ethics:** Healthcare resource allocation; Distributive justice; Vulnerable populations; Public health ethics; Environmental ethics; Sustainability; Social responsibility; Health equity; Community engagement; Global health ethics; Emerging issues.

#### **Textbooks:**

1. "Beauchamp, Tom L. & Childress, James F." (2019), 8th, Published by Oxford, ISBN: 978-0-19-075304-5
2. "Gillon, Raanan" (2020), 2nd, Published by BMJ Publishing, ISBN: 978-1-4471-2860-1

#### **Reference Books:**

1. "Jonsen, Albert R. et al." (2020), 9th, Published by Oxford, ISBN: 978-0-19-076462-2
2. "Appelbaum, Paul S." (2020), 1st, Published by Johns Hopkins, ISBN: 978-1-4214-3864-9

#### **Web Links:**

1. WHO: Bioethics Resources
2. ICMR: Bioethics Guidelines
3. UNESCO: Bioethics

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

**MULTI – DISCIPLINARY COURSES  
BUSINESS STATISTICS**

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS27</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain the fundamental concepts of statistics and their application in business and healthcare
- CO2:** Analyze measures of central tendency, dispersion, and correlation to analyze data
- CO3:** Apply probability theory and distributions for business decision-making
- CO4:** Perform hypothesis testing and draw inferences from sample data
- CO5:** Apply regression analysis and time series methods for forecasting in healthcare

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	3	3	1	1	1	3	2	2	1	1
<b>CO2</b>	2	3	3	1	1	1	3	2	2	1	1
<b>CO3</b>	2	3	3	1	1	1	3	2	2	1	1
<b>CO4</b>	2	3	3	1	1	1	3	2	2	1	1
<b>CO5</b>	2	3	3	1	1	1	3	2	2	1	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	1
<b>CO2</b>	2	2	1
<b>CO3</b>	2	2	1
<b>CO4</b>	2	2	2
<b>CO5</b>	2	2	1

**UNIT – I**

**Introduction to Statistics and Data Presentation:** Statistics: definition, scope, importance in business and healthcare; Types of data: primary and secondary; Data collection methods: survey, observation, interview; Classification and tabulation of data; Frequency distribution: discrete and continuous; Diagrammatic representation: bar charts, pie charts, histograms, ogives; Graphical presentation; Data visualization concepts.

**UNIT – II**

**Measures of Central Tendency and Dispersion:** Measures of central tendency: mean (arithmetic, geometric, harmonic), median, mode; Measures of dispersion: range, quartile deviation, mean deviation, standard deviation, variance; Coefficient of variation; Skewness and kurtosis; Box plots and outlier detection; Application of descriptive statistics in healthcare data analysis.

### **UNIT – III**

**Correlation and Regression Analysis:** Correlation: meaning, types (positive, negative, zero); Karl Pearson's coefficient of correlation; Spearman's rank correlation; Simple linear regression: equation, estimation, interpretation; Standard error of estimate; Coefficient of determination; Multiple regression basics; Application of regression in healthcare: predicting patient volumes, cost estimation.

### **UNIT – IV**

**Probability and Probability Distributions:** Probability: concepts, addition and multiplication theorems; Conditional probability; Bayes' theorem; Random variables: discrete and continuous; Probability distributions: Binomial, Poisson, Normal distribution; Properties and applications; Sampling: concepts, sampling methods; Sampling distributions; Central Limit Theorem; Application in healthcare quality monitoring.

### **UNIT – V**

**Hypothesis Testing and Time Series:** Hypothesis testing: null and alternative hypotheses; Type I and Type II errors; Z-test and t-test (single sample, two samples); Chi-square test: goodness of fit and independence; ANOVA: one-way; Time series analysis: components (trend, seasonal, cyclical, irregular); Methods of measuring trend: moving average, least squares; Index numbers: construction and uses; Application to healthcare metrics and epidemiological data.

#### **Textbooks:**

1. Gupta, S.P. (2020), Statistical Methods, 46th Edition, Published by Sultan Chand & Sons, ISBN: 978-93-515- 1024-4
2. Levin, Richard I. & Rubin, David S. (2017), Statistics for Management, 7th Edition, Published by Pearson, ISBN: 978-93-325-5184-8

#### **Reference Books:**

1. Vogt, W. Paul & Johnson, R. Burke (2019), Dictionary of Statistics and Methodology, 5th Edition, Published by Sage, ISBN: 978-1-506-32626-1
2. Sancheti, D.C. & Kapoor, V.K. (2019), Statistics: Theory, Methods and Application, 8th Edition, Published by Sultan Chand, ISBN: 978-93-515-1033-6

#### **Web Links:**

1. NPTEL: Business Statistics (IIT Kharagpur, YouTube)
2. Khan Academy:  
Statistics and Probability (<https://www.khanacademy.org/math/statistics-probability>)
3. SWAYAM: Probability and Statistics (UGC MOOCs)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## DISASTER MANAGEMENT

**Course Code: 2621MS28**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain disaster management concepts
- CO2:** Plan disaster preparedness
- CO3:** Manage disaster response
- CO4:** Execute disaster recovery
- CO5:** Build community resilience

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	2	2	2	3	2	1	1	2	3	1
<b>CO2</b>	2	3	3	2	3	1	1	1	2	3	1
<b>CO3</b>	2	2	3	2	3	2	1	2	2	3	1
<b>CO4</b>	2	2	2	2	3	2	1	2	2	3	1
<b>CO5</b>	2	2	3	2	3	2	2	2	3	3	1

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	1	2
<b>CO2</b>	3	1	2
<b>CO3</b>	3	1	2
<b>CO4</b>	3	1	2
<b>CO5</b>	3	2	3

**UNIT – I**

**Disaster Management Fundamentals:** Disaster definition; Types of disasters (Natural, Man-made); Hazards and risks; Vulnerability; Disaster cycle (Prevention, Mitigation, Preparedness, Response, Recovery); Disaster management framework; National policy; State/Local plans; International guidelines.

**UNIT – II**

**Hospital Disaster Preparedness:** Disaster management plan; Hospital vulnerability assessment; Communication systems; Resource stockpile; Staff training; Evacuation procedures; Mass casualty management; Triage protocols; Hospital disaster committee; Drills and exercises.

**UNIT – III**

**Response and Immediate Management:** Disaster assessment; Incident command system; Triage and sorting; First aid; Medical care; Psychological support; Coordination with

agencies; Communication protocols; Logistics management; Documentation; Media management.

#### **UNIT – IV**

**Healthcare Specific Emergencies:** Outbreaks and epidemics; Chemical and radiological incidents; Bioterrorism; Pandemic preparedness; COVID- 19 lessons; Capacity building; Supply chain resilience; Staff deployment; Surge capacity.

#### **UNIT – V**

**Recovery and Rehabilitation:** Recovery planning; Reconstruction; Rehabilitation programs; Psychological support; Community engagement; Lessons learned; Policy improvements; Sustainability; Linkages with development; Long-term health impacts.

#### **Textbooks:**

1. "Alexander, David" (2020), 3rd, Published by Routledge, ISBN: 978-0-367-18023-4
2. "Paton, Douglas & Johnston, David" (2019), 1st, Published by Routledge, ISBN: 978-0-367-34149-1

#### **Reference Books:**

1. "NDMA" (2020), Latest, Published by Government of India, ISBN: N/A
2. "Sphere Handbook" (2020), Latest, Published by Sphere Association, ISBN: N/A

#### **Web Links:**

1. NDMA: Disaster Management Resources
2. WHO: Emergency Preparedness
3. Indian Red Cross: Disaster Response

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## RESEARCH METHODOLOGY

**Course Code: 2621MS29**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

**CO1:** Explain research design and methods

**CO2:** Conduct literature review

**CO3:** Develop research proposals

**CO4:** Collect and analyze data

**CO5:** Prepare research reports

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	3	3	2	1	2	3	2	3	1	1
<b>CO2</b>	2	3	3	1	1	2	3	2	2	1	1
<b>CO3</b>	2	3	3	1	1	2	3	2	2	1	1
<b>CO4</b>	2	3	3	2	1	2	3	2	2	1	1
<b>CO5</b>	2	3	3	2	1	2	3	2	3	2	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	2
<b>CO2</b>	2	2	2
<b>CO3</b>	2	2	2
<b>CO4</b>	2	2	2
<b>CO5</b>	2	2	2

### UNIT – I

**Research Fundamentals:** Research definition; Research types (Basic, Applied); Paradigms (Positivist, Interpretivist); Exploratory, Descriptive, Explanatory research; Research questions; Research objectives; Problem formulation; Hypothesis development; Research ethics.

