

SYLLABUS
SCHOOL OF PUBLIC HEALTH
KERALA UNIVERSITY OF HEALTH SCIENCES



MASTER OF PUBLIC HEALTH
(HEALTH SYSTEM MANAGEMENT, EPIDEMIOLOGY AND GLOBAL HEALTH
(MPH_HSMEGH)
2026 ACADEMIC YEAR ONWARDS
Course Code:613

I. Programme objectives:

1. To develop competent public health professionals capable of designing and executing strategies to promote and preserve population health. Graduates will be equipped to lead and manage regional, national, and international public health programs with efficiency and strategic foresight.
2. To provide a rigorous foundation in the core pillars of public health, including epidemiology, health systems science, and research methodology. This objective emphasizes the synthesis of health policy analysis to formulate and implement evidence-based interventions across diverse healthcare settings.
3. To cultivate expertise in health systems management and leadership. This includes proficiency in human resources and financial management, quality improvement, Health Technology Assessment (HTA), and cost-effective decision-making to optimize healthcare delivery and organizational performance.
4. To equip professionals with advanced analytical tools for rapid public health action. Key competencies include field epidemiology, robust data analytics, disease surveillance, outbreak investigation, and implementation research to address emerging health threats.

5. To foster ethical, culturally responsive leadership and communication skills that empowers graduates to lead interdisciplinary teams. This objective focuses on building community partnerships and advancing advocacy efforts to ensure equitable access to effective healthcare services.

II. Curriculum Framework

Program Overview

The Master of Public Health (Health System Management, Epidemiology & Global Health (MPH-HSMEGH) is a **FULLTIME, TWO-YEAR POSTGRADUATE PROGRAM**. It follows a Credit and Semester System, comprising around 30 modules totalling 84 credits.

Eligibility and Selection

The program is open to both Indian and International candidates who hold a foundational degree in one of the following fields:

- Medicine (MBBS) or Dental Surgery (BDS)
- Veterinary Sciences
- Biological Sciences or Social Sciences
- Nursing, Pharmacy, or other Paramedical disciplines

Academic Tracks

1. Professional/In-Service Track: Designed for candidates currently in health services aspiring to transition into administrative or public health cadres.
2. Early-Career Track: Designed for young aspirants seeking to establish a full-time career in public health.

Program Duration and Structure

The program spans **two years**, encompassing a total of **1,600 learning hours**. The curriculum is structured as follows:

- **First Semester (Months 1–6):** Focuses on foundational and basic core courses in public health.
- **Second Semester (Months 7–12):** Focuses on applied domains, emphasizing practical training, hands-on experience, and field assignments.
- **Third Semester (Months 13–18):** Delivers advanced-level coursework in core areas through intensive, workshop-based modules.
- **Fourth Semester (Months 19–24):** Covers final assessments, professional internships, and a primary research project (Dissertation) within the student's chosen elective.

**III. Course structure of Master's in Public Health in Health System
Management, Epidemiology & Global Health (MPH_HSMEGH)**

Sl No	Semester	Code No	Type	Name of the Course	L	P	PJ	I	Credits
1	1	EPGH-01	F	Foundation in Public Health	2	0	0	0	2
2	1	EPGH-02	F	Global Health, International Health Regulations	2	0	0	0	2
3	1	HSM-01	C	Bioethics in Health System Management	2	0	0	0	2
4	1	EPGH-03	■	Basic principles of Epidemiology	1	1	0	0	2
5	1	EPGH-04	F	Introduction to Biostatistics – Research Methods	1	1	0	0	2
6	1	HSM-02	C	Formulation of Health Policies, programmes and public health acts	1	1	0	0	2
7	1	EPGH-05	C	Health Social Sciences & Qualitative Research	1	1	0	0	2
8	1	HSM-03	C	Basic principles of management (HR, Materials and Time)	2	0	0	0	2
9	1	HSM-04	C	Introduction to types of health systems and health financing	2	0	0	0	2
10	1	HSM-05	C	Health system of India	2	0	0	0	2
11	1	EPGH-06	C	Principles of Public Health Nutrition	1	1	0	0	2
					18	4	0	0	22
12	2	HSM-06	C	Primary Health Care, UHC, Public Health Interventions and Levels of Prevention including vaccinology	2	0	0	0	2
13	2	EPGH-07	C	One Health, Planetary Health and Pandemic resilience	2	0	0	0	2
14	2	HSM-07	C	Health education and Health Communication including BCC	1	1	0	0	2
15	2	HSM-08	ME	Occupational Health and disability management	2	0	0	0	2
16	2	EPGH-08	ME	Mental health and well being	2	0	0	0	2
17	2	EPGH-09	C	Equity and vulnerability	1	1	0	0	2

