Bachelor of Science in Health Information Management (B.Sc. HIM) Regulation and Curriculum, as per the National Commission for Allied and Healthcare Professions (NCAHP) Act, 2021

B. Sc. in Health Information Management

Introduction:

Objectives/Aim of the program:

The program is designed to acquire sufficient knowledge of the prevailing system of scientific documentation with computerization, information search and retrieval; to get familiar with large databases dealing with various entities such as diseases, pathological conditions, symptoms, drugs & concepts such as data mining; to learn the classification & codification of drugs, diseases & their treatment; to acquire knowledge of the current trends in Health Information Management like health insurance, third party payers and document scanning etc.

Expectation from the future graduate in the providing patient care:
On completion of this program, the students will be able to:

- Evaluate knowledge of practice relevant to health information management.
- Use formal research as a tool to evaluate and develop practice.
- Identify his/her professional learning and developmental needs.
- Work collaboratively with other health care professionals to achieve a quality service.
- Enable health care organization for better management of patient information
- Support health care administrators in routine activities
- Apply the knowledge obtained on specialized areas effectively in the health care system.
- Use interpersonal skills to facilitate effective communication with various health care professionals
- Develop health information standards according to the health care requirements
- Apply analytical and reflective skills to evaluate and improvise professional practice.
- Uphold legal ethical standards within his/ her profession

Eligibility for admission:

Pass in 12th class of 10 +2 of CBSE or equivalent with minimum aggregate of 55% marks in physics**,** chemistry and biology provided the candidate has passed in each subject separately. A candidate also must have passed in English (Core or selective or functional) as a subject of studies in the qualifying examination.
OR

Diploma in Health Information Management after Pass in 12th class of 10 +2 of CBSE or equivalent with minimum aggregate of 50% marks in physics chemistry and biology provided the candidate has passed in each subject separately. A candidate also must have passed in English (CORE or selective or functional) as a subject of studies in the qualifying examination.
OR

Candidates with two years diploma from a recognized Government Board in a subject for which the candidate desires to enroll, in the respective Allied Health Sciences program and shall have passed plus 12 [10+2] with Physics, Chemistry and Biology, as principal subjects or candidates with 3 years diploma from a recognized Government Board in a subject for which the candidate desires to enroll, in the respective Allied Health Sciences program & should have studied Physics, Biology and Chemistry as principal subjects during the tenure of the program.

Selection procedure

1. Admission to B.Sc. Health Information Management program shall be made on the basis of eligibility and an entrance Test to be conducted for the purpose. No candidate will be admitted on any ground unless he/she has appeared in the admission test and interview.
2. Successful candidates on the basis of written Test will be called for the interview & shall have face an interview board. The interview board will include the Head of the Department of Health Information Management and Head of the Institution, whose recommendations shall be final for the selection of the students.
3. During subsequent counseling (s) the seat will be allotted as per the merit of the candidate depending on the availability of seats on that particular day.
4. Candidate who fails to attend the Medical Examination on the notified date(s) will forfeit the claim for admission and placement in the waiting list except permitted by the competent authority under special circumstances.
5. The name of the student(s) who remain(s) absent from classes for more than 15 days at a stretch after joining the said program will be struck off from the college rolls without giving any notice.

Provision of Lateral Entry:

Lateral entry to second year for allied health science program for candidates who have passed diploma program from the Government Boards and recognized by State/Central University, fulfilling the conditions specified and these students are eligible to take admission on lateral entry system only in the same subject studied at diploma level

Duration of the program

Duration of the program: 3 academic years or 6 semesters of total duration of 2700 hours (1620 hours of Theory, 1080 hours of practical/clinical posting) and 2000 hours of compulsory internship.

Total hours – 4700

Medium of instruction:

English shall be the medium of instruction for all the subjects of study and for examination of the program.

Attendance:

- No candidate shall be permitted to appear for any one of the parts of BSc. HIM degree program examinations, unless he/ she has attended the classes in the subject for the prescribed period in an affiliated Institution recognized by this University and produces the necessary certificate of study, attendance, satisfactory conduct and progress from the Head of the Institution.
- A candidate is required to put in a minimum of 75% of attendance in both theory papers and 90% practical separately in each subject before admission to the examination. This relaxation in attendance includes for medical & any other reasons approved by the head of the Institution.
- A candidate lacking in the prescribed attendance and progress in any one of the subjects in theory and practical in the first appearance shall not be permitted for admission to the entire examination.

Assessment:

Marks Qualifying for a Pass

Pass in a course will be reflected as grades. No candidate shall be declared to have passed in any course unless he/she obtains not less than **"E" grade**

For core courses (theory / practical), candidate should obtain a minimum of 50% (IAC + ESE or as applicable to course) to be declared as pass.

For non-core including psychology, pre and para clinical course, a candidate should secure a minimum of 40% in ESE to be declared as pass.

For students who fail to secure a minimum of E" grade for a course, an improvement examination is conducted to improve their IAC marks. The student can appear for these examinations along with the subsequent batches" mid semester / sessional exams. The marks obtained in other components of IAC can be carried forward without reassessment.

Evaluation & Grading system criteria

Evaluation & grading **(Manual Relative grading)** of students shall be based on **GPA** (Grade point average) & **CGPA** (Cumulative grade point average).

The overall performance of a student in each semester is indicated by the Grade Point Average (GPA). The overall performance of the student for the entire program is indicated by the Cumulative Grade Point Average (CGPA).

Evaluation weightage

The final evaluation and grading for each subject shall be based on internal assessment components (50 percent weightage) and semester end examination (50 percent weightage) conducted by the University.

Weightage distribution

Item	Weightage (%)
Class participation/presentation	20%
Assignment & quizzes	10%
Sessional exams	20%
Semester end University exam	50%
Total	100%

Letter Grade	Credit value (Grade Value)
A+	**10**
A	**9**
B	**8**
C	**7**
D	**6**
E	**5**
F	**0**

Course code	Course	Credits (a)	Grade obtained by the student	Credit value (b)	Grade Points(a x b)
BH 01	Course - 1	4	E	6	24
BH 02	Course - 2	4	B	8	32
BH 03	Course - 3	3	A+	10	30
BH 04	Course - 4	4	C	7	28
BH 05	Course - 5	5	A	9	45
TOTAL		**20**	**-**	**-**	**159**

Progression Criteria to higher semesters

The eligibility for promotion to the next academic year is subject to securing the minimum academic performance as specified below:

- First to second year: a minimum of 70% of the credits at the end of the first year (includes first and second semester)
- Second to third year: a cumulative minimum of 80% of the credits at the end of the second year (includes first, second, third and fourth semester)
- Third year to Internship/group project: Student will be eligible for internship/ group project only after successful completion of the entire course work, i.e. 100% credits to be accrued by the end of the third year.

The student must complete all the course work requirements by a **maximum of double the program duration**. For e.g. 4 years‟ program, all the academic course work needs to be completed within 8 years. Failure to do so will result in exit from the program.

Credit Details:

- Lectures: 1 hour/week = 1 Credit
- Tutorials: 1 hour/week = 1 Credit
- Practical: 2 hours/week = 1 Credit

  Project: 30 hours/week = 1 Credit

Credit Includes: L – Lectures, T- Tutorials, P- Practical, and PR – Project.

Undergraduate Program Requirements - Credits

A minimum of 170 credits are required for the B. Sc. in Health Information Management program of 4 years duration inclusive of one-year internship/externship.

Model Curriculum Outline – FIRST SEMESTER

Course Code	Course Title	Credits Distribution (L, T & P are hours/week)				Marks
		L	T	P	C	Total
BHIM-01	Anatomy	2	1	-	3	100
BHIM-02	Physiology	2	1	-	3	100
BHIM-03	Fundamentals of IT	1	-	2	2	100
BHIM-04	Medical ethics & professional values	2	1	-	3	100
BHIM-05	Communication Skills	3	1	-	4	100
BHIM-06	Foundations of Health Information Management	3	1	-	4	100
BHIM-07	Introduction to the healthcare delivery system	2	1	-	3	100
	Total	**15**	**6**	**2**	**22**	**700**
Note: The mark distribution comprises Internal Assessment Components (IAC) and End Semester Examination (ESE) or only Internal Assessment Components (IAC).						