### UNIT – II

**Research Design:** Research design types; Experimental design; Quasi-experimental; Non-experimental; Cross-sectional; Longitudinal; Case studies; Ethnography; Grounded theory; Mixed methods; Validity and reliability; Sample size.

### UNIT – III

**Data Collection Methods:** Primary data collection; Questionnaires; Interviews; Focus groups; Observations; Secondary data; Literature review; Documentary analysis; Sampling methods; Probability and non-probability sampling; Data quality.

#### **UNIT – IV**

**Data Analysis:** Qualitative analysis; Thematic analysis; Content analysis; Quantitative analysis; Descriptive statistics; Inferential statistics; Hypothesis testing; Correlation; Regression; SPSS usage; Data interpretation.

#### **UNIT – V**

**Research Reporting and Dissemination:** Research proposal writing; Thesis and dissertation structure; Literature review writing; Methodology section; Results presentation; Discussion and conclusions; Research publications; Ethical approvals; IRB process; Research ethics; Plagiarism prevention.

#### **Textbooks:**

1. "Creswell, John W." (2021), 5th, Published by Sage, ISBN: 978-1-5443-9656-7
2. "Kumar, Ranjit" (2020), 6th, Published by Sage, ISBN: 978-81-954301-0-4

#### **Reference Books:**

1. "Bryman, Alan & Bell, Emma" (2019), 5th, Published by Oxford, ISBN: 978-0-19-882754-4
2. "Neuman, W. Lawrence" (2020), 10th, Published by Pearson, ISBN: 978-0-13-555556-0

#### **Web Links:**

1. Sage Research Methods
2. Coursera: Research Methods
3. NPTEL: Research Methodology (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

**ABILITY ENHANCEMENT COURSES  
BUSINESS COMMUNICATION**

**Course Code: 2621MS30**

**L    T    P    C**  
**2    0    1    3**

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain the fundamentals of organizational communication, including models, types, channels, barriers, and the 7Cs.
- CO2:** Demonstrate effective written communication through various business messages, emails, and formal letters.
- CO3:** Apply nonverbal communication skills by interpreting body language and vocal cues to enhance message effectiveness.
- CO4:** Apply interpersonal and presentation skills for effective communication in teams, virtual settings, and the gig economy.
- CO5:** Analyze effective digital communication skills and media literacy for professional and organizational contexts.

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	2	1	1	1	3	2	2
<b>CO2</b>	3	2	2	2	2	1	1	1	3	2	2
<b>CO3</b>	3	3	2	2	2	2	2	2	3	2	2
<b>CO4</b>	3	3	3	2	2	2	2	2	3	3	2
<b>CO5</b>	3	3	3	2	2	3	2	3	3	3	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	2
<b>CO3</b>	3	3	2
<b>CO4</b>	3	3	2
<b>CO5</b>	3	3	2

**UNIT – I**

**Introduction to Communication in Organizations:** Introduction to Business Environment and Communication, Models of communication, Basics of Communication (types, channels and barriers), 7Cs of communication.

**UNIT – II**

**Written Communication:** Planning and executing different types of messages, emails, formal letters (Planning & Layout of Business Letter) and informal messages on e-platforms, negative messages: indirect & direct negative messages.

### UNIT – III

**Nonverbal Communication:** Body Language: Understanding the significance of posture, gestures, and facial expressions, Tone of Voice: Recognizing the impact of vocal delivery on communication effectiveness.

### UNIT – IV

**Interpersonal Communication:** Team communication, managing communication during online meeting, communication with virtual team, communication in gig economy; Presentation skills (Verbal and non- verbal); PowerPoint presentation skills.

### UNIT – V

**Digital Communication:** Social media and individual, social media & organizations, Media Literacy; Strong Digital communication skills – email, instant messaging, video conferencing, e-meetings, digital etiquettes & responsibilities.

#### **Textbooks:**

1. AICTE's Prescribed – Communication Skills in English, Khanna Book Publishing. 2. Lesikar,
2. R.V. & M.E. Flatley, Business Communication: Connecting in a Digital World, McGraw-Hill Education.

#### **Reference Books:**

1. Rao, M. T. (2023) Minor Hints: Lectures Delivered to H.H. the Maharaja Gaekwar, Sayaji Rao III. Gyan Publishing
2. Getting Ready for the Real World: HBR, 2020: The Science of Strong Business Writing.

#### **Web Links:**

1. [https://onlinecourses.swayam2.ac.in/imb22\\_mg02/preview](https://onlinecourses.swayam2.ac.in/imb22_mg02/preview)
2. [https://ugcmoocs.inflibnet.ac.in/index.php/courses/view\\_pg/389](https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_pg/389)

## FUNDAMENTAL COGNITIVE SKILLS FOR MANAGERS

Course Code: 2605MS48

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

### Course Outcomes:

**At the end of the course, student will be able to:**

- CO1:** Recognize the different aspects of the English language proficiency with emphasis on LSRW skills.
- CO2:** Apply communication skills through various language learning activities
- CO3:** Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.
- CO4:** Enable them to learn and apply fundamentals of English grammar concepts for improved language
- CO5** Make use of various types of vocabulary in different academic and professional careers

### Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	2	1	-	2	-	-	1	3	3	1
<b>CO2</b>	2	2	1	-	2	-	-	1	3	3	1
<b>CO3</b>	1	1	2	-	2	-	-	1	3	2	2
<b>CO4</b>	2	1	2	-	2	-	-	1	2	2	1
<b>CO5</b>	2	1	2	-	2	-	-	1	3	2	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	1	1	1
<b>CO2</b>	1	1	1
<b>CO3</b>	1	1	1
<b>CO4</b>	1	1	1
<b>CO5</b>	1	1	1

### UNIT – I

#### Outstanding people A/B/C/D

<b>Listening</b>	Conversation about Jocelyn Bell- Burnell, Podcast: The 30-day challenge, Starting a new job, Conversation about technology
<b>Speaking</b>	Discussing inspiring people, Asking and answering questions about challenges, explaining a process; Checking understanding, Discussing technology.
<b>Reading</b>	Articles: <i>Protector of the sea and the woman who reinvented children's TV</i> , <i>Interviews: 30-day challenge</i> , <i>Article: Tech free!</i>
<b>Writing Grammar Vocabulary</b>	Article Organizing an article Review of Tenses, Questions

Character adjectives, trying and succeeding  
The **Pronunciation**, The letter e; Word stress, Rapid speech.