18	2	HSM-09	C	Inventory Management	1	1	0	0	2
19	2	HSM-10	C	Health informatics & Health information system	1	1	0	0	2
20	2	EPGH-10	C	Environmental Science and Disaster Management	2	0	0	0	2
21	2	EPGH-11	C	Research methodology (workshop)	0	2	0	0	2
22	2	EPGH-12	ME	Medical Entomology (workshop)	0	2	0	0	2
					14	8	0	0	22
23	3	HSM-11	C	Public Health Surveillance Systems, Field epidemiology and Outbreak Management (workshop)	1	2	0	0	3
24	3	HSM-12	C	Economic evaluation HTA (workshop)	1	2	0	0	3
25	3	EPGH-13	C	Data analysis and reporting including referencing (workshop)	1	2	0	0	3
26	3	HSM-13	C	National Health Programmes in India (Field training)	1	2	0	0	3
27	3	EPGH-14	C	Assignment on international health analysis	0	3	0	0	3
28	3	EPGH-15	C	Systematic review, meta-analysis and review writing workshop	2	1	0	0	3
29	3	PID-01	C	Seminars and journal clubs	0	2	0	0	2
					06	14	0	0	20
30	4	PID-02	I	Internship	0	0	0	4	4
31	4	PID-03	C	Dissertation	0	0	12	0	12
32	4	PID-04	C	Logbook and reporting	0	4	0	0	4
					0	4	12	4	20
	C – Core course, F – Foundation course, I - Internship, L – Lecture, ME – Mandatory elective course, P – Practical, PJ – Project								

IV. Programme Specific Outcomes (PSO)

1. **Epidemiological & Technical Proficiency:** Apply advanced epidemiological and biostatistical methods to investigate disease patterns, manage outbreaks, and analyze environmental health data. Graduates will demonstrate technical competence in field epidemiology and data analytics to support rapid public health action and disaster management.
2. **Health Systems Management & Strategic Leadership:** Demonstrate professional competency in managing healthcare organizations by applying principles of human resources, inventory, and financial management. Graduates will be equipped to optimize hospital operations and health delivery systems to improve organizational efficiency and patient outcomes.
3. **Policy Analysis & Global Health Governance:** Analyze and formulate evidence-based health policies and public health acts within the context of the Indian Health System and International Health Regulations (IHR). Graduates will evaluate the impact of global health trends, including "One Health" and planetary resilience, on national policy frameworks.
4. **Economic Evaluation & Health Technology Assessment (HTA):** Evaluate the cost-effectiveness of health programs and technologies using Health Technology Assessment (HTA) principles. Graduates will utilize economic evaluation workshops to inform resource allocation and evidence-based decision-making within universal health coverage (UHC) frameworks.
5. **Scientific Research & Collaborative Advocacy:** Design and execute primary public health research, culminating in a formal dissertation and the submission of a peer-reviewed manuscript. Graduates will exhibit ethical leadership and cultural competence while engaging in interdisciplinary teamwork and advocacy for equitable health services.

V. Semester-Wise Credit Structure

Semester	Components	Credits
I	Foundation Courses, Core Courses and Mandatory Electives Courses	22
II	Core Courses and Mandatory Electives Courses	22
III	Core Courses and Assignments	20
IV	Dissertation, internship and Assignments	20
	Total	84

VI. Core and Elective Curriculum

Core Curriculum

The core curriculum consists of foundational and advanced modules designed to build essential competencies in public health leadership and health systems science.