SECOND SEMESTER

Course Code	Course Title	Credits Distribution (L, T & P are hours/week)				Marks
		L	T	P	C	Total
BHIM-08	Basics of Pharmacology	2	-	-	2	100
BHIM-09	Microbiology & Pathology	2	-	-	2	100
BHIM-10	General Psychology	2	1	-	3	100
BHIM-11	Environmental Sciences & Indian Constitution	2	1	-	2	100
BHIM-12	Medical Terminology – I	3	1	-	4	100
BHIM-13	Database Management System	3	1	-	3	100
BHIM-14	HIM Practicum – I	-	-	8	4	100
	Total	**14**	**4**	**8**	**20**	**700**
Note: The mark distribution comprises Internal Assessment Components (IAC) and End Semester Examination (ESE) or only Internal Assessment Components (IAC).						

THIRD SEMESTER

Course Code	Course Title	Credits Distribution (L, T & P are hours/week)				Marks
		L	T	P	C	Total
BHIM-15	Foundations of Management	2	-	-	2	100
BHIM-16	Medical Terminology - II	3	1	-	4	100
BHIM-17	Health Information Management Systems	2	1	-	3	100
BHIM-18	Healthcare Quality & Hospital Statistics	3	1	-	4	100
BHIM-19	HIM Practicum - II	-	-	8	4	100
BHIM-20	Open elective	2	1	-	3	100
	Total	**12**	**4**	**8**	**20**	**600**
Note: The mark distribution comprises Internal Assessment Components (IAC) and End Semester Examination (ESE) or only Internal Assessment Components (IAC).						

FOURTH SEMESTER

Course de	Course Title	Credits Distribution (L, T & P are hours/week)				Marks
		L	T	P	C	Total
BHIM-21	Biostatistics & Research Methodology	3	1	-	4	100
BHIM-22	Organization & planning of HIM department	3	1	-	4	100
BHIM-23	Health Insurance management	2	-	-	2	100
BHIM-24	Application of HIM in non-traditional setting	2	-	2	3	100
BHIM-25	Hospital Accounting	2	1	-	3	100
BHIM-26	Consumer Digital Health	2	1	-	3	100
BHIM-27	Program Elective – I	2	1	-	3	100
	Total	**16**	**5**	**2**	**22**	**800**
Note: The mark distribution comprises Internal Assessment Components (IAC) and End Semester Examination (ESE) or only Internal Assessment Components (IAC).						

FIFTH SEMESTER

Course Code	Course Title	Credits Distribution (L, T & P are hours/week)				Marks
		L	T	P	C	Total
BHIM-28	Electronic Health Records	2	-	-	2	100
BHIM-29	Healthcare policies & standards	2	-	-	3	100
BHIM-30	Disease Classification and Nomenclature	1	-	6	4	100
BHIM-31	Hospital Organization & Administration	2	1	-	3	100
BHIM-32	Information Governance & Data Privacy	2	-	-	2	100
BHIM-33	Health information Systems analysis & design	2	1	-	3	100
BHIM-34	Open elective - II	2	1	-	3	100
	Total	**13**	**3**	**6**	**20**	**800**
Note: The mark distribution comprises Internal Assessment Components (IAC) and End Semester Examination (ESE) or only Internal Assessment Components (IAC).						

SIXTH SEMESTER

Course Code	Course Title	Credits Distribution (L, T & P are hours/week)				Marks
		L	T	P	C	Total
BHIM-35	Human resource management	2	1	-	3	100
BHIM-36	Disease Coding for Health Insurance	1	-	6	4	100
BHIM-37	Advances in HIM	2	-	-	2	100
BHIM-38	Professional practices in HIM	2	1	-	3	100
BHIM-39	Clinical Decision Support System and Information Systems	2	-	-	2	100
BHIM-40	Medical Transcription	1	-	4	3	100
BHIM-41	Program Elective- II	2	1	-	3	100
	Total	**13**	**3**	**10**	**20**	**700**
Note: The mark distribution comprises Internal Assessment Components (IAC) and End Semester Examination (ESE) or only Internal Assessment Components (IAC).						

SEVENTH AND EIGHTH SEMESTER- INTERNSHIP/EXTERNSHIP

A compulsory Internship & Externship of one-year duration (2000 hours) equivalent to 42 credits must be completed by a student to be eligible for awarding a bachelor's degree.

Note: Individual/group projects can be included as an option during internship & externship. Externship must be of minimum 3 months' duration.

Log notes for BSc. HIM program:

Every student must be provided with a standard log note from the beginning of the first year and same shall be used till the end of the program. A log note shall be a verified record of the progression of learner documenting the requisite knowledge, skills, attitude, and competencies acquired throughout the coursework.

Contents

First Semester

BHIM-01/02: Human Anatomy and Physiology

On completion of this subject, the student will be able to:

- Identify all anatomical structures of the human body
- Understand the technical functions of various organs and systems of the body
- Acquire knowledge about various body fluids, hormones and enzymes

1. Anatomy:

i. Integumentary system
   - Epithelium – Types and functions
   - Connective tissue – fibers and cells

ii. Musculoskeletal system
   - Cartilage – type, structure and functions
   - Bone – types, structure and blood supply
   - Muscles – classification, structure and function
   - Neuron – types and structure, typical spinal nerve
   - Blood vessels – arteries, vein lymph vessels, lymph nodes, structure of lymph node
   - Joints – classification, examples, structure of a typical synovial joint
   - Classification of synovial joint

iii. Respiratory system
   - Nasal Cavity, Larynx, Trachea, Thoracic Cage, Diaphragm, pleura, lungs

iv. Cardiovascular system
   - Mediastinum, Pericardium, heart, blood supply and nerve supply of heart, blood vessels in thorax, thoracic duct, major arteries and veins of head and neck, Major arteries and veins of abdomen and pelvis

v. Blood and lymphatic system

vi. Digestive system
   - Tongue, salivary glands, pharynx, esophagus, stomach, small intestine, large intestine, rectums and anal canal, Difference between jejunum and large intestine, difference between small and large intestine, liver, extra-hepatic biliary apparatus, pancreas

vii. Urogenital systems
   - Urinary System: Kidney, Ureter, urinary bladder, urethra
   - Male Reproductive System: Testes, spermatic cord, vas deferens, prostate, seminal vesicles and ejaculatory duct
   - Female Reproductive System: Uterus, uterine tube, ovary

viii. Endocrine system
   - Pituitary gland, thyroid gland, parathyroid gland, suprarenal gland

ix. Nervous system
    - Spinal cord, Brain, External feature of medulla oblongata, cerebellum, Attachment of cranial nerve to the brain stem, Mid-brain, Diencephalon, Corpus striatum, Cerebral hemispheres, fiber system of brain, blood supply of brain, ventricle, CSF production and circulation

x. Organs of special sense
    - Gross anatomy of eye; Gross anatomy of external, middle and internal ear; Skin

2. Physiology:

i. Basic concepts and Nerve physiology
    - Transport across cell membrane: Passive transport- diffusion, facilitated diffusion, osmosis; Active transport-primary and secondary active transport
    - Body fluids: Distribution of total body water, ionic composition of body fluids
    - Neuron: Differences in structure and function of myelinated and unmyelinated nerve fibres
    - Resting membrane potential and Action potential

ii. Muscle physiology
    - Muscle: Classification, characteristic features of skeletal, cardiac and smooth muscles
    - Skeletal muscle: Structure, types of muscle fibers, neuromuscular transmission, excitation contraction coupling, rigor mortis
    - Smooth muscle: Types

iii. Blood
    - Composition and functions of blood
    - Plasma proteins and their functions
    - Red Blood Cells: Erythropoiesis- Stages and regulation Hemoglobin: Normal values, variations and functions White Blood Cells: Types, normal values and functions Platelets: Normal range, functions, purpura
    - Coagulation or clotting of blood: Clotting factors, Intrinsic and extrinsic mechanisms, hemophilia
    - Anticoagulants: Classification and examples
    - Blood groups: ABO and Rh systems, importance of blood grouping, hazards of blood transfusion, erythroblastosis fetalis
    - Functions of lymph

iv. Cardiovascular system
    - Structure and innervation of heart and blood vessels
    - Cardiac muscle: Properties, Cardiac cycle
    - Heart sounds: Differences between first and second heart sounds
    - Electrocardiogram (ECG): waves, intervals and uses
    - Heart rate: Normal value, variations, regulation
    - Cardiac output: Definition, normal value, variations and regulation: role of heart rate, stroke volume and myocardial contractility, muscular exercise and cardiac output
    - Blood pressure: Definition, normal value, factors influencing BP, short-term regulation

v. Respiratory system
    - Organization: air passages, lungs, respiratory membrane
    - Mechanism of breathing: Inspiration, expiration, pulmonary ventilation, alveolar ventilation
    - Graphical representation of pressure changes during respiration
    - Spirogram
    - Oxygen transport: Forms, oxygen dissociation curve
    - Carbon dioxide transport: Forms of transport, mechanism
    - Regulation of respiration: neural and chemical regulation Cyanosis, hypoxia-types, types of hypoxia in which cyanosis occurs Definitions of apnea, dyspnea, asphyxia

vi. Special senses
    - Vision: Cross-section of eye
    - Functions of aqueous humor
    - Visual pathway, visual filed defects
    - Accommodation to near vision, light reflex, refractory errors of the eye
    - Visual acuity
    - Hearing: Structure and functions of external, middle and inner ear
    - Mechanism of hearing
    - Vestibular apparatus: Parts and functions
    - Receptors for taste and smell sensations

BHIM-03: Fundamentals of Information Technology

- Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.
- Input output devices: Input devices (keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices (monitors, pointers, plotters, screen image projector, voice response systems).
- Processor and memory: The Central Processing Unit (CPU), main memory.
- Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.
- Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).
- Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.
- Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.
- Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.
- Introduction of Operating System: introduction, operating system concepts, types of operating system.
- Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.
- Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet.
- Application of Computers in clinical settings.