## UNIT – II

### Survival A/B/C/D

<b>Listening</b>	Conversation about a survival situation, Interview: The Tiger, Cooking for a friend, Talking about getting lost
<b>Speaking</b>	Telling a survival story, Giving advice; Asking questions, Giving compliments and responding, Discussing the natural environment
<b>Reading</b>	Article: Lost at sea, Leaflet: <i>How to survive...an animal attack</i> , Leaflet: <i>Be wise and survive</i>
<b>Writing</b>	Guidelines, organizing guidelines in a leaflet
<b>Grammar</b>	Narrative tenses, Future time clauses and conditionals
<b>Vocabulary</b>	Expressions with <i>get</i> , Animals and the environment
<b>Pronunciation</b>	Sound and Spelling: g, Intonation in question tags

## UNIT – III

### Talent A/B/C/D

<b>Listening</b>	Conversation: learning experiences, Radio Programme: The sports gene, Making wedding plans, Interviews about sport
<b>Speaking</b>	Talking about something you have put a lot of effort into, Discussing sport and ways to improve performance, planning a party, Talking about popular sports
<b>Reading</b>	Text about learning; <i>Learning to learn</i> , Article: <i>Born to be the best</i> ; Three articles about athletes, Article: <i>Fitness: Seattle snapshot</i>
<b>Writing</b>	Article describing data
<b>Grammar</b>	Multi-word verbs, Present perfect and present perfect continuous
<b>Vocabulary</b>	Ability and achievement, word connected with sport
<b>Pronunciation</b>	Word stress, sound and spelling consonant sounds

**UNIT – IV**
**Life Lessons A/B/C/D**

<b>Listening</b>	Interview: Psychology of money; Two monologues: Life-changing events, Two monologues; training for a job, Presenting photos, Three monologues; living in different places
<b>Speaking</b>	Talking about how your life has changes, Discuss experiences of training and rules, Describing photos: Expressing careful disagreement, Discussing living in a different country
<b>Reading</b>	Two texts about life-changing events that helped people become rich, Article: <i>Training for the emergency frontline</i> , Advert for being an international student ‘buddy’
<b>Writing</b>	Job application, Giving a positive impression
<b>Grammar</b>	<i>Used to</i> and <i>would</i>
<b>Vocabulary</b>	Cause and result, Talking about difficulty
<b>Pronunciation</b>	Sound and spelling: <i>u</i>

**UNIT – V**
**Chance A/B/C/D**

<b>Listening</b>	Monologue: What are your chances?, Conversation: Talking about work, Money problems, News reports: environmental problems
<b>Speaking</b> interview,	Discussing possible future events, Role Play: job
<b>Reading</b>	Explaining and responding to an idea for a café, Giving opinions on environmental problems Quiz: <i>Are you an optimist or a pessimist?</i> ; Article: <i>Why we think we’re going to have a long and happy life</i> , Quiz: <i>The unknown continent</i> ; Article: <i>Cooking in Antarctica</i> , Essay about protecting the environment
<b>Writing</b> for and against an idea	For and against essay, Arguing
<b>Grammar</b> perfect and future continuous	Future probability, Future
<b>Vocabulary</b> The natural world	Adjectives describing attitude,
<b>Pronunciation</b> Intonation groups	Sound and spelling : <i>th</i> ,

**Textbook:**

1. Cambridge Empower–SecondEditionB2Level-Adrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis–Jones.ISBN-10.9781107468726; ISBN- 13.978- 1107468726

**Suggested Software:**

1. Cambridge Empower
2. SoftX(K-Van Solutions)

**Reference Books:**

1. MAshrafRizvi:EffectiveTechnicalCommunication.ISBN10-9352605780
2. Raymond Murphy: English Grammar in Use, Cambridge University, Press. Fifth Edition, ISBN-978-1-108-45765-1

**Weblinks:**

1. <https://www.cambridgeone.org/login>
2. <https://www.britishcouncil.in/english/online>
3. [www.englishmedialab.com](http://www.englishmedialab.com)

## ADVANCED COGNITIVE SKILLS FOR MANAGERS

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2605MS49</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

### Course Outcomes:

**At the end of the course, student will be able to:**

- CO1:** Recognize the basics of communication and summarize formal and informal expressions in all aspects.
- CO2:** Establish and maintain interpersonal relationships and transmit the message different language activities.
- CO3:** Use language effectively to prepare and demonstrate proficiency in facing various interviews.
- CO4:** Demonstrate and exhibit professionalism in participating in various public activities like debates, group discussions and presentation skills.
- CO5** Identify the basic elements of writing and apply the fundamentals to composing catering to different professional needs.

### Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	3	3	2	2	3	3	3	3
<b>CO2</b>	3	3	3	3	3	3	3	3	3	3	3
<b>CO3</b>	2	2	2	3	3	2	3	3	3	3	2
<b>CO4</b>	2	3	3	3	3	2	3	3	3	3	2
<b>CO5</b>	2	3	3	3	3	3	3	2	3	3	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	3
<b>CO2</b>	2	3	3
<b>CO3</b>	2	2	3
<b>CO4</b>	2	2	3
<b>CO5</b>	2	2	3

### UNIT – I

#### Around the globe A/B/C/D

<b>Listening</b>	Two monologues about sightseeing tours, Interview: disappearing languages, Asking for a favour, conversation: a trip to the Grand Canyon
<b>Speaking</b>	Comparing different tourist destinations, Agreeing and disagreeing, Asking for a favour, Discussing local tourist destinations.
<b>Reading</b>	Website about four tourist destinations; Website: Where to go?
<b>Writing</b>	Travel blog, Using descriptive language
<b>Grammar</b>	Infinitives and –ing forms
<b>Vocabulary</b>	Travel and tourism, Describing changes

**Pronunciation** Consonant clusters, Consonant sounds

## UNIT –II

### City living A/B/C/D

**Listening** Interview: ‘Smart’ cities: Two monologues talking about ‘smart’ cities, Two monologues: house renovations, Flat hunting, Interviews about a new shopping centre

**Speaking** Discussing good and bad points about a city

**Reading** Article: *Quick-slow down!*, Article: *Who puts the ‘real’ in reality*

TV? Email: Complaining about an important issue.

**Writing** Email of complaint,  
Using formal language **Grammar**  
*Too/enough; so/such,*  
Causative *have/get* **Vocabulary** Describing  
life in cities, Film and TV; Houses

**Pronunciation** Sound and spelling: o,  
Stress in compound nouns

## UNIT – III

### Dilemmas A/B/C/D

**Listening** Radio programme: person finance, Three monologues about honesty, Going to the bank, Conversation about a TV programme

**Speaking** Giving opinions on financial matters, Discussing moral dilemmas, Talking about hopes and worries Discussing programmes about crime

**Reading** Article: *Is it time to give up on cash?*,  
Newspaper article: *The honesty experiment*,  
Review: *Crime with a smile*

**Writing** Review, Organising a review

**Grammar** First and second conditionals, Third conditional; *should have+past participle*

**Vocabulary** Money and finance, Crime

**Pronunciation** Stressed and unstressed words; Sound and spelling: *l*,  
Word groups

## UNIT –IV

### Discoveries A/B/C/D

**Listening** Conversation about inventions, Conversation about an email hoax, Finding the perfect flat, Four monologues about alternative medicine

**Speaking** Talking about inventions, describing a hoax or a scam or a case of fraud, Giving and receiving surprises

<b>Reading</b>	Article: <i>Too good to be true?</i> , Article: <i>The rise and fall of Barry Minkow</i> , Essay: <i>The Value of alternative medicine</i>
<b>Writing</b>	Opinion essay,
Presenting a series of arguments	<b>Grammar</b>
	Relative clauses,
Reported speech; Reporting verbs	<b>Vocabulary</b>
	Health, Verbs
describing thought and knowledge	<b>Pronunciation</b>
	Sound and spelling : <i>ui</i> ,
Linking and intrusion	

## UNIT – V

### Possibilities A/B/C/D

<b>Listening</b>	Interview about Dan Cooper, Two monologues: pursuing a dream, Celebrating good news, conversation about goals
<b>Speaking</b>	Telling stories about coincidences, Describing and comparing brave or amazing people, Telling an important piece of news, Talking about performing
<b>Reading</b>	Story: The man who disappeared; Blog: <i>The Wreck of the Titan</i> , Article: <i>Dream to help</i> , Story: Rosa's diary: <i>The ultimate goal</i>
<b>Writing</b>	Story, Making a story interesting
<b>Grammar</b>	Past modals of deduction, Wishes and regrets
	<b>Vocabulary</b>
	Adjectives with prefixes, Verbs of effort
	<b>Pronunciation</b>
	Word stress,
Linking, Consonant clusters	

### Text Book:

1. Adrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis – Jones, Cambridge Empower–Second Edition, B2Level- ISBN-9789357260022.