I. Epidemiological & Research Foundations

- **Principles of Epidemiology and its application:** Comprehensive training in basic and applied field epidemiology, disease patterns, and outbreak investigation.
- **Biostatistics & Data Science:** Includes research methodology, hospital information systems (HIS), e-health, and advanced statistical data analysis.
- **Research methodology and knowledge synthesis:** Specialized instruction in conducting systematic reviews, meta-analyses, and the preparation of high-quality peer-reviewed research papers and technical reports.
- **Bioethics and research ethics:** Exploration of ethical frameworks in public health research, clinical practice, and health systems management.

II. Health Systems, Management & Economics

- **Health System Management:** Focuses on the hospital as a complex organization, clinical services administration, and pharmacy/material management.
- **Health Financing & Economics:** Includes health insurance mechanisms, cost-effectiveness analysis, and Health Technology Assessment (HTA).
- **Strategic Planning & Policy:** Covers the health planning cycle, policy formulation, and the implementation of Public Health Acts.
- **Program Evaluation:** Advanced methods for operational and implementation research to monitor and assess health interventions.
- **The Indian Health System:** Detailed analysis of the organizational structure, governance, and delivery of healthcare services in India.
- **National Health Programmes:** Strategic study of the design, implementation, and monitoring of major public health initiatives in the Indian context.

III. Policy, Global Health & Environment

- **Global Health Governance:** Focuses on International Health Regulations (IHR), pandemic science, and the analysis of international health systems.
- **One Health & Planetary Health:** Addresses the intersection of climate change, environmental science, and disaster management.
- **Primary Health Care (PHC) & UHC:** In-depth study of the principles of Primary Health Care, Universal Health Coverage and levels of preventions and public health interventions including vaccinations
- **Social Sciences & Advocacy:** Covers health education, strategic communication, and the assessment of equity and public health vulnerabilities.

Elective Specializations

Electives allow students to deepen their expertise in specific domains, often linking directly to their internship and primary research project.

- **Clinical & Hospital Management:** Specialization in hospital safety, quality improvement, and post-hospital/chronic care management.
- **Epidemiological Specializations:**
 - **Infectious Disease Epidemiology:** Specific focus on arboviral diseases and medical entomology.
 - **Non-Communicable Disease (NCD) Epidemiology:** Focus on chronic disease patterns and lifestyle interventions.
- **Vulnerable Populations & Equity:** Targeted study of the health needs of women, children, the elderly, and marginalized or underserved populations.
- **Specialized Public Health Domains:**
 - **Public Health Nutrition:** Focus on nutritional policy and interventions.
 - **Occupational & Environmental Health:** Focus on workplace safety, industrial health, and disability management.
 - **Mental Health:** Focus on patient-oriented care and psychosocial well-being.

VII. Master of Public Health (MPH) – Detailed Course Outline

Semester I

Sl No	Title of the Course	Course Code
1	Foundation in Public Health	EPGH-01
2	Global Health, International Health Regulations	EPGH-02
3	Bioethics in Health System Management	HSM-01
4	Basic principles of Epidemiology	EPGH-03
5	Introduction to Biostatistics – Research Methods	EPGH-04
6	Formulation of Health Policies, programmes and public	HSM-02
7	Health Social Sciences & Qualitative Research	EPGH-05
8	Basic principles of management (HR, Materials and Time)	HSM-03
9	Introduction to types of health systems and health	HSM-04
10	Health system of India	HSM-05
11	Principles of Public Health Nutrition	EPGH-06

EPGH- Epidemiology and Global Health, HSM- Health System Management

1. Foundation in Public Health

Course Code: — EPGH-01

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students:

- Will learn the scope, core definitions, and historical milestones of public health.
- Will be able to articulate the philosophical principles and ethical foundations that guide public health practice.
- Will be able to evaluate the role of public health governance and its impact on overall health system functioning.