BHIM-04: Medical Ethics and Professional Values

- Medical ethics - Definition - Goal - Scope
- Introduction to Code of conduct
- Basic principles of medical ethics – Confidentiality
- Malpractice and negligence - Rational and irrational drug therapy
- Autonomy and informed consent - Right of patients
- Care of the terminally ill- Euthanasia
- Organ transplantation
- Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.
- Data privacy – Indian government acts (IT act, SPDI rule etc.) on data management and sharing.
- Professional Indemnity insurance policy
- Development of standardized protocol to avoid near miss or sentinel events
- Obtaining an informed consent.

BHIM-05: Communication skills

Major topics to be covered under Communication course

- Basic Language Skills: Grammar and Usage.
- Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.
- Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a focus on paragraph form and organization.
- Basic concepts & principles of good communication
- Special characteristics of health communication
- Types & process of communication
- Barriers of communication & how to overcome

BHIM-06: Foundations of Health Information Management

1. **Characteristics of quality Medical Records:**
   - Definition, Characteristics of „Good" Medical Record
   - Values of „Good" Medical Record to various users
   - Required Characteristics of entries in medical Records
   - Source-oriented, Problem-oriented, and Integrated medical records
   - Medical Record Forms and their Content
   - Standard Order of Arrangement of Medical Record forms
   - Analysis of Medical Record-Quantitative & Qualitative
   - Incomplete Record Control

2. Medical Records for different patient encounters with health care facility
   - Ambulatory Care Records (Emergency & Outpatient Records)
   - Clinical Records in Long Term Care and Rehabilitation Facilities
   - Mental Health Records

3. Filing Methods, Storage, and Retention
   - Numbering and Filing Systems
   - Filing
   - Storage- Microfilming and Disk Storage
   - Retention
   - Registers & Indexes
   - Record movement control & Tracking system

4. Organizational Aspects of Medical Record Department/Services
   - Policies
   - Functions
   - Location, Space and Layout
   - Equipment
   - Forms Designing and Control
   - Medical Records Flow and Processing

5. Organizational Aspects of the Centralized Admitting Services

- Principles of Identification of a Patient
- Methods of Collection of Identification Data
- Types of Central Admitting Services
- Admitting Policies
- Procedure Outlines for Admissions
- Flow of Records following Admissions
- Advantages of good Admitting Policies and Procedures
- Pre-requisites for smooth & efficient functioning of the Centralized Admitting Services

6. Healthcare Data

- Primary source of Health Data and Information
- Health data users and decision making
- Overview of Patient Record
- Data Collection Standards
- Basic principles of data collection
- Methods to ensure data quality
- Data needs across the healthcare continuum

7. External Influences on the HIM profession

- Standards and Regulations
- Medicare
- HIPPA
- Computer Technologies
- Malpractice Claims
- Healthcare Reorganization

BHIM-07: Introduction to Healthcare Delivery System

The course provides the students a basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world.
Topics to be covered under the subject are as follows:

1. Introduction to healthcare delivery system

- Healthcare delivery system in India at primary, secondary and tertiary care
- Community participation in healthcare delivery system
- Health system in developed countries.
- Private Sector
- National Health Mission
- National Health Policy
- Issues in Health Care Delivery System in India

2. National Health Program- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Program.

- Introduction to Ayurveda.
- Yoga and Naturopathy
- Unani
- Siddha
- Homeopathy
- Need for integration of various system of medicine

3. Health scenario of India- past, present and future

- Demography & Vital Statistics-
- Demography – its concept
- Vital events of life & its impact on demography
- Significance and recording of vital statistics
- Census & its impact on health policy

4. Epidemiology

- Principles of Epidemiology
- Natural History of disease
- Methods of Epidemiological studies
- Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

5. Community orientation and clinical visit

The objective of this particular section of the foundation course is to sensitize potential learners with essential knowledge; this will lay a sound foundation for their learning across the under-graduate program and across their career. Innovative teaching methods should be used to ensure the attention of a student and make them more receptive such as group activities, interactive fora, role plays, and clinical bed-side demonstrations.

- The community orientation and clinical visit will include visit to the entire chain of healthcare delivery system -Sub center, PHC, CHC, SDH, DH and Medical college, private hospitals, dispensaries and clinics.
- The student will also be briefed regarding governance at village level including interaction and group discussion with village panchayat and front line health workers.
- Clinical visit to their respective professional department within the hospital.

Second Semester

BHIM-08: Basics of Pharmacology

Topics covered:

i. **Introduction to pharmacology**
   - Route of Drug Administration
   - Pharmacokinetics and Pharmacodynamics
   - Drug Toxicity and Safety
   - Autonomic nervous system, including skeletal muscle relaxants
   - Introduction to ANS
   - Cholinergic drugs, Anticholinergic drugs, Neuromuscular blocking drugs and Adrenergic drugs
   - Adrenergic Receptor Antagonist

ii. **General and Local anesthetics**

iii. **Hypnotics and Sedatives**

iv. **Narcotic analgesics, narcotic antagonists**

v. **Non-narcotic analgesics, antipyretics**

vi. **Psycho-pharmacological agents**

vii. **Drugs acting on autonomic nervous system**

viii. **Antihistamines**

ix. **Blocking agents**

x. **Respiratory pharmacology, cardiovascular pharmacology, Gastro intestinal tract**

xi. **Chemotherapy**
   - General aspects
   - Beta lactam antibiotics
   - Cotrimoxazole
   - Aminoglycosides
   - Tetracyclines
   - Macrolides
   - Quinolones
   - Antifungal agents
   - Antiviral drugs
   - Antitubercular drugs
   - Antileprotic drugs
   - Antimalarial drugs
   - Antiamoebic drugs
   - Anthelminthics
   - Anticancer drugs

xii. **Coagulants and anticoagulants**

xiii. **Diuretics, hormones**

- Corticosteroids
- Antidiabetic drugs
- Thyroid and antithyroid drugs

xiv. **Chemotherapy**

xv. **Drug addiction**

xvi. **Special topics**

- Standard abbreviations and symbols used in prescription
- Sources of drug information – Pharmacopeias, non-official references, MIMS, medical journals, FDA – product information
- Drug nomenclature – Chemical, generic, official and trade name
- Prescription writing

BHIM-09: Microbiology & Pathology

1. Microbiology

- Introduction to Microbiology,
- Classification and characteristics of organisms,
- Cultivation and identification of organisms, bacteria etc.,
- Disinfection, antiseptics, sanitation,
- Immunity,
- Allergy
- Pathogenic organisms, non-pathogenic organisms, virus and fungus.