### Suggested Softwares:

1. Cambridge Empower
2. SoftX(K-Van Solutions)

### Reference Books:

Bernard Widrow & Edward P. Katz, Cognitive Memory (2025 ), Springer,ISBN-13: 978-3031809392

### Weblinks:

1. <https://www.cambridgeone.org/login>
2. <https://www.coursera.org/>
3. <https://www.skillshare.com/>
4. <https://www.mindtools.com/cawh8bu/communication-tools>

## EMPLOYABILITY SKILLS- V

L	T	P	C
0	0	1	1

Course Code: 2605MS50

### Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Apply principles of permutations, combinations, probability, and logarithms to solve quantitative aptitude problems.
- CO2:** Interpret and analyze data from charts, graphs, and statistical tables for decision-making and accuracy.
- CO3:** Evaluate logical reasoning statements involving arguments, assumptions, conclusions, and data sufficiency.
- CO4:** Solve puzzle and eligibility test problems using analytical and critical thinking skills.
- CO5:** Demonstrate effective interpersonal, communication, and time management skills for successful personal and professional interactions.

### Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	–	–	–	–	–	–	–	–	2
<b>CO2</b>	2	3	2	–	–	–	–	–	2	–	2
<b>CO3</b>	–	3	3	–	2	–	–	–	–	–	2
<b>CO4</b>	–	2	3	–	–	–	–	–	–	–	2
<b>CO5</b>	–	–	–	3	2	3	2	3	2	3	3

### Mapping of Course Outcomes with Program Specific Outcomes:

CO \ PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	–
<b>CO2</b>	2	3	–
<b>CO3</b>	–	2	3
<b>CO4</b>	–	2	2
<b>CO5</b>	–	–	3

### Aptitude:

Permutations and Combinations, Probability, Data Interpretation, Logarithms, Statistics

### Reasoning:

Puzzle Tests, Eligibility Test, Data Sufficiency, Statements – Arguments, Statements – Assumptions, Statements - Course of Action, Statements - Conclusions

### Verbal:

Interview skills, Grammar in use, Interpersonal Skills, Negotiation Skills, Social Skills, Problem-Solving Skills, Time Management Skills

### TextBooks:

1. Dr.R.S.Aggarwal, Quantitative Aptitude, SCHAND.
2. Dr.R.S.Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning

3. Dr.R.S.Aggarwal , QuickLearningObjectiveGeneralEnglish, SCHAND.

**Reference Books:**

1. AbhijitGuha, Quantitative Aptitude, McGraw-Hill Publications.
2. Jaikishan and Premkishan, Analytical Reasoning, Arihant Publications.
3. R.S.Dhillon, A New Approach to Objective English–DGP Publications.

**Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

**SKILL ENHANCEMENT COURSES**  
**SOFT SKILLS & PERSONALITY DEVELOPMENT**

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS31</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Develop self-awareness, emotional intelligence, and a positive attitude for personal growth
- CO2:** Enhance interpersonal skills including teamwork, conflict resolution, and networking
- CO3:** Build effective presentation, group discussion, and interview skills
- CO4:** Apply time management, stress management, and goal-setting techniques
- CO5:** Cultivate professional etiquette, grooming, and workplace readiness

**Mapping of Course Outcomes with Program Outcomes:**

<b>CO / PO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	1	1	1	2	2	2	1	1	3	1	2
<b>CO2</b>	1	1	1	3	3	1	1	1	2	2	1
<b>CO3</b>	1	1	1	3	3	1	1	2	2	1	1
<b>CO4</b>	1	1	2	3	2	2	1	2	3	1	2
<b>CO5</b>	1	1	2	2	3	1	1	1	3	1	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

<b>CO / PSO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO1</b>	1	2	1
<b>CO2</b>	1	2	2
<b>CO3</b>	1	2	1
<b>CO4</b>	2	2	1
<b>CO5</b>	1	2	1

**UNIT – I**

**Self-Awareness and Personality Development:** Self-awareness: understanding strengths and weaknesses; SWOT analysis of self; Personality: meaning, determinants, types; Johari Window model; Self-esteem and self-confidence building; Positive attitude and mindset; Goal setting: SMART goals; Personal values and ethics; Emotional intelligence: components and development; Self-motivation techniques.

**UNIT – II**

**Communication and Interpersonal Skills:** Effective communication: verbal, non-verbal, and written; Active listening and empathetic communication; Assertive communication; Body language and kinesics; Interpersonal skills: rapport building, trust, empathy; Teamwork and collaboration; Conflict resolution strategies; Feedback: giving and receiving; Cross-cultural communication; Networking skills.

**UNIT – III**

**Presentation and Group Discussion Skills:** Public speaking: overcoming fear, voice modulation, articulation; Presentation planning and structure; Visual aids and slide design; Group discussions: types, roles, evaluation criteria; Strategies for effective GD participation; Debate and extempore speaking; Storytelling in professional settings; Use of humor and anecdotes; Mock GD practice and feedback.

#### **UNIT – IV**

**Interview Skills and Workplace Readiness:** Resume and CV writing: formats and tips; Cover letter writing; Job search strategies: portals, networking, referrals; Interview types: HR, technical, panel, stress, behavioral; Interview preparation and common questions; STAR method for behavioral interviews; Mock interview practice; Professional attire and grooming; Dining etiquette; Workplace ethics and professional conduct.

#### **UNIT – V**

**Time Management, Stress Management, and Leadership:** Time management: importance, techniques (Eisenhower matrix, Pomodoro); Prioritization and productivity; Procrastination: causes and remedies; Stress management: identifying stressors, coping strategies; Work-life balance; Mindfulness and meditation basics; Leadership skills for young professionals; Decision-making and problem-solving; Adaptability and resilience; Continuous learning and personal branding.

#### **Textbooks:**

1. Barun K. Mitra (2018), Personality Development and Soft Skills, 2nd Edition, Published by Oxford University Press, ISBN: 978-0-19-948408-1
2. Alex, K. (2019), Soft Skills: Know Yourself and Know the World, 2nd Edition, Published by S. Chand, ISBN: 978-81-219-4539-3

#### **Reference Books:**

1. Goleman, Daniel (2006), Emotional Intelligence: Why It Can Matter More Than IQ, 10th Anniversary Edition, Published by Bantam Books, ISBN: 978-0-553-38371-3
2. Carnegie, Dale (2009), How to Win Friends and Influence People, Revised Edition, Published by Simon and Schuster, ISBN: 978-0-671-02703-2

#### **Web Links:**

1. NPTEL: Soft Skills Development (YouTube)
2. SWAYAM: Enhancing Soft Skills and Personality (UGC MOOCs)
3. Coursera: Improving Communication Skills by University of Pennsylvania

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## INTRODUCTION TO ARTIFICIAL INTELLIGENCE IN HEALTH

**Course Code: 2621MS32**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain AI fundamentals
- CO2:** Recognize healthcare AI applications
- CO3:** Analyze AI benefits and limitations
- CO4:** Apply AI in healthcare decisions
- CO5:** Address AI ethics and governance

**Mapping of Course Outcomes with Program Outcomes:**

<b>CO / PO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	3	2	2	1	1	1	3	3	3	1	2
<b>CO2</b>	3	3	3	1	1	1	3	3	2	1	2
<b>CO3</b>	3	2	2	1	1	2	3	3	2	2	2
<b>CO4</b>	3	2	3	1	1	3	2	3	2	1	2
<b>CO5</b>	3	3	3	1	1	2	3	3	3	2	3

**Mapping of Course Outcomes with Program Specific Outcomes:**

<b>CO / PSO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	2
<b>CO3</b>	3	2	3
<b>CO4</b>	3	2	3
<b>CO5</b>	3	3	2

**UNIT – I**

**Artificial Intelligence Basics:** AI definition; Machine learning; Deep learning; Neural networks; Supervised vs unsupervised learning; Natural language processing; Computer vision; Algorithms; Model development; Training and testing; AI lifecycle.

