

M.Arch
Healthcare Architecture

The course adopts the concept of *healthcare for masses*. The teaching approach is based to promote vernacular and regional architectural solutions along with contemporary ideas for a sustainable and locally supported healthcare system which is accessible to masses. As W.H.O states that health is a state of complete physical, mental, and social well being, and not merely the absence of disease or infirmity. This definition increases the healthcare architecture domain to a new height.

The Course aims to create correct perception in healthcare architects through organized sensation of current scenario by means of analysis of historical development, transformation of Healthcare vision, its influencing factors, challenging issues from inception to commissioning and future expansion of hospitals , allied fields, centralization and decentralization of services, socio-economic changes, demographical pattern and different business plans.

The M. Arch Healthcare Architecture program caters to the increasing demand of the health care industry which has been experiencing metamorphic changes because of technological advancement and introduction of new medical practices. Hospitals are changing their shape, size and even functions to adopt the advancement in the medical field. The objective of the program is to impart modern concepts in planning, designing, equipping and commissioning of all such built environments which are associated with the health care industry. The program focuses on all the modern trends and future aspects of planning health care facilities and services.

M. ARCH (HEALTHCARE ARCHITECTURE)
SCHEME OF EXAMINATION

SEMESTER -1

w.e.f AY 2019-20

| CODE | SUBJECT | CLASSES | | MARKS | | | | EXAMS (HOURS) | CREDIT |
|---------|--------------------------------------|---------|-------|-------|-----|----|-------|---------------|--------|
| | | LECTURE | T/ ST | IA | WR | VV | TOTAL | | |
| MAR-101 | Architecture Philosophy: Healthcare | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-102 | Contemporary Healthcare Architecture | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-103 | Healthcare Planning-I | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-104 | E I A & Disaster Management | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-105 | Integrated Building Services | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-106 | Research Methodology | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-137 | Dissertation- I | 2 | 2 | 50 | - | 50 | 100 | - | 4 |
| TOTAL | | 14 | 14 | 350 | 300 | 50 | 700 | - | 28 |

SEMESTER -2

| CODE | SUBJECT | CLASSES | | MARKS | | | | EXAMS (HOURS) | CREDIT |
|---------|-------------------------------------|---------|-------|-------|-----|-----|-------|---------------|--------|
| | | LECTURE | T/ ST | IA | WR | VV | TOTAL | | |
| MAR-201 | Healthcare policies and legislation | 2 | 0 | 25 | 25 | - | 50 | 3 | 2 |
| MAR-202 | Healthcare Administration | 2 | 0 | 25 | 25 | - | 50 | 3 | 2 |
| MAR-203 | Hospital information system (HIS) | 2 | 2 | 50 | | 50 | 100 | - | 4 |
| MAR-204 | Hospital Energy Simulation | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-235 | Healthcare Planning-II | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-236 | Studio-I | 2 | 6 | 100 | - | 100 | 200 | - | 8 |
| MAR-237 | Dissertation-II | 2 | 2 | 50 | | 50 | 100 | - | 4 |
| TOTAL | | 14 | 14 | 350 | 150 | 200 | 700 | - | 28 |

SEMESTER -3

| CODE | SUBJECT | CLASSES | | MARKS | | | | EXAMS (HOURS) | CREDIT |
|---------|--|---------|-------|-------|-----|-----|-------|---------------|--------|
| | | LECTURE | T/ ST | IA | WR | VV | TOTAL | | |
| MAR-331 | Healthcare Finance | 2 | 0 | 25 | 25 | - | 50 | 3 | 2 |
| MAR-332 | Health care services: global opportunities and strategy. | 2 | 0 | 25 | 25 | - | 50 | 3 | 2 |
| MAR-333 | Healthcare Planning-III | 2 | 2 | 50 | 50 | - | 100 | - | 4 |
| MAR-334 | Hospital Services: Clinical and Non Clinical | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-335 | Health care Nursing Services | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-336 | Studio-II | 2 | 6 | 100 | - | 100 | 200 | 3 | 8 |
| MAR-337 | Dissertation-III | 2 | 2 | 50 | - | 50 | 100 | - | 4 |
| TOTAL | | 14 | 14 | 350 | 200 | 150 | 700 | - | 28 |