Course Content

Module I: Evolution and Philosophy

- Exploring the multidisciplinary nature of public health and its core functions.
- Analysis of the evolution of public health from antiquity to the modern era.
- Understanding social justice, health equity, and the collective responsibility for population health.

Module II: Governance and Systems

- Frameworks for leadership, policy-making, and regulatory oversight in public health keeping the public health systems of India (eg. Bhore Committee) and Kerala (Kerala Model Health and Development) as cases.
- Assessing how public health interventions drive health system efficiency and the achievement of Universal Health Coverage (UHC).

References

1. Detels R, Gulliford M, Karim QA, Tan CC, editors. Oxford textbook of global public health. 6th ed. Oxford: Oxford University Press; 2015.
2. Park K. Park's textbook of preventive and social medicine. 27th ed. Jabalpur: Banarsidas Bhanot Publishers; 2023.
3. Schneider MJ. Introduction to public health. 6th ed. Burlington (MA): Jones & Bartlett Learning; 2020.

2. Global Health, International Health Regulations

Course Code: EPGH-02

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Critique the evolution of global health from international health to a multidisciplinary global health paradigm.

- Interpret the legal and operational frameworks of the International Health Regulations (IHR 2005).
- Appraise the roles of the WHO and other multilateral agencies in global health governance and pandemic preparedness.

Module I: Foundations of Global Health

- Historical transitions and the shift toward global health security.
- Study the Global Burden of Disease, and analyzing health disparities and the epidemiological transition across high, middle, and low-income countries.
- Impact of globalization, migration, trade, and climate change on population health.

Module II: International Health Regulations (IHR)

- Purpose, scope, and legal obligations of Member States for IHR.
- Surveillance, reporting, and response protocols for public health emergencies.
- The process and implications of declaring a Public Health Emergency of International Concern.
- Roles of the WHO, World Bank, NGOs, and public-private partnerships (e.g., GAVI, Global Fund).

References

1. Park K. Park's textbook of preventive and social medicine. 27th ed. Jabalpur: Banarsidas Bhanot Publishers; 2023.
2. Kishore J. National health programs of India: national policies and legislations. 16th ed. New Delhi: Century Publications; 2024.
3. Buse K, Mays N, Walt G. Making health policy. 3rd ed. London: Open University Press; 2024.

3. Bioethics in Health System Management

Course Code: HSM-01

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Apply fundamental bioethical principles—autonomy, beneficence, non-maleficence, and justice—to complex health management scenarios.
- Analyze ethical challenges in resource-limited settings, specifically regarding health financing and priority setting.
- Demonstrate an understanding of the legal and ethical requirements for research involving human participants, including the role of Institutional Ethics Committees (IEC).

Module I: Foundations and Organizational Ethics

- Introduction to deontology, utilitarianism, and the four-principle approach (autonomy, justice, etc.) within health systems.
- Addressing conflicts of interest in hospital administration, pharmaceutical procurement, and material management.
- The ethics of resource allocation, rationing, and priority setting in National Health Programmes and Universal Health Coverage (UHC).

Module II: Research Ethics and Vulnerability

- Overview of the Declaration of Helsinki and ICMR guidelines for biomedical and health research in India.
- Roles of Institutional Ethics Committees (IEC) and the process of securing ethical clearance for primary research projects.
- Ethical responsibilities toward vulnerable groups (women, children, and marginalized populations) and ethics in outbreak/disaster response.

References

1. Beauchamp TL, Childress JF. Principles of biomedical ethics. 8th ed. New York: Oxford University Press; 2019.
2. Jacobson PD, Gostin LO, Wetmore GE. Public health law and ethics: a reader. 4th ed. Berkeley (CA): University of California Press; 2025.
3. Indian Council of Medical Research. National ethical guidelines for biomedical and health research involving human participants. New Delhi: ICMR; 2017 (reprinted 2024).

4. Principles of Epidemiology

Course Code: EPGH-03

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Apply epidemiological principles to identify and measure health-related states in populations
- Design and conduct descriptive and analytical studies to investigate disease patterns.
- Interpret research evidence to determine cause-and-effect relationships and guide public health action.