**UNIT – II**

**Healthcare AI Applications:** Diagnostic AI (Radiology, Pathology); Clinical decision support; Predictive models; Risk stratification; Drug discovery; Personalized medicine; Administrative automation; Revenue cycle; Resource optimization; Patient monitoring.

**UNIT – III**

**Current AI Success Stories:** Image recognition in radiology; Cancer detection; Disease prediction; Clinical workflows; Administrative tasks; Patient engagement; Health monitoring; Outcomes improvement; Cost reduction; Real-world implementations.

**UNIT – IV**

**Challenges and Limitations:** Data quality and availability; Model interpretability;

Validation and testing; Regulatory approval; Clinical evidence; Integration barriers; Cost considerations; Equity concerns; Transparency issues; Bias in algorithms.

#### **UNIT – V**

**Ethics, Governance and Future:** AI ethics in healthcare; Accountability; Transparency; Fairness; Privacy protection; Regulatory frameworks; Clinical governance; Human oversight; Patient consent; Future directions; Emerging technologies; Responsible AI development.

#### **Textbooks:**

1. "Rajkomar, Alvin et al." (2020), 1st, Published by Springer, ISBN: 978-3-030-64573-1
2. "Goebel, Randy et al." (2020), 1st, Published by Springer, ISBN: 978-3-030-61613-4

#### **Reference Books:**

1. "Hamet, Pavel & Tremblay, Jules" (2020), 1st, Published by Springer, ISBN: 978-3-030-40406-2
2. "Ngiam, Kee Yuan & Khor, In Wei" (2020), 1st, Published by Springer, ISBN: 978-3-030-59037-9

#### **Web Links:**

1. IEEE: AI in Healthcare
2. WHO: AI for Health Resources
3. Coursera: AI for Healthcare (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## HOSPITAL PLANNING & DESIGN

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS33</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Course Outcomes:

At the end of the Course, Student will be able to:

**CO1:** Explain hospital design principles

**CO2:** Plan hospital facilities

**CO3:** Apply infection control in design

**CO4:** Optimize space utilization

**CO5:** Implement sustainable design

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	1	1	2	2	2	1	3
<b>CO2</b>	3	3	3	1	2	1	2	2	2	1	3
<b>CO3</b>	3	2	2	1	2	2	2	2	2	2	3
<b>CO4</b>	3	2	2	1	1	2	2	2	2	1	3
<b>CO5</b>	3	3	3	1	2	1	3	2	3	1	3

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	3	1
<b>CO2</b>	3	3	1
<b>CO3</b>	3	2	2
<b>CO4</b>	3	2	1
<b>CO5</b>	3	3	2

### UNIT – I

**Hospital Planning Fundamentals:** Hospital types and classifications; Service planning; Demand and population assessment; Capacity planning; Bed requirements; Department planning; Zoning design; Traffic flow; Accessibility standards; Green hospital design; BIS standards.

### UNIT – II

**Hospital Layout and Design:** Department location and relationships; Space standards; Outpatient department design; Inpatient ward design; ICU design; Operating room design; Emergency department layout; Pharmacy design; Laboratory layout; Diagnostic imaging suite.

### UNIT – III

**Infrastructure and Services:** Water supply systems; Sewage systems; Medical gas systems; Electrical systems; HVAC systems; Fire safety; Backup power; Security systems; Communication systems; Waste management facilities; Sustainability features.

### UNIT – IV

**Infection Control in Facility Design:** Cross-infection prevention; Air handling; Isolation

rooms; Hand hygiene facilities; Sterilization room design; Waste segregation areas; Storage of hazardous materials; Cleaning procedures; NABH standards; JCI compliance.

#### **UNIT – V**

**Modern Facilities and Technologies:** Smart hospitals; Digital integration; Building management systems; IoT sensors; Telemedicine rooms; Advanced imaging rooms; Modular design; Prefabrication; Green building certification; Cost optimization; Maintenance planning.

#### **Textbooks:**

1. "Arora, V.K. et al." (2020), 1st, Published by Springer, ISBN: 978-981-15-3970-3
2. "Srivastava, Sanjeev et al." (2019), 1st, Published by Excel Books, ISBN: 978-93-87034-34-2

#### **Reference Books:**

1. "Malkin, Jain" (2020), 2nd, Published by Springer, ISBN: 978-3-030-35487-7
2. "BIS: Hospital Planning Standards" (2020), Latest, Published by Bureau of Indian Standards, ISBN: N/A

#### **Web Links:**

1. AIA Academy: Healthcare Facility Design
2. NABH: Design Standards
3. WHO: Hospital Design Guidelines

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## HOSPITAL INFORMATION SYSTEMS (HIS)

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS34</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain HIS architecture and design
- CO2:** Implement HIS modules
- CO3:** Manage healthcare data
- CO4:** Apply HIS in clinical operations
- CO5:** Ensure HIS security and compliance

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	1	1	2	3	2	1	2
<b>CO2</b>	3	3	2	1	1	1	2	3	2	1	2
<b>CO3</b>	3	2	2	1	2	2	2	3	2	1	2
<b>CO4</b>	3	2	3	1	1	3	2	3	2	1	1
<b>CO5</b>	3	3	3	1	2	1	3	3	3	1	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	2	2
<b>CO3</b>	3	2	2
<b>CO4</b>	3	2	3
<b>CO5</b>	3	3	2

### UNIT – I

**HIS Fundamentals and Architecture:** HIS definition and components; System architecture; Client-server models; Cloud-based HIS; Core modules; Integration requirements; HL7 standards; DICOM protocol; Interoperability; Data exchange standards; API design.

### UNIT – II

**HIS Modules and Functionalities:** Patient management module; Outpatient management; Inpatient management; Billing module; Pharmacy module; Laboratory module; Radiology module; Operation theater management; Ward management; ICU module; Emergency module.

### UNIT – III

**EHR Implementation and Management:** EHR definition and benefits; EHR standards; Implementation phases; Change management; User training; Data migration; System testing; Go-live support; EHR maintenance; Workflow optimization; Continuous improvement.

### UNIT – IV

**Clinical Decision Support and Analytics:** Clinical decision support systems; Business intelligence tools; Data warehousing; Data analytics; Predictive modeling; Quality measures; Clinical outcomes analysis; Resource utilization analysis; Dashboards; Real-time monitoring; Reporting tools.

#### **UNIT – V**

**Security, Privacy and Compliance:** Healthcare data security; Authentication and authorization; Encryption standards; Network security; Backup and recovery; Disaster recovery planning; Business continuity; Data privacy regulations; Audit trails; Compliance requirements; Security policies; Incident management.

#### **Textbooks:**

1. "Shortliffe, Edward H. & Cimino, James J." (2021), 5th, Published by Springer, ISBN: 978-3-030-43529-3
2. "Hersh, William R." (2019), 4th, Published by Springer, ISBN: 978-3-030-19601-6

#### **Reference Books:**

1. "Steinhubl, Steven R. et al." (2020), 1st, Published by Academic Press, ISBN: 978-0-12-819314-3
2. "Hazzard, Emily A. & Hazzard, James H." (2019), 2nd, Published by Springer, ISBN: 978-3-030-00575-2

#### **Web Links:**

1. HL7: Healthcare Interoperability Standards
2. DICOM: Medical Imaging Standards
3. IEEE: Healthcare Information Systems

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

**VALUE ADDED COURSES  
ENVIRONMENTAL STUDIES**

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS35</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Explain the multidisciplinary nature of environmental studies and key ecological concepts
- CO2:** Analyze the causes, effects, and management of environmental pollution
- CO3:** Evaluate the importance of natural resource conservation and biodiversity
- CO4:** Assess the impact of human activities on ecosystems and climate change
- CO5:** Demonstrate awareness of environmental legislation, policies, and sustainable development goals

**Mapping of Course Outcomes with Program Outcomes:**

<b>CO / PO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	2	2	2	1	1	2	2	1	2	3	1
<b>CO2</b>	2	3	3	1	1	2	2	1	2	3	1
<b>CO3</b>	2	2	3	1	1	2	2	1	2	3	1
<b>CO4</b>	2	3	3	1	1	2	2	1	2	3	1
<b>CO5</b>	2	2	2	1	1	3	2	1	3	3	1

**Mapping of Course Outcomes with Program Specific Outcomes:**

<b>CO / PSO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO1</b>	1	1	2
<b>CO2</b>	1	1	2
<b>CO3</b>	1	1	2
<b>CO4</b>	1	1	2
<b>CO5</b>	2	1	2

**UNIT – I**

**Introduction to Environmental Studies:** Definition, scope, and importance of environmental studies; Multidisciplinary nature of environmental studies; Ecosystem: concept, structure, function; Types of ecosystems: forest, grassland, desert, aquatic; Food chains, food webs, and ecological pyramids; Biogeochemical cycles: carbon, nitrogen, water, phosphorus; Ecological succession; Environmental ethics and values.