SEMESTER -4

| CODE | SUBJECT | CLASSES | | MARKS | | | | EXAMS (HOURS) | CREDIT |
|---------|--------------------------------|---------|-------|-------|----|-----|-------|---------------|--------|
| | | LECTURE | T/ ST | IA | WR | VV | TOTAL | | |
| MAR-401 | Seminar: Project Management | 2 | 2 | 50 | 50 | - | 100 | 3 | 4 |
| MAR-432 | Thesis | 2 | 14 | 200 | - | 200 | 400 | - | 16 |
| MAR-433 | Dissertation-IV | 2 | 6 | 100 | - | 100 | 200 | - | 8 |
| TOTAL | | 6 | 22 | 350 | 50 | 300 | 700 | - | 28 |

Abbreviations followed

T - Tutorial

ST - Studio

IA - Internal Assessment

WR - Written Exam

VV - Viva Voce

MAR-101: ARCHITECTURAL PHILOSOPHY: HEALTHCARE

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To make a base of sound understanding of the fundamentals and theories in healthcare Architecture.
- To critically analyze the ongoing healthcare practices and formulate an understanding of the same.

METHODOLOGY:

- Lectures and presentations based on field observations, surveys, web search and library studies.

CONTENTS:

- Towards Analytical approach of healthcare Architecture
- History, Theory, Criticism, Post Mortem and Anti Mortem.
- Time, Function and Alterity in healthcare Architecture.
- Complexity and Contradiction in healthcare Architecture
- Healthcare Architectural Theory and Practice in International and Indian context.
- Healthcare Architectural development in International and Indian context: 21st century changes with digital India.
- Ethics of healthcare Architecture – Objectivism

READINGS:

- Architectural Philosophy: Repetition, Function, Alterity by Andrew E. Benjamin
- Architectural Reflections: Studies in Philosophy and Practice of Architecture By Colin St. John Wilson, Roger
- Modern Architectural Theory by Harry Mallgrave

MAR-102: CONTEMPORARY HEALTHCARE ARCHITECTURAL

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To identify the theories, movements and buildings that have led to 'new' forms in healthcare architecture
- To recognize the social and political pressures behind contemporary healthcare architecture

METHODOLOGY:

- Lectures and presentations based on field observations, surveys, web search and library studies.

CONTENTS:

- Healthcare architecture Issues critical for present times: globalization, technology, cognitive sciences, the environment, and cultural politics.
- Formal or theoretical resonances of the same in a host of architectural movements: the techno fantasist movements of the 1960s, "post-modern" semiosis, phenomenology, Third World "social modernism", vernacularism, post-modernism, cybernetics, and so on.
- Societal dynamics on the socio- economic and politico paradigms :post-structuralism, and psychoanalysis as well as current debates in globalization, urban geography, mass customization, and post-criticality, among others.
- Transformation of healthcare Contemporary Architecture in the Indian scenario – 1920s-1950s, 1950- 1980s, 1980-2000, 21st century.
- Statics of Architectural Structures :Structural Morphology ,Basic structural elements and force systems, Equilibrium equations, Material behavior
- Hospital Building Systems :Performance requirements , Identification and specification of elements
- Hospital Sustainable Strategies: Best practice, Resource efficiency, Upcoming issues and ratings.
- Materials: New and Old
- Systems Integration
- Building Codes: specifications and building codes, building mechanical and electrical systems, National Building Code of India.

READINGS:

Frampton, K. (1980) *Modern Architecture: A Critical History*. London, Thames & Hudson
Jencks, C. (1985) *Modern Movements in Architecture*. Harmondsworth, Penguin
Sharp, D. (1991) *Twentieth Century Architecture*. London, Lund Humphries

MAR-103: HEALTHCARE PLANNING-I

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 6 | 8 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|-----|----|-----|-------|--------|
| 100 | | 100 | 200 | 8 |

OBJECTIVE:

- Visiting, Exploring and Analyzing small scale health-care facilities.

METHODOLOGY:

- Class lecture.
- Site visit / educational tour.
- Case studies to be clubbed with library research & live surveys.

CONTENTS

Public health and its program development

- Different programs of public health.
- Essential services for public health systems
- Emerging scope of public health components.
- Documentation & presentation of public health facility scenario in different regions of India.

National health policy

- Historical development
- Issues and challenges
- National and international scenerio

Primary care centers.