2. Clinical and General Pathology

Topics covered:

- Introduction to Pathology
  - Cell Injury: Necrosis – Definition, Types of Necrosis with examples
  - Cell Growth and Differentiation: Definition and Examples of Hypertrophy, atrophy, hyperplasia, metaplasia
- Inflammation and Repair
  - Inflammation: Definition, types of inflammation with examples
  - Vascular chances: Hemodynamics change, change in vascular permeability Cellular events: Margination, adhesion, emigration, chemotaxis, phagocytosis Granulomatous inflammation
  - Healing and Repair
  - Granulation tissue
  - Process of healing by primary intention Process of healing by secondary intention
  - Factors influencing wound healing
- Infection
  - Fluid and Hemodynamics Derangements: Edema, Shock, Thrombosis, Embolism, Infarction
- Degeneration
- Neoplasia
  - Definition, nomenclature
  - Definition of dysplasia and anaplasia
  - Difference between benign and malignant tumours
  - Cause of tumours Spread of tumours Diagnosis of tumours
- Blood groups, cross-matching, transfusions
- Tests done on various body fluids and tissues
- Infectious Disease
  - Tuberculosis, Leprosy & AIDS
  - Genetics (Basic Terminology)

- Disease of red blood cells
    - Anemia: Definition, classification
    - Clinical Features, etiology and basic investigation of Nutritional anemia & Hemolytic anemia
    - Bleeding Disorder: Classification, clinical features, basic investigation
    - Coagulation disorder: Examples, Hemophilia
    - Platelets disorder: Cause of thrombocytopenia including ITP
- Disease of white cells and lymph nodes
    - Leukemia: Definition, FAB classification, clinical features
    - Lymphoma: Definition, types and Clinical Features

BHIM-10: General Psychology

1. Introduction to Psychology

- Define Psychology.
- Outline the evolution of Psychology as a scientific discipline.
- Summarize the modern schools of Psychology
- Enumerate the different branches of Psychology.
- What is Introspection? List the merits and demerits of introspection.
- Explain the importance of Experimental method in the field of Psychology.
- Explain the observation method in Psychology.

2. Perception

- Define Perception.
- Describe the various principles of Perceptual groupings.
- Illustrate the Gestalt laws of perception.
- Define Perceptual constancy and explain its types.
- Explain Monocular and Binocular cues in Perception.
- Explain types of motion perception.

3. Learning

- Define Learning.
- Explain Pavlov's Classical Conditioning.
- Summarize the various processes of Classical Conditioning with examples.
- Explain the applications of Classical Conditioning.
- What is Operant Conditioning.
- Compare the types of reinforcement and Punishment.
- Explain with the examples the schedules of Reinforcement.
- Explain the applications of Operant Conditioning.
- Explain observation learning with its classic experiment.
- Illustrate the processes in observation learning.

4. Memory

- Define Memory.
- List the processes that underlie memory.
- Explain the characteristics of different types of memory. (sensory, STM, LTM)
- Summarise the different theories of forgetting. (Decay, motivated forgetting, interference, cue dependent displacement)
- List the various strategies to improve memory.

5. Thinking & Problem solving

- Define thinking.
- How thoughts are represented.
- Define concepts.
- Compare the different types of concept.
- Enumerate the steps in creative thinking.
- List the steps involved in problem solving.
- What are the different strategies used to solve problems? (Trial & error, Heuristics, Algorithm)

6. Intelligence

- Define Intelligence.
- Summarize the various theories of Intelligence. (Two factor, Crystallized and Fluid, Multiple intelligence)
- List the different types of Intelligence tests.
- Define Emotional Intelligence.
- What are the different components of emotional intelligence?

7. Motivation & Conflict

- Define Motivation.
- Summarize the biological theories of Motivation. (Drive reduction theory, Optimal arousal theory, Instinct theory)
- Explain the Psychological theories of Motivation. (Maslow's hierarchy theory)
- Define Conflict.
- Explain the types of Conflict with examples. (Approach-Approach conflict, Avoidance-Avoidance conflict, Approach-Avoidance conflict and Double Approach-Avoidance conflict)
- Summarize the different ways to handle conflict. (Task and defense oriented)

8. Emotion

- Define Emotion.
- List the characteristics of Emotion.
- Explain the various theories of Emotion.
- (JamesLange, Cannon Bard, Schatcher Singer)

9. Personality

- Define Personality.
- Explain the Psychodynamic theory of Personality.
- Explain the trait approach towards Personality.
- Summarize Rogers‟ humanistic approach in understanding Personality.
- Enumerate the various assessment methods in studying Personality.

BHIM-11: Environmental Studies and Indian Constitution

Environmental studies

1. Environmental Studies and multi-disciplinary nature

- Explain the meaning, objectives and major environmental issues.
- What is sustainable development?
- Explain the global environmental concerns.

2. Biodiversity, Ecosystem, Energy and natural resources

- Classify the natural resources.
- List the renewable and non- renewable resources.
- Outline the consumption of renewable and non-renewable resources
- Explain the conservation methods of renewable and non-renewable resources
- Outline the availability of water resources, forest, land and mineral resources.
- Summarize the different types of energy. (Conventional sources & Non-Conventional sources of energy, solar energy, Hydro electric energy, Wind Energy, Nuclear energy, Biomass & Biogas, Fossil Fuels, Hydrogen as an alternative energy)
- Define Ecosystem.
- Explain the meaning, structure and functions of ecosystem.
- Explain the biotic and abiotic components of ecosystem.
- Describe the trophic levels in ecosystem.
- What is an energy flow in an ecosystem?
- Explain Biodiversity and its conservation.
- (in situ & ex situ, IUCN red list)

3. Environmental Pollution

- Explain the various types of Environmental Pollution. (water, air, land, noise, solid waste, Biomedical waste, nuclear pollution, marine pollution)

4. Environmental laws and legislations

- Outline the environmental laws and legislations. (Related to general, air, water, biodiversity and forests)
- Explain the roles and responsibilities of state and central Pollution Control Boards.
- What is Environmental impact assessment (EIA).

5. Disaster management

- Define disaster.
- What is disaster management?
- Classify the types of disaster.
- What is disaster risk formula?
- Explain the phases in - Disaster management phases. (Disaster management cycle, Emergency response and recovery, Hazardous waste spills and dangers posed)

Introduction to Indian Constitution

- Outline the evolution of the Legal System. (pre-colonial and colonial times, Common Law, Civil Law and Socialist Legal System)
- Explain the constitutional history and constitutional assembly.
- Explain the various organs of the Government. (Executive, Legislature and Judiciary, and Panchayat institutions)
- Summarize the functions of high court and supreme court of India.

1. Fundamental Rights

- Explain the individual rights and fundamental rights.
- Outline the history of the demand for fundamental rights.
- Classify the fundamental rights.
- Explain how fundamental rights are a guarantee against state action.
- Summarize Article 14 to Article 30.
- Explain supreme court as the guardian of Fundamental Rights.

2. Fundamental Duties and Directive Principles of State Policy

- Explain fundamental duties and its enforcement.
- Summarize the utility and the scope of DPSP.
- Outline the socialistic pattern of society.
- Explain the conflict between fundamental rights and DPSP.

3. Role of President and Governors/ Cabinet

- What is the procedure followed while electing a President?
- Explain the power and duties of the President.
- Outline the power and duties of the Governors.
- Explain the role and functions of the council of Ministers.

4. Role of citizens, Constitutional laws (IPC and CrPC), RTI

- Explain the role of citizens in a democracy.
- Explain constitutional laws.
- Explain the Indian Penal Code and Code of Criminal Procedure.
- Summarize right to Information.

BHIM-12: Medical Terminology – I

1. Introduction

- Origin, uses and purpose of medical terminology

2. Stem Words/Root

- Explain the various stem words of the following systems: Musculo-skeletal system, respiratory system, cardiovascular system, Digestive system, Endocrine system, Central Nervous system, Urinary system, Reproductive system, Organs of special sense and Integumentary system

3. Prefixes and pseudo prefixes used in medical terminology

4. Suffixes and pseudo suffixes used in medical terminology

5. Surgical procedures

- Surgical procedure terms used in various systems Musculo-skeletal system, respiratory system, cardiovascular system, Digestive system, Endocrine system, Central Nervous system, Urinary system, Reproductive system, Organs of special sense.

6. Disease, disorders and dysfunctions

- Disease, disorders and dysfunctions of following body system: Musculo- skeletal system, Respiratory system, Digestive system

7. Common Medical Terms

- Explain common medical terms and meaning of those terms

8. Signs and Symptoms

- Classify Common signs and symptoms of disease conditions

BHIM-13: Data Base Management System

1. Introduction to Database Management System

- Define the database, Database Management System.
- Compare the flat file with relational database management system

2. Microsoft Access

- Introduction to MS Access
- What is Microsoft Access?
- List the different MS Access database objects.
- Show table configuring fields, key fields, defining relationship
- Show Inserting and modifying the records

3. Introduction to filters, forms and reports

- Filter Forms
- Sort Forms
- Sort Reports
- Show a form using wizard, design view, Insert, Delete and update the record using form
- Show sorting and filtering data using forms
- Show a report using wizard and design view
- Analyze the report by sorting fields and grouping

4. Writing and modifying queries

- Introduction to Query
- Modifying Query
- Show query run, save, renaming a query, multitable query
- Show modifying a query Parameter, simple and advanced queries

5. Charts and Import DATA

- Introduction to charts
- Import data
- Demonstrate Visualizing the data using charts
- Demonstrate Importing data into tables

BHIM-14: HIM Practicum – 1

This professional practice experience takes place in a health information management department of an acute healthcare facility. Students are supervised by qualified personnel assigned by the healthcare facility, and are provided with practical experiences that ground the theories acquired in prior coursework. Following areas should be covered during the postings.