**UNIT – II**

**Natural Resources:** Renewable and non-renewable resources; Forest resources: use, over-exploitation, deforestation; Water resources: use, overutilization, floods, droughts, dams; Mineral resources: use and exploitation; Food resources: agriculture, overgrazing, fertilizer-pesticide problems; Energy resources: growing energy needs, renewable and non-renewable energy sources; Land degradation; Resource management and equitable use.

**UNIT – III**

**Biodiversity and Conservation:** Biodiversity, definition, levels (genetic, species, ecosystem); Biogeographic classification of India; Biodiversity hotspots of India; Threats to biodiversity: habitat loss, poaching, invasive species; Endangered and endemic species; Conservation strategies: in-situ and ex-situ conservation; Protected areas: national parks, wildlife sanctuaries, biosphere reserves; Biodiversity Act 2002; CBD and CITES

#### **UNIT – IV**

**Environmental Pollution and Management:** Air pollution: causes, effects, control measures; Water pollution: causes, effects, control measures; Soil pollution: causes, effects, control measures; Noise pollution; Thermal and nuclear pollution; Solid waste management: types, collection, disposal methods; Biomedical waste management in healthcare facilities; E- waste management; Pollution control legislation in India.

#### **UNIT – V**

**Environmental Policy, Legislation, and Sustainable Development:** Environment Protection Act 1986; Air (Prevention and Control of Pollution) Act 1981; Water Act 1974; Wildlife Protection Act 1972; Environmental Impact Assessment (EIA); Climate change: causes, effects, mitigation; Green building concepts; Sustainable Development Goals (SDGs) and health; Role of healthcare sector in environmental sustainability; Green hospital initiatives.

#### **Textbooks:**

1. Erach Bharucha (2019), Textbook of Environmental Studies for Undergraduate Courses (UGC Recommended), 2nd Edition, Published by Universities Press, ISBN: 978-81-7371-935-6
2. Kaushik, Anubha & Kaushik, C.P. (2018), Perspectives in Environmental Studies, 6th Edition, Published by New Age International, ISBN: 978-81-224-5340-2

#### **Reference Books:**

1. Shashi Chawla (2019), A Textbook of Environmental Studies, 2nd Edition, Published by TMH, ISBN: 978- 93-5316-048-9
2. Singh, Savindra (2018), Environmental Geography, 4th Edition, Published by Pravalika Publications, ISBN: 978-81-905654-2-4

#### **Web Links:**

1. NPTEL: Environmental Studies (YouTube)
2. Ministry of Environment, Forest and Climate Change (MoEFCC): <https://moef.gov.in>
3. SWAYAM: Environmental Studies (UGC Compulsory Course)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## PROFESSIONAL ETHICS & VALUES

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS36</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Develop ethical awareness
- CO2:** Apply professional values
- CO3:** Navigate ethical dilemmas
- CO4:** Build ethical culture
- CO5:** Demonstrate professional integrity

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	2	1	2	2	2	3	1	1	3	3	1
<b>CO2</b>	2	2	3	2	2	3	1	1	2	3	1
<b>CO3</b>	2	1	2	2	2	3	1	1	3	3	1
<b>CO4</b>	2	1	2	2	2	3	1	1	3	3	1
<b>CO5</b>	2	2	3	2	3	3	1	1	3	3	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	1	3
<b>CO2</b>	2	2	2
<b>CO3</b>	2	1	3
<b>CO4</b>	3	1	3
<b>CO5</b>	2	2	3

### UNIT – I

**Professional Ethics Fundamentals:** Ethics definition; Moral philosophy; Ethical theories; Virtue ethics; Deontological ethics; Consequentialist ethics; Care ethics; Professional ethics; Code of conduct; Professional responsibility; Ethical competence.

### UNIT – II

**Healthcare Professional Values:** Core values (Compassion, Integrity, Accountability, Respect); Professional boundaries; Confidentiality; Honesty; Fairness; Beneficence; Non-maleficence; Justice; Trustworthiness; Excellence; Commitment.

### UNIT – III

**Ethical Decision-Making:** Ethical frameworks; Dilemma identification; Stakeholder analysis; Values clarification; Alternatives generation; Consequence analysis; Legal and ethical considerations; Decision-making process; Implementation; Reflection.

### UNIT – IV

**Conflicts of Interest and Integrity:** Conflict of interest definition; Types; Disclosure;

Mitigation; Whistleblowing; Ethical reporting; Integrity maintenance; Harassment and bullying; Discrimination; Justice in workplace; Ethical leadership.

#### **UNIT – V**

**Building Ethical Culture:** Organizational ethics; Ethical leadership; Role modeling; Training and education; Ethical committees; Ethics consultation; Policy development; Accountability mechanisms; Ethical assessment; Continuous improvement; Stakeholder engagement.

#### **Textbooks:**

1. "Beauchamp, Tom L. & Childress, James F." (2019), 8th, Published by Oxford, ISBN: 978-0-19-075304-5
2. "Paine, Lynn Sharpe" (2020), 2nd, Published by Harvard Business School Press, ISBN: 978-1-63369-956-8

#### **Reference Books:**

1. "Solomon, Robert C." (2020), 2nd, Published by Oxford, ISBN: 978-0-19-871944-3
2. "DeCrane, Suzanne K. & Beauchamp, Tom L." (2020), 2nd, Published by Oxford, ISBN: 978-0-19-074570-5

#### **Web Links:**

1. AMA: Medical Ethics
2. BMA: Professional Values
3. WHO: Health Ethics Resources

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## PUBLIC HEALTH & EPIDEMIOLOGY

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2621MS37</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Explain the principles of public health, epidemiology, and their historical evolution
- CO2:** Apply epidemiological methods and measures to analyze disease patterns in populations
- CO3:** Evaluate the major national health programs and disease surveillance systems in India
- CO4:** Analyze the determinants of health and strategies for health promotion and disease prevention
- CO5:** Demonstrate knowledge of emerging public health challenges and global health initiatives

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	1	2	2	1	2	3	1
<b>CO2</b>	3	3	3	1	1	1	3	1	2	3	1
<b>CO3</b>	3	2	2	1	1	2	2	1	2	3	1
<b>CO4</b>	3	2	2	1	1	2	2	1	2	3	1
<b>CO5</b>	3	2	3	1	1	2	2	1	3	3	1

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	1	3
<b>CO2</b>	2	1	3
<b>CO3</b>	2	1	3
<b>CO4</b>	3	1	3
<b>CO5</b>	2	1	3

### UNIT – I

**Introduction to Public Health:** Public health: definition, scope, and objectives; History of public health; Primary healthcare and Alma-Ata Declaration; Public health infrastructure in India; Role of public health agencies: WHO, UNICEF, CDC; Public health functions: assessment, policy development, assurance; Social determinants of health; Health indicators: mortality rates, morbidity rates, health indices; Demographic transition and epidemiological transition.