- Essential services for public health systems
- Cultural issues
- Outline review of issues
- International comparisons

OUTPUT:

- The output should be presented at the end of the semester in the form of written test.

MAR-104: EIA AND DISASTER MANAGEMENT

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To introduce the students with the theory and practice of Environmental Impact Assessments for healthcare architecture
- To emphasize on the preservation of traditional medicine system and natural resources.
- To discover the relevance of traditional medicine system

METHODOLOGY:

- Classroom teaching through lectures and presentation.
- Conducting exercises on EIA or introducing the preparation of a report for a project.

CONTENTS:

- **EIA**
 - From theory to the practical
 - What data is required, how this data should be collected and interpreted, and significance of the data
 - Effectiveness of the assessment methods
 - What issues should be addressed in the terms of reference (TOR)
 - Tools and thumb rules available to evaluate the environmental impact of projects
 - Better understanding of the EIA process – from screening, scoping, data collection to impact assessment as well as the role of public consultation
 - Better understanding of the environmental and social impacts of the industrial and developmental projects
 - Better ability to review EIA reports and identify its strengths and weaknesses
 - Increased ability to play active role in post-EIA monitoring.
 - Introduction - Settlements in relation to regional landscape resources.
- **DISASTER MANAGEMENT**
 - Threat analysis
 - Specialised case of healthcare facilities
 - Opportunities available and management plan
 - Resource mobilisation: space, money, manpower, equipments
 - Role of social organisations

MAR-106: RESEARCH METHODOLOGY

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

To enhance the students' generic research, communication skills and critical analytical ability complemented by specialized subject-specific research which shall provide foundation for post graduate program.

METHODOLOGY:

Lectures, Seminars, Workshops, Project work and tutorials.

CONTENTS:

Unit I: An introduction to Research Methodology- hypotheses. Types of Research Foundation: Its Nature and Scope, plagiarism Scientific Research: Steps of scientific methods and its scope in Architectural research Qualitative Research Paradigm: Assumption, Nature and Scope, Action Research, Pure and Applied Researches in Architecture.

Unit II: Research Methods: Historical, Survey, Experimental, Case Study, Ethnographic, Visual Research, Research instruments used in the quantitative and qualitative modes of data collection.

Unit III: Data Collection strategies/ techniques and ethical considerations. Research Design: Meaning and Importance A. Sample and Sampling Design: Concepts of Population Sample, Representative Sample, Probability and Non Probability, Techniques of Sampling B. Tools and Techniques of Research: Characteristics of Good Tools, Questionnaire and Interview, Observation, Tests, Scale and Types

Unit IV: Preparation of Research Proposal: Research Problems, Research Objectives, Research Questions, Hypothesis, Operational Variables, Review of Related Literature, Research Design, Limitations and Delimitations Report Writing, Purpose, Format, Characteristics of Good Research report

Unit V: Descriptive Statistics: Data: Nature and types, Normal Probability Curve: Skewness and Kurtosis Measures of Central tendencies, Measure of Variability, Measures of Correlation: Pearson's correlation and Spearman's Rho

Unit VI: Inferential Statistics (Parametric) Significance of Statistics, Concept of Null Hypothesis, Level of Significance, T-Test

Unit VII: Inferential Statistics (Non Parametric) Chi Square Test, Median R Test, Mann-Whitney Test.

Unit VIII: Analysis of data- organizing and interpreting. Analysis of Qualitative Data Editing, Coding of data, Content Analysis, Theoretical Research paper, Dissertation and Thesis writing techniques in Architecture.

MAR-137: DISSERTATION-I

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | | 50 | 100 | 2 |

OBJECTIVE:

- To be able to understand fundamentals of healthcare institutions with latest concepts and their incorporation through innovation in the healthcare architecture.

METHODOLOGY:

- This is a research exercise where student will choose a topic and will study its various aspects as per the scope of the research.
- The discussions with the supervisor and site visits as required.