Module I: Foundations and Descriptive Epidemiology

- Understanding the scope, core concepts, and the "Epidemiological Triad" (Agent, Host, Environment).
- Descriptive Epidemiology: Measuring disease frequency (incidence, prevalence); characterizing health events by person, place, and time.
- Systems and methods for monitoring health trends and early detection of outbreaks

Module II: Analytical Epidemiology and Causal Inference

- Analytical Study Designs: In-depth study of observational (Case-control, Cohort) and experimental (RCT) designs.
- Epidemiological Inference: Assessing measures of association (Odds Ratio, Relative Risk) and identifying sources of bias and confounding.
- Causal Relationships: Establishing cause–effect relationships using the Bradford Hill criteria to interpret evidence for policy

References

1. Gordis L, Celentano DD, Szklo M. Gordis epidemiology. 7th ed. Philadelphia (PA): Elsevier; 2024.
2. Rothman KJ, Greenland S, Lash TL. Modern epidemiology. 4th ed. Philadelphia (PA): Wolters Kluwer; 2021.
3. Bonita R, Beaglehole R, Kjellström T. Basic epidemiology. 2nd ed. Geneva: World Health Organization; 2006 (Updated Reprint 2023).

5. Introduction to Biostatistics – Research Methods

Course Code: EPGH-04

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Analyze public health data using appropriate descriptive and inferential biostatistical techniques.
- Formulate research protocols utilizing robust scientific methodology.
- Utilize statistical software for data management, visualization, and hypothesis testing.

Module I: Research Methodology and Descriptive Statistics

- Types of variables, levels of measurement, and measures of central tendency and dispersion.
- Probability distributions (Normal, Binomial), sampling techniques, and sample size estimation.

Module II: Inferential Statistics and Software Application

- Hypothesis Testing: Understanding p-values, confidence intervals, and parametric vs. non-parametric tests (t-tests, ANOVA, Chi-square).
- Statistical Software Training: Hands-on practical sessions in data entry, cleaning, and analysis using software (e.g., SPSS, R, or Epi Info).
- Data Interpretation: Translating statistical outputs into research evidence for academic reports and policy briefs.

References

1. Rosner B. Fundamentals of biostatistics. 9th ed. Boston (MA): Cengage Learning; 2024.
2. Creswell JW, Creswell JD. Research design: qualitative, quantitative, and mixed methods approaches. 6th ed. Thousand Oaks (CA): SAGE Publications; 2023.
3. Daniel WW, Cross CL. Biostatistics: a foundation for analysis in the health sciences. 12th ed. Hoboken (NJ): Wiley; 2025.

6. Formulation of Health Policies, programmes and public health acts

Course Code: HSM-02

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Analyze the processes of health policy formulation, implementation, and evaluation within the Indian context.
- Critique the strategic objectives of the National Health Policy (NHP) 2017 and its role in achieving Universal Health Coverage.
- Interpret the legal provisions of public health legislation, specifically the Kerala Public Health Act 2023, for administrative application.

Module I: Policy Frameworks and National Strategy

- The Policy Cycle: Understanding the stages of agenda setting, policy formulation, adoption, implementation, and evaluation.
- National Health Policy (NHP) 2017: Comprehensive analysis of its goals, including increasing public health expenditure, strengthening primary healthcare, and the "Health in All Policies" approach.
- Translating policy goals into actionable national health programmes and strategic interventions.

Module II: Public Health Acts and Legal Governance

- Introduction to the constitutional basis of health in India and the role of public health acts in disease control and health promotion.
- The Kerala Public Health Act 2023: Detailed study of its provisions for decentralized health governance, infectious disease management, and the powers of local health authorities.
- Evaluating the implementation challenges of health acts and the role of the administrative cadre in ensuring legal and ethical enforcement.