### UNIT – II

**Principles of Epidemiology:** Epidemiology: definition, aims, and scope; Descriptive epidemiology: person, place, time; Measures of disease frequency: incidence, prevalence; Measures of association: relative risk, odds ratio, attributable risk; Epidemiological study designs: cross-sectional, case-control, cohort, RCT; Bias and confounding; Screening: sensitivity, specificity, predictive values; Disease surveillance: IDSP, sentinel surveillance.

### UNIT – III

**Communicable and Non-Communicable Diseases:** Communicable diseases: chain of infection, modes of transmission; Major communicable diseases in India: tuberculosis, malaria, dengue, HIV/AIDS, COVID-19; Prevention and control strategies; Immunization: national immunization schedule; Non-communicable diseases (NCDs): cardiovascular, diabetes, cancer, COPD; Risk factors for NCDs; National Programme for Prevention and Control of NCDs (NP-NCD); Mental health: burden and programs.

### UNIT – IV

**National Health Programs and Policies:** National Health Mission (NHM); Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A); Revised National Tuberculosis Control Programme (RNTCP/NTEP); National Vector Borne Disease Control Programme (NVBDCP); National AIDS Control Programme (NACP); Swachh Bharat Abhiyan and WASH; National Programme for Health Care of the Elderly (NPHCE); Ayushman Bharat and Health and Wellness Centres.

### UNIT – V

**Health Promotion and Emerging Public Health Issues:** Health education and health promotion: concepts and methods; Behavior change communication (BCC); Water sanitation and hygiene (WASH); Occupational health and industrial hygiene; Environmental health: air quality, water quality, food safety; Disaster epidemiology; Emerging and re-emerging diseases; Antimicrobial resistance; One Health approach; Global health security; Sustainable Development Goals (SDGs) and health.

#### **Textbooks:**

1. Park, K. (2023), Preventive and Social Medicine, 27th Edition, Published by Banarsidas Bhanot Publishers, ISBN: 978-93-82219-08-2
2. Gordis, Leon (2019), Epidemiology, 6th Edition, Published by Elsevier, ISBN: 978-0-323-55229-5

#### **Reference Books:**

1. Maxcy-Rosenau-Last (2020), Public Health and Preventive Medicine, 16th Edition, Published by McGraw Hill, ISBN: 978-0-07-184397-4
2. Bonita, R., Beaglehole, R. & Kjellstrom, T. (2006), Basic Epidemiology, 2nd Edition, Published by WHO, ISBN: 978-92-4-154707-9

#### **Web Links:**

1. IDSP (Integrated Disease Surveillance Programme): <https://idsp.nic.in>
2. WHO: Public Health Topics: <https://www.who.int/health-topics>
3. NPTEL: Public Health Engineering (YouTube)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## SUMMER INTERNSHIP

Course Code: 2605MS59

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
-	-	-	4

### Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Apply theoretical concepts in practice
- CO2:** Conduct research on healthcare problems
- CO3:** Develop professional skills
- CO4:** Create project deliverables
- CO5:** Present findings professionally

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	3	2	2	2	3	2	3	2	2
<b>CO2</b>	3	3	3	2	3	2	3	2	3	2	2
<b>CO3</b>	3	3	3	2	2	2	3	2	3	2	3
<b>CO4</b>	3	3	3	3	2	2	3	2	3	2	2
<b>CO5</b>	3	3	3	2	3	2	3	2	3	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	2	2
<b>CO2</b>	3	3	2
<b>CO3</b>	3	3	3
<b>CO4</b>	3	2	2
<b>CO5</b>	3	3	2

### UNIT – I

**Project Identification and Proposal:** Project selection criteria; Industry relevance; Scope definition; Objectives; Deliverables; Timeline; Resource requirements; Mentor assignment; Proposal writing; Approval process.

### UNIT – II

**Literature Review and Analysis:** Preliminary research; Relevant publications; Current trends; Gap identification; Theoretical framework; Competitive analysis; Best practices; Data sources; Literature documentation.

### UNIT – III

**Research and Implementation:** Data collection; Interviews; Surveys; Case studies; Site visits; Hands-on experience; Problem-solving; Implementation of solutions; Testing; Validation; Documentation.

### UNIT – IV

**Analysis and Recommendations:** Data analysis; Findings presentation; Performance

metrics; Comparison with standards; Gap analysis; Root cause analysis; Recommendations; Implementation roadmap; Cost-benefit analysis; Risk mitigation.

## **UNIT – V**

**Report Writing and Presentation:** Report structure; Executive summary; Methodology; Results; Discussion; Conclusions; Recommendations; Appendices; Professional formatting; Oral presentation; Viva voce preparation; Feedback incorporation.

### **Textbooks:**

1. "Creswell, John W." (2021), 5th, Published by Sage, ISBN: 978-1-5443-9656-7
2. "Murray, Rowena et al." (2020), 3rd, Published by McGraw Hill, ISBN: 978-0-335-24698-1

### **Reference Books:**

1. "Dunleavy, Patrick" (2020), 2nd, Published by Palgrave, ISBN: 978-1-137-05189-9
2. "Williams, Michael R." (2019), 3rd, Published by Routledge, ISBN: 978-0-367-18773-8

### **Web Links:**

1. Research Guidelines Templates
2. Presentation Skills Resources
3. Academic Writing Support

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## CAPSTONE PROJECT

**Course Code: 2605MS60**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
-	-	-	4

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Conduct comprehensive research
- CO2:** Analyze complex healthcare problems
- CO3:** Apply advanced concepts
- CO4:** Develop innovative solutions
- CO5:** Contribute to healthcare knowledge

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	3	2	2	2	3	2	3	2	2
<b>CO2</b>	3	3	3	2	2	2	3	2	3	2	2
<b>CO3</b>	3	3	3	3	2	2	3	2	3	2	2
<b>CO4</b>	3	3	3	2	2	2	3	3	3	2	3
<b>CO5</b>	3	3	3	3	3	2	3	2	3	2	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	3	3	2
<b>CO2</b>	3	3	2
<b>CO3</b>	3	3	3
<b>CO4</b>	3	3	2
<b>CO5</b>	3	3	3

### UNIT – I

**Research Design and Proposal:** Research problem formulation; Literature review; Theoretical framework; Research questions; Hypotheses; Objectives; Significance; Scope; Limitations; Methodology selection; Ethical considerations.

### UNIT – II

**Data Collection and Analysis:** Sampling design; Data collection methods; Qualitative and quantitative analysis; Statistical tools; Qualitative coding; Thematic analysis; Data interpretation; Triangulation; Validity and reliability; Documentation.

### UNIT – III

**Findings and Synthesis:** Results presentation; Findings description; Pattern recognition; Comparison with literature; New insights; Gaps addressed; Contribution to knowledge; Theoretical implications; Practical applications.

### UNIT – IV

**Discussion and Recommendations:** Contextual analysis; Implications discussion;

Limitations acknowledgment; Future research directions; Policy recommendations; Implementation strategies; Stakeholder engagement; Scalability assessment; Impact potential.

#### **UNIT – V**

**Dissertation Finalization:** Manuscript preparation; Academic writing; Editing and proofreading; Citation management; Appendices; Formatting; Institutional requirements; Supervisor feedback; Defense preparation; Viva voce; Final submission.

#### **Textbooks:**

1. "Creswell, John W." (2021), 5th, Published by Sage, ISBN: 978-1-5443-9656-7
2. "Kumar, Ranjit" (2020), 6th, Published by Sage, ISBN: 978-81-954301-0-4

#### **Reference Books:**

1. "Bryman, Alan & Bell, Emma" (2019), 5th, Published by Oxford, ISBN: 978-0-19-882754-4
2. "Neuman, W. Lawrence" (2020), 10th, Published by Pearson, ISBN: 978-0-13-555556-0

#### **Web Links:**

1. Research Ethics Guidelines
2. Academic Writing Tutorials
3. Dissertation Resources

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

**MANDATORY COURSES  
EMPLOYABILITY SKILLS-1**

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2605MS61</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>

**Course Outcomes:**

**At the end of the Course, Student will be able to:**

- CO1:** Apply fundamental arithmetic concepts such as number systems, LCM & HCF, ratio & proportion, and averages to solve quantitative problems efficiently.
- CO2:** Analyze number and letter series to identify logical patterns and predict subsequent elements.
- CO3:** Select the option by evaluating relationships in analogy-based problems and detecting inconsistencies in logical sequences
- CO4:** Demonstrate effective verbal communication skills by using appropriate parts of speech and tone in various interpersonal and professional contexts.