CONTENT:

The dissertation topic may include

- ❖ Classification of healthcare facilities:
 - Classification of Hospitals: Organization based, User based, Authority based, Level of Care Based, etc.
 - Hierarchy of Healthcare Facilities
- ❖ Study of basic constituents of healthcare institutions by covering all types of healthcare departments like
 - Clinical departments: OPD, IPD, Emergency, Wards, Physiotherapy, etc.
 - non-clinical departments
 - Diagnostic services: Radio diagnostics, Laboratories, Blood Bank etc.
 - Intensive & critical care departments: ICU, CCU, NICU, PICU etc
 - Operating and surgical departments
 - Support & Utility Services: CSSD, linen & laundry, dietary, Mortuary services etc.
 - Engineering & Allied departments: Medical gas and manifold rooms, water supply & sanitation, electrical & air-conditioning services
 - Administration and nursing departments
 - Hospital information departments
 - HR Department

OUTPUT:

- The Dissertation report to be submitted at the end of the semester comprising the Study and conclusions/proposals/guidelines based on the reconnaissance.

MAR-201: HEALTHCARE POLICIES AND LEGISLATION

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To make a base of sound understanding of the fundamentals and theories in healthcare Architecture.
- To critically analyze the ongoing healthcare practices and formulate an understanding of the same.

METHODOLOGY:

- Lectures and presentations based on field observations, surveys, web search and library studies.

CONTENTS:

- Health law and policies
- Health Policies at various levels i.e. village, district, state and national level.
- Health care indicators
- Study of requirement for establishment of various hospitals and medical colleges.
- National & International Guidelines & Standards for General Hospital & Medical College: Is Codes, BIS, IPHS, WHO, UNICEF, Joint Commission, MCI, etc.
- Quality and accreditation based bodies: ISQUA- International Society for Quality in Healthcare, NABH- National Accreditation Boards of Hospitals & Healthcare
- Bio- medical waste management and handling rules
- CPCB (Central Pollution Control Board) guidelines
- Safe disposal of radio-active waste Rules 1995, guidelines of BARC.
- Role of Hospital in Environmental pollution and Environmental impact assessment

MAR-202: HEALTHCARE ADMINISTRATION

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To identify theories of administration
- Understand hospital management and administration system from day to day function to whole life cycle

METHODOLOGY:

- Lectures and presentations based on field observations, surveys, web search and library studies.

CONTENTS:

- Principle of management
- Management information system
- Hospital Supply chain management
- Hospital Human resource management and administration
- Hospital Finance
- Hospital Marketing
- HIS
- Corporate governance
- Operation management
- Business plan
- Clinical and non clinical management
- Ethics and values

Planning and designing of Administrative services

- Executive Suite
- Professional Service Unit
- Financial Management Unit
- Hospital Information System
- Medical Records
- Nursing Services Administration Unit
- Human Resource Development

MAR-203: HOSPITAL INFORMATION SYSTEM (HIS)

| TEACHING HOURS | | | EXAMINATION MARKS | | | | |
|----------------|------|-------|-------------------|----|----|-------|--------|
| L | T/ST | TOTAL | IA | WR | VV | TOTAL | CREDIT |
| 2 | 2 | 8 | 50 | | 50 | 100 | 4 |

OBJECTIVE:

- Exploring and Analyzing different software and its relevance.

METHODOLOGY:

- Class lecture and practical based class.

CONTENTS

Data base management system

- Typology of Data
- Input mechanism
- Basic components of Data base management system

HIS and Medical Records

Societal challenges of information technology

Software and operating systems

Hospital ERP system

OUTPUT:

- The output should be presented at the end of the semester in the form viva voce.

MAR-204: HOSPITAL ENERGY SIMULATION

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

To inform the students about the importance of energy efficiency and its conservation in healthcare structures.

To learn the basic techniques and processes involved in Energy Efficiency and Energy Conservation through various techniques. The study and application of various software involved in the process.

METHODOLOGY:

The methodology of imparting information should be lectures and presentations citing examples and case studies.

CONTENTS:

- **Introduction**
- LEED
- Benefits and Advantages
- Incentive Programs
- Certification
- LEED Version
- Professional Accreditation

Green Building Concept

- Indian Green Building Council o Concepts of Green Building
- Case Study of Green Buildings
- Energy and Resource saving through Green Buildings
- Role of TERI

Energy Conservation Building code ECBC

- Role of Bureau of Energy Efficiency BEE in controlling Energy Scenario in India
- Application of ECBC in Indian Buildings
- Analysis of saving of Energy by the application of ECBC

Application of Software

- Introduction of Important Software in Energy Modelling of Buildings
- Application of Visual DOE in Modelling any one building

MAR-235: HEALTHCARE PLANNING-II

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To develop basic understanding of health-care facilities of secondary and tertiary care.