1. Help Desk

- The various activities of the Help desk section of a hospital.

2. New/ Old Registration

- All the processes pertaining to registration of outpatients at the hospital

3. Admissions or Admitting Department

- All the processes pertaining to admissions of inpatients at the hospital

4. Billing and Reimbursement

- All the billing and reimbursement process of inpatients at the hospital

5. Outpatient Clinics/OPD

- All the administrative activities of the outpatient clinics

Third Semester

BHIM-15: Foundations of Management

1. **Manager and Managing**
    - Levels and processes of Management
    - Roles, Skill, and Functions of a Manager
    - Management and Administration

2. **Planning**
    - Plan and planning
    - Requisites for effective planning

3. **Organization and Organizing**
    - Organization
    - Organizing Authority,
    - Responsibility
    - Span of Management
    - Departmentalization

4. **Directing**
    - Direction
    - Order

5. **Communication**
    - Forms of Communication
    - Communicating Networks
    - Barriers to communicating

6. **Coordination and Coordinating**
    - Co-ordination
    - Co-operation
    - Interdependence

7. **Decision Making**
    - Decision
    - Types of rational decision making

8. Staffing

- Manpower planning
- Recruitment
- Selection
- Placement
- Orientation
- Training and Development
- Performance Appraisal
- Wage incentive plans
- Promotions

9. Leader and Leadership

- Types of leaders
- Leadership theories
- Motivational techniques
- Morale
- Counseling
- Mentoring

10. Control and Controlling

- Control as a function
- Controlling as a process
- Techniques

11. **Management Principles**

- Management thoughts through ages
- F.W. Taylor
- Henry Fayol

BHIM-16: Medical Terminology – II

1. Disease, disorders and dysfunctions

- Disease, disorders and dysfunctions of following body system: Cardiovascular system, Endocrine system, Metabolic & nutritional disorders, Central Nervous System, Mental & Behavioral, Urinary system, Male & Female reproductive system, Pregnancy, Childbirth and puerperium, Eye & Ear, Skin disease, Infectious Disease, Sexually Transmitted disease.

2. Common medical Abbreviations

- List out Various Abbreviations and its expansion

3. Syndromes

- Explain various syndromes

4. Terminology of Malignancy

- Explain Benign & Malignancy
- Illustrate the symptoms of malignancy
- Discus Treatment modalities
- Classify types of cancers

BHIM-17: Health Information Management System

1. Professional Core Model of Health Information Management

- Core model of HIM
- Roles and Values of HIM
- Resources for Health Information Systems

2. Health Information System Architecture and Models

- Types of Health information system
- Technologies in management of HIS Architecture,
- Models and frameworks for HIS

3. Introduction to Terminologies and Classification Systems

- Evolution of the nomenclature system
- SNDO
- SNOP
- SNOMED
- SNOMED-CT

4. Disease Classification Systems for HIS

- Evolution of coding classification systems
- International classification systems (ICF, ICD-classification systems)
- Procedure coding Systems
- CPT,
- ICPM,
- ICD10 PCS
- HCPCS

5. New technologies in healthcare

- AI, mHealth,
- Internet of Medical Things,
- Digital twins,
- cloud computing,
- primary prevention of disease,
- nanotechnology,
- big data analysis

BHIM-18: Healthcare Quality and Hospital Statistics

Healthcare Quality

- Introduction to quality management
- Quality management principles
- Total Quality Management
- Introduction to quality Assurance in health care
- Dimensions of quality Assurance in health care
- Core principles of quality Assurance in health care
- Quality Assurance models in health care
- Quality Improvement methods and models in health care
- PDCA, Performance Improvement, six step method etc.
- Monitoring and evaluation process in health care
- Utilization review management process
- Credentialing in health care
- Risk management activities
- Medical record documentation analysis – Quantitative and Qualitative
- Medical audit, Hospital infection control program

Hospital Statistics

- Introduction to Hospital Statistics
- Mortality Statistics (Net death rate, gross death rate, Anaesthesia death rate, postoperative death rate, maternal death rate, infant mortality rate, neonatal death rate, fetal death rate)
- Solving various statistical problems
- Morbidity statistics (Complication rate, comorbidity rate, postoperative infection rate, nosocomial infection rate, community acquired infection rate, total infection rate, prevalence and incidence rate).
- Solving various statistical problems
- Census statistics (Daily inpatient census, Inpatient service days, inpatient bed count, length of stay, average length of stay, total length of stay, average daily inpatient census, Bed occupancy rate, Bed turnover rate)
- Solving various statistical problems
- Different types of data and types of data display.

BHIM-19: HIM Practicum – II

This professional practice experience takes place in a health information management department of an acute healthcare facility. Students are supervised by qualified personnel assigned by the healthcare facility, and are provided with practical experiences that ground the theories acquired in prior coursework. Following areas should be covered during the postings

1. Indexing and Filing

- Describe and demonstrate the various functions of the filing and indexing of a medical record.

2. Correspondence

- Describe and demonstrate the various functions of the entire process of correspondence within the enterprise and external agencies

3. Statistics

- Estimate the data from the medical records for research reporting
- Compile and compare the various data for statistical purposes and present the data

4. Medical Audit

- Analyse and compare the various functions of medical audit with regards medical records department according to standards prescribed by NMC

5. Overall Management of the Health Information at a Hospital

- Develop a plan for coordination of the medical records department and organizing and supporting administrative activities
- Develop a contingency plan for implementing electronic health records for a Primary, Secondary and Tertiary Care Hospital.

BHIM-20: Open Elective-I

Open elective is credited, choice-based and is graded as satisfactory / not satisfactory (S/NS). Students make a choice from pool of electives offered by the respective institution / Online courses as approved by the department.

Fourth Semester

BHIM-21: Bio-Statistics & Research Methodology

Bio-statistics

- Definition of Statistics and Biostatistics
- Role of statistics in Health Sciences
- Variables: Qualitative & Quantitative, Continuous & Discrete, Dependent & Independent
- Scales of Measurement: Nominal, Ordinal, Interval, Ratio
- Organization of data
- Types of class intervals: Inclusive, Exclusive & Open ended
- Frequency Distribution: Measures of Central Tendency – Arithmetic Mean, Median and Mode for un-grouped and grouped data
- Presentation of data: Bar diagram, Pie Diagram, Histogram, Frequency polygon, Frequency curve, and Line diagram.
- Measures of Variation: (Definition, computation, merits, demerits & application), Range, Inter Quartiles, Mean Deviation, Standard Deviation Co-efficient of Variation
- Partition values: Quartiles, Percentiles
- Probability: Definitions of Classical Probability (Priori) and Frequency, Probability (Posteriori), Addition and Multiplicative Theorems of Probability
- Normal Distribution: Concept, Normal curve, Properties, Skewness and Kurtosis
- Probability Distribution: Binomial distribution, Poisson distribution and Normal distribution
- Sampling- Definition: Population and simple Sampling, Simple Random Sampling, Stratified Random Sampling, Systematic Random Sampling and Cluster Sampling
- Correlation and Regression: Scatter Diagram, Linear Correlation and Linear Regression Equation Test of Significance – Procedure Test of Significance for large samples and for small samples, Properties of correlation coefficient, Examples
- Research Process and Research Methodology
- Chi-square Test – Testing for association Misuse of Chi-square Test

Research Methodology

The objective of this is to help the students understand the basic principles of research and methods applied to draw inferences from the research findings.