**Mapping of Course Outcomes with Program Outcomes:**

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	–	–	–	–	–	–	–	–	2
<b>CO2</b>	–	3	2	–	–	–	–	–	–	–	2
<b>CO3</b>	–	3	3	–	1	–	–	–	–	–	2
<b>CO4</b>	–	–	–	3	–	2	–	2	–	3	2
<b>CO5</b>	3	2	–	–	–	–	–	–	–	–	2

**Mapping of Course Outcomes with Program Specific Outcomes:**

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	–
<b>CO2</b>	2	3	–
<b>CO3</b>	–	2	3
<b>CO4</b>	–	–	3
<b>CO5</b>	2	2	–

**Aptitude:**

Number System, LCM & HCF, Ratio and Proportion, Averages

**Reasoning:**

Number Series, Letter Series, Number Analogy, Letter Analogy, Odd Man Out, Logical Sequence of Words.

**Verbal:**

Introduction to soft skills, how to improve communication? Parts of Speech, Mind your language towards better English, Vocabulary Expansion

**Textbooks:**

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S. Chand Publishing, ISBN: 978-9352534029

2. Dr. R. S. Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, S. Chand Publishing, ISBN: 978-9352832163

**Reference Books:**

1. Dr. R. S. Aggarwal, Vikas Aggarwal, Quick Learning Objective General English, S. Chand Publishing, ISBN: 978-9352837564
2. Abhijit Guha, Quantitative Aptitude for Competitive Examinations, McGraw Hill Education, ISBN: 978-9353160180
3. M. K. Pandey, Analytical Reasoning, Arihant Publications, ISBN: 978- 9350947982

**Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## EMPLOYABILITY SKILLS -II

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2605MS62</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Apply percentage, profit & loss, and partnership concepts to solve real-world quantitative problems.
- CO2:** Analyze age-related problems to develop logical problem-solving strategies.
- CO3:** Evaluate logical reasoning questions including ranking, directions, and alphabet tests for accurate decision-making.
- CO4:** Solve pattern-based problems in coding and decoding to enhance analytical skills.
- CO5:** Demonstrate effective written communication using correct grammar and structured presentation techniques

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	–	–	–	–	–	–	–	–	2
<b>CO2</b>	–	3	2	–	–	–	–	–	–	–	2
<b>CO3</b>	–	3	3	–	1	–	–	–	–	–	2
<b>CO4</b>	–	2	3	–	–	–	–	–	–	–	2
<b>CO5</b>	–	–	–	3	–	2	–	2	–	3	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	–
<b>CO2</b>	2	3	–
<b>CO3</b>	–	2	3
<b>CO4</b>	–	2	2
<b>CO5</b>	–	–	3

#### **Aptitude:**

Problems on Ages, Partnership, Percentages, Profit and Loss

#### **Reasoning:**

Coding and Decoding, Ranking Test, Alphabet Test, Direction Test

#### **Verbal:**

Written communication skill practice, Grammatical use, Concept of 4 step method for presentation, Present Tense

#### **Textbooks:**

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S. Chand Publishing, ISBN: 978-9352534029

2. Dr. R. S. Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, Publication: S. Chand Publishing, ISBN: 978-9352832163

**Reference Books:**

1. Dr. R. S. Aggarwal, Vikas Aggarwal, Quick Learning Objective General English, S. Chand Publishing, ISBN: 978-9352837564
2. Abhijit Guha, Quantitative Aptitude for Competitive Examinations, McGraw Hill Education, ISBN: 978-9353160180
3. M. K. Pandey, Analytical Reasoning, Arihant Publications, ISBN: 978-9350947982

**Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
- 2, [www.bankersadda.com](http://www.bankersadda.com)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

### EMPLOYABILITY SKILLS-III

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2605MS63</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>

#### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Solve financial and quantitative aptitude problems using concepts of simple and compound interest.
- CO2:** Apply logical time-work frameworks to solve real-time problems related to work efficiency and pipe systems.
- CO3:** Analyze and interpret problems related to blood relations, clocks, calendars, and coded inequalities.
- CO4:** Evaluate spatial and logical reasoning through cubes, dice, and symbolic interpretation problems.
- CO5:** Demonstrate effective communication using correct grammar, and participate actively in discussions and comprehension activities.

#### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	–	–	–	–	–	–	–	–	2
<b>CO2</b>	2	3	2	–	–	–	–	–	–	–	2
<b>CO3</b>	–	3	3	–	1	–	–	–	–	–	2
<b>CO4</b>	–	2	3	–	–	–	–	–	–	–	2
<b>CO5</b>	–	–	–	3	–	2	–	2	–	3	2

#### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	–
<b>CO2</b>	2	3	–
<b>CO3</b>	–	2	3
<b>CO4</b>	–	2	2
<b>CO5</b>	–	–	3

#### Aptitude:

Simple Interest, Compound Interest, Time and Work, Pipes and Cisterns

#### Reasoning:

Blood Relations, Calendar, Clocks, Cubes and Dice, Coded Inequalities

#### Verbal:

Grammar in use, Group discussion, Reading Comprehension, Past Tense, Future Tense

#### Textbooks:

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S. Chand Publishing, ISBN: 978-935253402
2. Dr. R. S. Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, S. Chand Publishing, ISBN: 978-9352832163

**Reference Books:**

1. Dr. R. S. Aggarwal, Vikas Aggarwal, Quick Learning Objective General English ,S. Chand Publishing, ISBN: 978-9352837564
2. Abhijit Guha, Quantitative Aptitude for Competitive Examinations, McGraw Hill Education, ISBN: 978-9353160180
3. M. K. Pandey, Analytical Reasoning Arihant Publications, ISBN: 978-9350947982

**Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
- 2, [www.bankersadda.com](http://www.bankersadda.com)

**Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.**

## EMPLOYABILITY SKILLS-IV

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 2605MS64</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>

### Course Outcomes:

**At the end of the Course, Student will be able to:**

- CO1:** Apply concepts of time, speed, distance, trains, boats and streams to solve motion-related aptitude problems.
- CO2:** Solve mensuration problems involving surface area and volume in real-world contexts.
- CO3:** Analyze logical reasoning questions involving Venn diagrams and syllogisms to make valid conclusions.
- CO4:** Analyze logical reasoning questions involving Venn diagrams and syllogisms to make valid conclusions.
- CO5:** Interpret seating arrangements and solve non-verbal reasoning questions involving patterns and spatial reasoning.

### Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	–	–	–	–	–	–	–	–	2
<b>CO2</b>	3	2	–	–	–	–	–	–	–	–	2
<b>CO3</b>	–	3	3	–	1	–	–	–	–	–	2
<b>CO4</b>	–	2	3	–	–	–	–	–	–	–	2

### Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
<b>CO1</b>	2	2	–
<b>CO2</b>	2	2	–
<b>CO3</b>	–	2	3
<b>CO4</b>	–	2	2

### Aptitude:

Time, Speed and Distance, Problems on Trains, Boats and Streams, Mensuration-I, Mensuration – II

### Reasoning:

Venn Diagrams, Syllogisms, Non - Verbal Reasoning, Seating Arrangement

### Verbal:

Grammatical use, Self-introduction, Letters, E-Mail & Report writing, Error correction, Effective Communication

### Textbooks:

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations , S. Chand Publishing, ISBN: 978-935253402
2. Dr. R. S. Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, S.

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