METHODOLOGY:

- Lectures introducing various concepts of health-care facilities.

CONTENTS

- **Introduction to health care organization.** Types of Hospitals. Healthcare building typology. Guiding principles in planning Hospital Facilities and services . Healthcare in India. Healthcare Infrastructure.
- **Life cycle:** Stages of healthcare institutions
- **Planning:** Understanding of Hospital organization. Strategic Planning of health care facilities. Equipment planning, HR Planning, Financial Planning, Equipment Planning.
- **Operation Management:** Hospital Administration. Hospital Management. Management Structure.
- **Organization of hospital:** Organization of the Hospital, Organization of Medical staff.
- **Accreditation & Affiliation:** councils of Medical Institutions.
- EIA of healthcare institutions and Sustainable development.
- **Healthcare tourism:** National and global trend.

OUTPUT:

- The output should be presented at the end of the semester in the form of written test.

MAR-236: STUDIO- I

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 6 | 8 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|-----|----|-----|-------|--------|
| 100 | | 100 | 200 | 8 |

OBJECTIVE:

- Exploring and designing of small scale health-care facilities (Primary healthcare centres, community healthcare centres).

METHODOLOGY:

- Studio Exercise.
- Documentation & presentation of health facility scenario.
- Case studies to be clubbed with library research & live surveys.
- Identification of problems & issues
- Conceptual design scheme

CONTENTS

The studio exercise should focus the study and designing of health-care facilities of small scale. The project may include 30-50 beds general hospitals, Primary healthcare centres, and community healthcare centres.

OUTPUT:

- The output should be presented at the end of the semester in the form of drawings/ sketches/models to explain the concept.

MAR-237: DISSERTATION-II

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | | 50 | 100 | 4 |

OBJECTIVE:

- To be able to understand latest concepts and their incorporation through innovation in the Medical architecture.

METHODOLOGY:

- This is a research exercise where student will choose a topic and will study its various aspects as per the scope of the research.
- The discussions with the supervisor and site visits as required.
- To build upon the dissertation-I done in First Semester.

CONTENT:

- ❖ Healthcare scenario and its history
 - National and international History of healthcare institutions, Challenges & Issues, Flaws and solutions
 - Healthcare indicators.
 - Indian healthcare facilities versus world healthcare facilities.
 - Health problems of developing Nations.
- ❖ Healthcare institutions and their Legislation and policies. Planning Norms for the healthcare facilities.
 - Health Policies at various levels i.e. village, district, state and national level.
 - Health care indicators
 - Study of requirement for establishment of various hospitals and medical colleges.
 - National & International Guidelines & Standards for General Hospital & Medical College: Is Codes, BIS, IPHS, WHO, UNICEF, Joint Commission, MCI, etc.
 - Quality and accreditation based bodies: ISQUa- International Society for Quality in Healthcare, NABH- National Accreditation Boards of Hospitals & Healthcare
 - Bio- medical waste management and handling rules
 - CPCB (Central Pollution Control Board) guidelines
 - Safe disposal of radio-active waste Rules 1995, guidelines of BARC.
 - Role of Hospital in Environmental pollution and Environmental impact assessment

OUTPUT:

- The Dissertation report to be submitted at the end of the semester comprising the Study and conclusions/proposals/guidelines based on the study.

MAR-301: Healthcare Finance

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To make a base of sound understanding of the financial aspect of healthcare institutions.

METHODOLOGY:

- Lectures and presentations based on field observations, surveys, web search and library studies.

CONTENTS:

- National Budget on healthcare and its comparisons with global trend
- Role of Financial management in healthcare structures.
- Financial feasibility report of healthcare structures / DPR.
- Types of Budgets in healthcare institutions.
- Cost of healthcare structures: Consultancy, construction, commissioning, liasoning, running cost, maintenance budget, Expansion.
- Role of architecture in cost of a healthcare project.
- Hospital budgeting: Equipments, furniture, human resource, safety and security, Accreditation.