- Introduction to research methods
- Identifying research problem
- Ethical issues in research
- Research design
- Basic Concepts of Biostatistics

- Types of Data
- Research tools and Data collection methods
- Sampling methods
- Developing a research proposal

BHIM-22: Organization and Planning of Health Information Management Department

This subject introduces strategic planning and organizational development. The interplay of strategic leadership, management, and planning will be applied to health information management. Other topics include organizational assessment and benchmarking, change management, and leading enterprise-level projects.
The list of topics to be covered are:

- Knowledge of leadership, management, organizational structures theory
- Knowledge of accreditation requirements, licensing regulations, and certification requirements relevant to department/organization
- Knowledge of financial management and budgeting
- Strategy development
- Policy development
- Ability to create agendas, lead meetings, maintain documentation, and follow up
- Effective communication and negotiation skills
- Conduct a stakeholder analysis

BHIM-23: Health Insurance Management

- Terminologies
- Functions of a health financing system
- What is health insurance?
- History of health insurance
- Values in health insurance
    - Solidarity
    - Risk pooling / sharing
    - Equity
- Participation / empowerment
- The health insurance framework
    - Community
    - Providers
    - Organizer
    - Insurer
- Premium
    - Benefit package
    - Payments
    - Administration
    - Risk management
    - Monitoring the Program
- Types of health insurance
    - Social health insurance
    - Private health insurance
    - Community health insurance (CHI)
    - Government-initiated health insurance schemes (GHI)
    - Differences in the four categories
- Advantages of health insurance
- Problems with health insurance
    - Adverse selection
    - Moral hazard
    - Cost escalation
    - Administrative costs
    - Fraud
- Health insurance in India
    - Social Health insurance
    - Voluntary (commercial) health insurance
    - Daily hospitalization expenses – examples
    - Critical illness cover - examples
    - Community health insurance (CHI)
    - Government-initiated health insurance schemes

BHIM-24: Application of HIM in Non-traditional Settings

The subject covers reimbursement, coding, licensing, and accreditation issues in these facilities:

- Management of health information in non-acute hospital settings
- Ambulatory care, mental health
- Home health, skilled nursing
- Emergency medical services

BHIM-25: Hospital Accounting

The course aims to give a fair view of exposure to the students on the basic concepts of accounts, Finance and Financial Management in Hospital and practical application in Hospital Financial Management Accounting and Health Insurance.

1. **The Nature and purpose of Accounting, Accounting Concepts & Accounting records:**
    - What is accounting information? Who needs it? What they need or expect?
    - What do accountants do?
    - Single Entry Book – keeping
    - Double Entry Book - keeping
    - What is an Account? Making entries.
    - Five types of Accounts (Income, Expense, Asset, Liability, Capital)
    - Book – keeping rules
    - Accounting books/ledgers (Nominal, Purchase, Sales, Journal etc.)
    - Dealing with cash, imprest system

2. **Preparation of various Financial Statements:**
    - Trial Balance
    - Receipts and Payments
    - Income and Expenditure Account
    - Balance Sheet

3. **Fixed assets and Depreciation:**
    - What are fixed assets and why are they different?
    - What is depreciation and why do we need it?
    - How do we calculate depreciation? (pros and cons of different methods)
    - Accounting entries for depreciation

4. **Costing and Pricing:**
    - Financial accounting Vs. Cost accounting
    - Key terms: Direct/indirect, fixed/variable/semi-variable
    - Analyzing results: Standard/budgeted/actual
    - Costing hospital services
    - Taken action: controllable /uncontrollable
    - Making decisions: Marginal/book/out –of pocket costs
    - Reporting costs: Cost Centers, allocation and apportionment of costs
    - Pricing methods and decisions.

5. **Inventory Accounting:**
    - Inventory / stocks
    - Valuation (FIFO, LIFO, WAC etc.)
    - Optimum balance and reorder levels.

6. **Analysis of Financial Statements:**
    - Ratio analysis – meaning and purposes
    - Ratios applicable to Non-profit making organizations

7. **Financial Planning and Control:**
    - Budgets and budgetary control

8. **Use of Computers in Accounting:**
    - Computerized ledger systems
    - Spreadsheets & Excel based accounting

9. **Accounting and Audit Procedures in Health Care Sector:**
    - Accounting System in hospital
    - Purpose of an audit and auditing principles
    - What the auditor does?
    - The audit report – "True and Fair View"
    - Legal requirements: layout, audit and filing of accounts

10. **Health Insurance and Third Party Payers**
    - Definition and history of Health Insurance
    - Concepts in Health Insurance
    - Issues in Health Insurance
    - Effective Health Insurance
    - Good & Bad in Health Insurance
    - Reasons for lack of coverage
    - Denial of claims
    - Contracts or Memorandums of Understanding
    - Health Insurance in India
    - Health Insurance & Third Party Administrators
    - Insurance Regulatory Development Authority & its role
    - Billing & Health Insurance Billing

BHIM-26: Consumer Digital Health

- Introduction to digital health and consumer health informatics
- Digital health stakeholders
- Digital health benefits and risks
- Digital health solutions in health care
- Barriers to digital health technology
- Digital health – patient and physician perspectives
- Digital health – technology, system and enterprise perspectives
- Digital health legal perspectives
- Consumer Health behavior models with respect to digital health

BHIM-27: Program Elective – I

A list of program electives is provided for a candidate to choose based on their interest. The curriculum should have a provision to offer a minimum of two program elective during the entire program duration. However, based on need up to two program electives can be made available across different semesters for a candidate to choose. A program elective in a particular semester must offer a minimum of two courses and a candidate can opt for any one specific course of their choice.

1. Public Health Information Management

- **Introduction: Health Information System**
  - HIS-Definition, Objective, Requirement of HIS, Source of Information, Functions of HIS
- **Components of Health Information System**
  - Types, Various Elements, Steps of Data Collection, Transmission and Processing

- **Organizational Model of Health Services**
  - Organizational Model of health services, Level of Health Service, Management Function, Essential Public Health Functions, Use and Utilization of Health Information
- **Management of Health Information System**
  - Definition, Elements: Resources & Organizational Rules

- **Health Information System Assessment**
  - Health Information Subsystem, Component and Objective and steps Involved in Health Information System Assessment, Performance Indicator of Health Information System

- **Population Based Community Health Information System**
  - History, Key Facet, Basic Principles, Basic Steps for The Development of Population Based Community HIS

- **Computerization of Public Health Information System**
  - Reason for Computerization, Software & Hardware, Advantage & Disadvantages

2. Applied Health Informatics

- **Health care Informatics and Decision Making**
  - Introduction to Decision support system
  - Knowledge Management
  - Administrative uses of DSS
  - Clinical DSS

- **Health care Data and Information Movement**
  - Health Information Exchange
  - Aggregating Health Information
  - Unstructured Data
  - Coded and Structured Data
  - Big data

- **Privacy and Security for Health Care Informatics**
  - Protected Health care information
  - Uses and disclosures of PHI
  - Security risk analysis
  - Administrative, Physical and Technical safeguard standards
  - Confidentiality, Integrity and availability
  - Medical Identity Theft and Disaster Preparedness

- **Legal Electronic Health Record**
  - Legal Health Records
  - Components of LHR
  - Attributes that impact LHR
  - Patient record documentation considerations

- **Consumer Health Informatics**
  - Characteristics of online health consumer
  - Consumer HIT
  - Computing online health
  - Personal health records
  - Validity and reliability of online health information

- **Management of Information in Healthcare Organizations**
  - Evolution from Automation of Specific Functions, to Departmental, to Hospital-wide and then Healthcare System Information Systems
  - Information Requirements
  - Integration Requirements
  - Security and Confidentiality Requirements

- Patient Management and Billing
- Departmental Management
- Care Delivery and Clinical Documentation
- Clinical Decision Support
- Financial and Resource Management
- Central and Mainframe-based Systems
- Departmental Systems
- Integrated Systems from Single Vendors
- Changing Organizational Landscape
- Technological Changes Affecting Healthcare Organizations
- Societal Change

Fifth Semester

BHIM-28: Electronic Health Record

This subject explores the development of electronic health records (EHRs) and health informatics. Students will analyze the technical components of EHRs including laboratory information systems, pharmacy information systems, picture archiving and communication systems, order sets, clinical protocols, provider orders, medication administration records, point-of-care charts, and clinical decision support systems. The benefits and barriers of implementing electronic health records will be discussed. The course will also cover personal health records, network architectures, and connectivity.

The list of topics to be covered are:

- What is EHR?
- Benefits of Electronic Health Records
- How to Implement EHRs
- Barriers to implement EHRs
- What are the advantages of electronic health records?
- What information does an electronic health record (EHR) contain?
- EMR vs EHR – What is the Difference?

BHIM-29: Healthcare Policies and Standards

- Basic concepts and development of health care policies
- Public health policies in Indian and global context
- Universal Health coverage
- Health care inequalities – conceptual framework of health inequality
- Public and private sector role in managing health inequalities
- Disease control policies: global and national perspectives
- Sustainable development goals and health
- National Health mission and programs
- Indian public health standards
- Health record IT standards – HER, DICOM, LOINC
- HIPPA and GDPR
- Accreditation standards – NABH, NABL and JCI.