MAR-302: HEALTH CARE SERVICES: GLOBAL OPPORTUNITIES AND STRATEGY

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To identify potential and opportunities of global healthcare services.
- To analyse mechanism to connect healthcare facilities with global market

METHODOLOGY:

- Lectures and presentations based on field observations, surveys, web search and library studies.

CONTENTS:

- Dynamics of global healthcare services
- Traditional medicine systems
- Patients behaviour and trends towards regional medicine systems
- Famous Destinations around the globe which are famous for meditations.
- Business Modules: National and international
- Medical tourism

MAR-333: HEALTHCARE PLANNING-III

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To equip students with complexities in design of health care.
- To understand the need for creation of healthy built environment.
- To equip students with modernization and expansion in hospitals.

METHODOLOGY:

- Lectures & tutorial exercises.

CONTENTS

- Art in health, Healing environment:
- Health care planning: preparation of Vision, Mission & Services
- System adaptability : Moving from old system to contemporary systems,
- Adaptive reuse, regeneration, Flexibility, adaptability & Expansion in hospitals.
- Planning, design, contract documents, construction & operation of healthcare facilities.
- Economics: Economics in health care system.
- Capital/ Financial planning process: models of finance in healthcare as Bismarck model
- Norms & policies: Health policies & Allied norms
- Concepts in health infra structure. Social and physical infrastructure
- Qualitative and quantities techniques of assessing requirements, planning amenities and institutions.
- Public and private sector role in resource mobilization. Instruments of resource mobilization.
- Quality control mechanisms, institutions.
- Concepts of decentralization of development and management.
- Concept of outsourcing in healthcare.

OUTPUT:

- The output should be presented at the end of the semester in the form of written test.

MAR-334: HOSPITAL SERVICES: CLINICAL AND NON CLINICAL

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

To inform the students about the concept of clinical activity and non clinical activity along with relevance of clinical and non-clinical division.

METHODOLOGY:

The methodology of imparting information should be lectures and presentations citing examples and case studies.

CONTENTS:

Clinical services

- Types of clinical services in healthcare institutions e.g General surgery
- Human Recourse e.g Physicians
- Clinical Departments i.e OPD

Non Clinical services

- Types of non clinical services in healthcare institutions
- Human Recourse
- Clinical Departments

Inter-relationship between clinical and no-clinical services.

MAR-335: HEALTH CARE NURSING SERVICES

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | 50 | | 100 | 4 |

OBJECTIVE:

- To develop basic understanding of Nursing in health-care facilities
- **METHODOLOGY:**
 - Lectures introducing various concepts of Nursing in health-care facilities.

CONTENTS

Planning and designing of Nursing Services

- General Nursing Unit
- Obstetrical Nursing unit
- Isolation Rooms
- Newborn Nurseries
- Cardiac Catheterization therapy
- Transfusion Chambers
- Dialysis Unit
- Pediatrics Nursing unit
- Psychiatric Nursing unit
- Intensive Care Unit (ICUs)
- Pulmonary medicine
- Chemotherapy Wards- Day care
- High Dependency Units

Planning and designing of Public Areas & Staff Facilities

- Entrance and lobby area
- Main Waiting Area
- Staff Facilities
- Meditation Room
- Coffee shop/ Gift shop etc.

OUTPUT:

- The output should be presented at the end of the semester in the form of written test.

MAR-336: STUDIO- II

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 6 | 8 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|-----|----|-----|-------|--------|
| 100 | | 100 | 200 | 8 |

OBJECTIVE:

- Exploring and designing of large scale health-care facilities.

METHODOLOGY:

- Studio Exercise.
- Case studies to be clubbed with library research & live surveys.
- Detailed design scheme

CONTENTS

The studio problem should be of completely new development project. The project should start with real or imaginative site analysis, legal, ownership or other frameworks, development strategy, funding, cost recovery system, infrastructure development, and culminate in three dimensional projects with models and report.

- Super specialty Hospitals
 - Cardiac
 - Oncology
 - Dermatology
 - Trauma Center
 - Eye
 - ENT
 - Liver & Renal Diseases
 - Neurology
 - Nephrology
 - Pediatrics etc
- Large scale projects like, Medical College, Dental College, Pharmacy College, Nursing College etc.

MAR-337: DISSERTATION-III

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | | 50 | 100 | 4 |

OBJECTIVE:

- To be able to understand latest concepts and their incorporation through innovation in the Medical architecture.

METHODOLOGY:

- This is a research exercise where student will choose a topic and will study its various aspects as per the scope of the research.
- The discussions with the supervisor and site visits as required.
- To build upon the dissertation-II done in Second Semester.

CONTENT:

- Planning and designing strategies of basic components/Elements of healthcare institutions.
- Stake holders and their role
- Unit planning e.g Consultation room
- Facility planning
- Departmental Planning
- Site planning
- Master Planning
- Urban Planning (Medicity)
- Manpower planning
- Equipment planning
- Furniture planning
- Material management
- hospital planning: Rural v/s urban context, low-rise v/s High rise, FOH v/s BOH
- Holistic Approach for Healthcare facility Planning
- Circulation Pattern: Horizontal & Vertical Connectivity
- Signage planning
- Safety and risk management
- Study of functional & spatial characteristics of existing hospitals.

- Study of site planning of existing hospitals. Study of segregation of circulation in hospitals i.e. outpatients & Inpatients, Staff & visitors, supplies & waste, critical & non critical areas, vehicular & pedestrian etc.
- DPR preparation for various health care institutions.

OUTPUT:

The Dissertation report to be submitted at the end of the semester comprising the Study and conclusions/proposals/guidelines based on the reconnaissance.

MAR-431: SEMINAR: PROJECT MANAGEMENT

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 2 | 4 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|----|----|----|-------|--------|
| 50 | | 50 | 100 | 4 |

OBJECTIVE:

- To study the management aspects related to the Thesis topic and formulate a management framework or proposals.

METHODOLOGY:

- Lectures and Presentations.
- Case Studies (primary & secondary) by students to further the understanding.
- Discussions with individual student during the course of dissertation.

CONTENTS:

Students are required to select a management aspect associated with the Thesis Project. The output should be in the form of management framework or proposals that augments the Thesis Project.

MAR-432: THESIS

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 14 | 16 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|-----|----|-----|-------|--------|
| 200 | | 200 | 400 | 16 |

OBJECTIVE:

- Thesis projects must reflect the culmination of the development of the students architectural design skills. The project must be chosen so as to address and revolve, through design, all aspects of the design process.

METHODOLOGY:

- The student must submit to the department the synopsis of at least two design/research projects for approval, out of which one would be selected depending upon its merit for the scope of design intervention and its scale.
- A guide to supervise will be appointed by the head for each student. Regular progress will be monitored in stages.

CONTENTS

The Medical architecture thesis is the culmination of four semesters of theory and design inputs course.

The product must consist of well formatted professionally produced report in the case of a research thesis, and a set of drawings, models etc. to demonstrate the issue based design thesis. A report would be necessary in this case as well.

The thesis is more than a terminal project and must have a point to prove. It must make original contribution through generic principles, replicable in other health facility design situations. A theoretical thesis must break new ground in Medical Architecture theory.

MAR-433: DISSERTATION-IV

TEACHING HOURS

| L | T/ST | TOTAL |
|---|------|-------|
| 2 | 6 | 8 |

EXAMINATION MARKS

| IA | WR | VV | TOTAL | CREDIT |
|-----|----|-----|-------|--------|
| 100 | | 100 | 200 | 8 |

OBJECTIVE:

- To be able to understand latest concepts and their incorporation through innovation in the Medical architecture.

METHODOLOGY:

- This is a research exercise where student will choose a topic and will study its various aspects as per the scope of the research.
- To build upon the dissertation-III done in Third Semester.

CONTENTS

The dissertation topic may include

- Operation management of hospitals.
- Role of Banks and other financial institutions in health care sector.
- Future of health care Architecture
- Political framework of healthcare sector
- Contemporary designs in health care industry.
- Social impacts of planned health care facilities.
- Critical evaluation of government & private hospitals.
- Energy efficient planning of hospitals.
- Hospital and Environment
- Feasibility study of a Hospital
- Medical Tourism
- Evidence Based Design Solutions
- Feasibility Analysis
- Financial Analysis: Establishment cost, Running costs
- Patient Psychology
- Development of health policy
- Healing architecture
- Green hospitals

OUTPUT:

- The Dissertation report to be submitted at the end of the semester comprising the Study and conclusions/proposals/guidelines.