BHIM-30: Disease Classification and Nomenclature

1. Morbidity and mortality coding and Application of selection rules

- Morbidity and mortality coding.
- Selection rules for the main condition and other conditions.
- Selection rules for underlying cause of death.

2. Contents and conventions of ICD 10 and its application in mortality and morbidity coding.

- Contents and conventions used in ICD 10.
- Application in mortality and morbidity coding

3. Coding guidelines from chapter I through chapter XXI and its application.

- Coding guidelines from chapter I through chapter XXI and its application

4. Abstraction and compilation of morbidity and mortality data for internal and external reporting.

- Abstraction and compilation of morbidity and mortality data for internal and external reporting

5. Coding Practice (Live medical records)

BHIM-31: Hospital Organization and Administration

1. Introduction to Hospital Administration

- Who's Who in hospital – Key administrators and their functions, overview of medical and para-medical specialties, main service departments:
- Overview of health services – government services: private & not for profit: primary, secondary & tertiary health care: types of hospital: community, super-specialty etc.

2. Hospital Organization

- Basics of administrative areas of hospitals, different types of work places, privatization in health sector

3. Public Relation in a hospital

- Introduction to Public Relation Department and its function, Hospital and news media relations and Disaster Preparedness planning and Promotion of Medical tourism

4. Marketing in Hospitals

- Concept of marketing and Market opportunities, handling the grievance of patients, Advertising and branding of hospitals and innovative marketing, Digital marketing

5. Management of hospital

- Professional Management, Duties of the hospital administrator and Functioning of modern hospitals

6. Disaster management and planning

- Basics of disaster management and Mass casualties, Components of disaster plan, Disaster management planning and implementation

7. Planning and Designing Public Areas

- Introduction, various areas with the hospital, Staff facilities

8. Patient Care Services

- Patient care services and evaluation

9. Pricing in Hospitals

- Hospital Pricing options and Contemplating price changes

BHIM-32: Information Governance and Data Privacy

1. Introduction to Information Governance

- Information governance, evolution, need, benefits,
- Information governance maturity model
- Case Studies

2. Information Governance in Healthcare

- Introduction, Reason for IG in Healthcare, present healthcare scenario – Global & India
- Role of information governance in healthcare, information governance principles for healthcare Policy Framework – National & International
- Case Studies

3. Information Governance in Managing Healthcare Data

- Healthcare Data Structure
- Management of Healthcare Data under Information Governance–National & International
- Case Studies

4. Information Technology to Support Information Governance

- Need of Information Technology in Information Governance
- Benefits of Information Technology
- Role of Information Technology in building information governance, HIT standards
- Case Studies

5. Stakeholders & Information Governance

- Stakeholder of Information Governance in Healthcare
- Stakeholders Expectation Towards Information Governance
- Role of Stakeholders in Building Information Governance
- Case Studies

6. Data privacy

- Introduction to data privacy
- Digital health and privacy
- Health data privacy management
- Health data privacy challenges and breaches
- Health data privacy and technology
- Health data privacy standards and applications

BHIM-33: Health Information System analysis and design

- Healthcare information systems development overview
- Systems Development Process & Health Care Settings
- Strategic Planning for IT Projects
- System requirements analysis
- Standard Terminology and Language in Healthcare
- Personal Health Record
- Health Information Exchanges
- System proposal: design & implementation
- Selecting a Healthcare Information System
- Usability of Health Informatics Applications
- System maintenance & support
- Information Systems Training
- Information Security and Confidentiality
- Systems Integration and Interoperability
- Legal and Regulatory Issues

The subject reviews the structure of clinical data and e-health records, and the required standards and regulations for documentation. Health information benchmarks include conceptual, documentation, messaging, and application standards. Students will learn about security issues for reimbursement and prospective payment systems, analytical methods for identifying trends, and presentation techniques for healthcare decision-making.

Introduction to health informatics:
Definition, Domain, Sub-domain, Tools, Focus, Application, subject area, Aspects, & Functions Major theories such as System Theory, Information Theory, Learning Theory and Change Theory Health Informatics Literacy: Information, computer and professional literacy.

Health Information System:
Definition, Purposes, Structure (operation, telecommunication, system development / project management, application support, support, network, system administration), Roles and responsibilities (CIO, Director, Manager, Supervisor, Operator, Telecommunication technician, Telecommunication Operator, System Analyst, Program, Consultant), Technology infrastructure (Computers, Networks, Peripherals)

Standards in Health Informatics
Standard Coordinating Group, Group formed to developed standard, Professional Organization Supporting the Development of Technical Standards, Establishing International Standards, International Standard & Committee, International Standard, Identifier Standard, General Communication Standards, Specific Communication Standards, Content and Structure Standards, Clinical Data Representation, Standard for Software Application,

Telecommunication Standard.

Introduction to Health Informatics Applications
Hospital Information System, Clinical Decision Support System, eHealth, mHealth, Telemedicine

Impact of healthcare informatics on the socio-culture environment of healthcare
Information Needs and Challenges in Healthcare Environment, Advances in Healthcare Informatics In Clinical Area, Changes In Professional Practice due to advances in healthcare informatics, Changes In Management Roles due to advances in healthcare informatics

Future Direction in Health Informatics
Nine trends to predict the development of healthcare informatics, Future Study, Approach for predicting, Trends influencing healthcare informatics, Case Studies

BHIM-34: Open Elective - II

Open elective is credited, choice-based and is graded as satisfactory / not satisfactory (S/NS). Students make a choice from pool of electives offered by the respective institution / Online courses as approved by the department.

Sixth Semester

BHIM-35: Human Resource Management

1. Introduction to HRM

- Definition and scope of HRM
- Evolution of HRM theories and practices
- Role of HRM in organizations

2. Recruitment and Selection

- Job analysis and job description
- Recruitment methods and sources
- Selection techniques and interviews

3. Employee Training and Development

- Training needs assessment
- Training design and delivery methods
- Employee development programs

4. Performance Management

- Setting performance goals and objectives
- Performance appraisal methods
- Providing feedback and coaching

5. Employee Relations

- Employee communication and engagement
- Conflict resolution and problem-solving
- Employee rights and responsibilities

6. Legal and Ethical Considerations in HRM

- Employment laws and regulations
- Ethical issues in HRM
- Equal employment opportunity

7. Compensation and Benefits

- Wage and salary administration
- Employee benefits and incentives
- Payroll management

8. HRM in Small Businesses and Rural Context

- HRM challenges in small businesses
- HRM practices in rural settings
- Resource constraints and HRM strategies

9. HRM in a Global Context

- International HRM practices
- Cross-cultural considerations in HRM
- Managing global teams

10. Emerging Trends in HRM

- HR technology and automation
- Workplace diversity and inclusion
- Sustainable HRM practices

BHIM-36: Disease Coding for Health Insurance

1. **Conventions of ICD 10 CM and selection of code components**
    - Format of code,
    - root operative procedure
    - selection of accurate components utilizing the knowledge of conventions.
2. **ICD-10 CM coding practice**

    Conventions of ICD 10 PCS and selection of code components

    - Format of code,
    - root operative procedure
3. **ICD-10 PCS coding practice**
4. **Conventions of CPT and selection of code components**
5. **CPT coding practice**

BHIM-37: Advances in HIM

1. Advances in Health Information Management

- Explain the advances in HI with the two most recent journal articles

2. Health Care Financing Models

- Explain the Health Care Financing Models with the two most recent journal articles

3. Quality assurance in Health Information Management

- Explain the Quality assurance in Health Information Management with the two most recent journal articles

4. Public Health Information Management

- Explain the Public Health Information Management with the two most recent journal articles

5. Advances in Disease Coding

- Explain the Advances in Disease Coding with the two most recent journal articles

6. Healthcare Policies and Standards

- Explain the healthcare polices and standards applied in India with recent journal articles

BHIM-38: Professional Practice in HIM

1. Communications in Healthcare

- Internal Business Communication in Healthcare
- External Business Communication in Healthcare
- Employment Communication for HIM professionals

2. Employment Communications for HIM Professionals

- Employment communications
- Job applications
- Resume
- Cover letter
- Group Discussion
- Interviews

3. Professional Issues

- Modern Health care team
- Professional image
- Types of Compensation and Productivity measurements
- Technology in professional development
- Motivating healthcare teams

BHIM-39: Clinical Decision Support System and Information System

- Clinical decision support system overview
- Meaningful use and clinical decision support system
- Clinical decision support system types
- Clinical decision support system process
- Clinical decision support system advantages
- Clinical decision support system potential drawbacks
- Barriers to clinical decision support system adoption
- Successful clinical decision support system characteristics
- Clinical decision support system legal issues
- Clinical decision support system ethical issues

BHIM-40: Medical Transcription – (Practical)

1. Introduction to Medical Transcription

- Definition and scope of medical transcription
- Role of medical transcriptionists in healthcare documentation
- Industry standards and regulations

2. Transcription Techniques and Formatting

- Transcription equipment and tools
- Guidelines for accurate and efficient transcription
- Formatting of medical reports and documents

3. Technology Tools in Medical Transcription

- Transcription software and platforms
- Speech recognition technology
- Electronic health records (EHR) systems

4. Common Medical Reports

- Transcription of history and physical (H&P) reports
- Progress notes and consultation reports
- Discharge summaries and operative reports

5. Specialty-Specific Transcription

- Transcription considerations for different medical specialties: Cardiology, gastroenterology, orthopedics, etc.
- Specialty-specific terminology and procedures

6. Editing and Proofreading in Medical Transcription

- Techniques for reviewing and editing transcribed documents
- Grammar, punctuation, and spelling in medical transcription
- Quality assurance and error correction

7. Medical Transcription Ethics and Confidentiality

- Ethics and professionalism in medical transcription
- Patient confidentiality and HIPAA regulations
- Legal and ethical considerations in healthcare documentation

8. Practical Application and Practice

- Transcription practice exercises
- Simulated transcription projects and case studies
- Final transcription project

BHIM-41: Program Elective – II

A list of program electives is provided for a candidate to choose based on their interest. The curriculum should have a provision to offer a minimum of two program elective during the entire program duration. However, based on need up to two program electives can be made available across different semesters for a candidate to choose. A program elective in a particular semester must offer a minimum of two courses and a candidate can opt for any one specific course of their choice.

1. Research and Analytics Health Information Management

- **Research in Health Information Management**
  - research design and methodology
  - Quantitative and Qualitative research
  - Steps in Literature search

- **Methods of Data collection**
  - Data Collection Methods
  - Measurement and scaling techniques
  - Questionnaire designing

- **Role of Data and Information in Analytics**
  - Data, information, knowledge, meaning, wisdom
  - Actionable information based upon key performance indicators
  - Semantic interoperability and standards
  - Data analytics tools
  - Reporting healthcare data

2. Clinical Documentation Improvement

- **Introduction to Clinical Documentation Improvement (CDI)**
  - Clinical documentation improvement
  - Benefits of CDI
  - CDI Program

- **Clinical Documentation Requirements**
  - High quality documentation
  - Evidence based documentation

- Criteria for high quality documentation

- **Translation of Clinical Documentation in coded data**
  - Clinical Documentation and coding
  - Basic coding guidelines for CDI
  - Overview of DRGs

- **Implementing training for a CDI program**
  - Staffing in CDI program
  - CDI Training
  - CDI program management
  - CDI review forms and tools

- **Documentation Review and Physician Queries**
  - Documentation review for CDI
  - Physician Query process
  - Clinical indicators and queries

- **CDI and Data Elements**
  - Essentials of data elements
  - Operational data: collection & analysis strategies

- **CDI Program Compliance and best practices**
  - Overview of compliance
  - Monitoring the CDI program
  - CDI Operational & Financial practices

- **CDI Multidisciplinary team approach**
  - Introduction: Multidisciplinary team
  - CDI governance team
  - CDI team dynamics

- **CDI program in various settings**
  - High quality clinical documentation criteria's.
  - CDI for healthcare settings
  - CDI in applied areas

Professional competencies

Health Information Management (HIM) professionals play a crucial role in managing the health information systems of the healthcare institution and ensuring the confidentiality, integrity, and availability of healthcare data to all stakeholders. They are expected to adhere to the code of professional conduct to maintain the highest standards of ethics and professionalism. The key aspects of professional conduct of health information professionals include; the maintenance of confidentiality and integrity, meeting the compliance and quality requirements, communicating and collaborating with the stakeholders, ongoing professional development to meet the industry requirement, and fulfilling the professional expectations of the healthcare institution/industry.

Provide Description / required tools:

Performance Criteria	Indicators		
	Knowledge	Skill	Behaviors
Demonstrates comprehensive knowledge of healthcare systems, policies, and regulations	1. Understanding of the structure and organization of healthcare systems. 2. Knowledge of healthcare policies, regulations, and standards. 3. Familiarity with healthcare reimbursement models and insurance systems. 4. Understanding of the legal and ethical aspects of healthcare information management. 5. Knowledge of healthcare terminology, medical coding systems (such as ICD-10, CPT), and classification systems (such as DRG, APC).	1. Ability to interpret and apply healthcare policies and regulations. 2. Proficiency in analyzing healthcare system components and their interrelationships. 3. Skill in researching and staying updated on healthcare policies and emerging trends. 4. Competence in applying coding and classification systems accurately. 5. Ability to analyze healthcare data and generate meaningful reports.	1. Demonstrates professionalism and integrity in adhering to ethical guidelines and standards. 2. Displays a commitment to patient privacy, confidentiality, and data security. 3. Exhibits attention to detail and accuracy in handling health information. 4. Shows a proactive approach to ongoing learning and professional development. 5. Maintains a respectful and collaborative attitude in interdisciplinary healthcare teams.

	6. Awareness of healthcare data collection, storage, and retrieval processes. 7. Knowledge of healthcare quality improvement methodologies and initiatives.	6. Skill in utilizing health information management software and technology. 7. Proficiency in utilizing research methodologies and evidence-based practices in healthcare.	6. Takes responsibility for personal and professional growth in the field of health information management. 7. Displays adaptability and flexibility in navigating healthcare system changes and challenges.
Apply principles of health information management in various healthcare settings	1. Understanding of the role of health information management in different healthcare settings (hospitals, clinics, long-term care facilities, etc.). 2. Knowledge of electronic health record (EHR) systems, including their functionalities and implementation. 3. Familiarity with health information exchange (HIE) protocols and interoperability standards. 4. Knowledge of health informatics and healthcare data analytics. 5. Understanding of data management principles and database systems used in healthcare.	1. Proficiency in managing electronic health records and health information databases. 2. Skill in utilizing health information systems for data collection, storage, and retrieval. 3. Ability to effectively navigate and utilize health information exchange platforms. 4. Competence in applying health informatics and data analytics tools for decision-making. 5. Skill in implementing data management and data governance practices.	1. Demonstrates adaptability and openness to change in adopting new technologies and systems. 2. Exhibits strong problem-solving skills in addressing health information management challenges. 3. Displays a commitment to maintaining the accuracy and integrity of health information. 4. Communicates effectively with healthcare professionals, administrators, and patients. 5. Collaborates with interdisciplinary teams to ensure accurate and complete health information.

	6. Knowledge of healthcare information security, privacy, and confidentiality practices . 7. Awareness of healthcare information/informatics standards and best practices.	6. Proficiency in implementing privacy and security measures to protect health information. 7. Ability to effectively communicate health information using technology platforms.	6. Demonstrates a commitment to continuous improvement in health information management practices. 7. Exhibits resilience and professionalism in high-pressure healthcare environments.
Utilizes health information management standards and best practices	1. Familiarity with health information management standards, guidelines, and regulations of the country. 2. Understanding of data governance principles and data quality management. 3. Knowledge of healthcare accreditation requirements (e.g., NABH, Joint Commission). 4. Awareness of health information technology (HIT) systems and their functionalities. 5. Understanding of health information management workflows and processes.	1. Ability to implement and adhere to health information management standards and guidelines. 2. Proficiency in data governance practices, including data integrity, accuracy, and accessibility. 3. Skill in utilizing health information technology systems to support data management and analysis. 4. Ability to conduct data quality assessments and implement quality improvement measures. 5. Competence in ensuring compliance with healthcare regulations and accreditation requirements.	1. Demonstrates a commitment to upholding privacy, confidentiality, and security of health information. 2. Displays attention to detail and accuracy in managing and maintaining health information. 3. Exhibits a proactive approach to staying updated on industry best practices and emerging technologies. 4. Collaborates effectively with interdisciplinary teams to ensure consistent application of standards. 5. Demonstrates a commitment to continuous improvement in health information management practices.

	6. Knowledge of clinical coding and classification systems (e.g., ICD-10, ICPM, CPT). 7. Awareness of emerging trends and technologies in health information management.	6. Proficiency in utilizing health information management software and tools effectively. 7. Skill in conducting audits and internal reviews to assess and improve processes.	6. Displays strong communication skills in conveying the importance of standards and best practices to stakeholders. 7. Takes initiative in identifying and addressing gaps or areas for improvement in health information management processes.