References

1. Buse K, Mays N, Walt G. Making health policy. 3rd ed. London: Open University Press; 2024.

2. Kishore J. National health programs of India: national policies and legislations. 16th ed. New Delhi: Century Publications; 2024.
3. Magnusson R. Global health law: an introduction. 1st ed. Oxford: Oxford University Press; 2026.

7. Health Social Sciences & Qualitative Research

Course Code: EPGH-05

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Analyze the social, cultural, and behavioral determinants of health and their impact on population health outcomes.
- Apply qualitative research methodologies to explore complex health behaviors and organizational dynamics.
- Evaluate the "Hospital as an Organization" using social science frameworks to improve healthcare delivery and patient-oriented care.

Module I: Foundations of Health Social Sciences

- Social Determinants of Health (SDH): Exploring the impact of socioeconomic status, gender, ethnicity, and environment on health disparities.
- Behavioral Sciences in Public Health: Theories of health behavior change and the role of culture in health-seeking behaviors.
- Hospital as a Social Organization: Analyzing the hospital through a sociological lens—power dynamics, professional hierarchies, and the "patient-provider" relationship.

Module II: Qualitative Research Methodology

- Qualitative Approaches: Introduction to Phenomenonology, Grounded Theory, and Ethnography in public health settings.
- Data Collection Techniques: Focus Groups (FGDs), In-depth Interviews (IDIs), and participant observation.
- Analysis and Synthesis: Thematic analysis, coding qualitative data, and interpreting evidence to inform policy and program design.

References

1. Creswell JW, Poth CN. Qualitative inquiry and research design: choosing among five approaches. 4th ed. Thousand Oaks (CA): SAGE Publications; 2018.
2. Cockerham WC. Medical sociology. 16th ed. New York: Routledge; 2026.
3. Marmot M, Wilkinson RG, editors. Social determinants of health. 2nd ed. Oxford: Oxford University Press; 2005 (Reprinted 2023).

8. Basic principles of management (HR, Materials and Time)

Course Code: HSM-03

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Apply fundamental management theories to optimize healthcare organizational performance and service delivery.
- Design efficient systems for Human Resource (HR) and Material management within hospital and public health settings.
- Utilize time management and organizational strategies to enhance administrative efficiency in public health programs.

Module I: Human Resource & Time Management

- Introduction to classical and modern management theories (e.g., POSDCORB) applied to health systems.
- Human Resource Management (HRM): Principles of recruitment, retention, performance appraisal, and capacity building for health cadres.
- Time Management & Organizational Efficiency: Strategic tools for prioritization, delegation, and managing workflow within administrative and public health cadres.
- Leadership and Team Dynamics: Building interdisciplinary teams and fostering collaborative leadership in healthcare organizations.

Module II: Material & Supply Chain Management

- Material Management Foundations: Principles of procurement, storage, and distribution of essential drugs and medical supplies.
- Inventory Control Techniques: Practical application of VED (Vital, Essential, Desirable) and ABC (Always Better Control) analysis for resource optimization.
- Logistics and Cold Chain: Management of supply chains for vaccines and temperature-sensitive materials, essential for National Health Programmes.
- Quality and Maintenance: Ensuring quality assurance in procurement and the maintenance of hospital infrastructure and medical technology

References

1. Shortell SM, Kaluzny AD, editors. Health care management: organization design and behavior. 7th ed. Boston (MA): Cengage Learning; 2025.
2. Kundu SC, Singh S. Human resource management. 2nd ed. New Delhi: Pearson Education India; 2024.
3. Gupta S, Kant S. Hospital and health care administration: theory and practice. 3rd ed. New Delhi: Jaypee Brothers Medical Publishers; 2026.

9. Introduction to types of health systems and health financing

Course Code: HSM-04

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Duration: 1 Semester

Upon successful completion of this course, students will be able to:

- Compare various global health system models and their organizational structures.
- Analyze health financing mechanisms, including the role of health insurance and out-of-pocket expenditure
- Evaluate the impact of financing strategies on health equity and the achievement of Universal Health Coverage (UHC).

Module I: Global Health System Models

- Analysis of the WHO building blocks and the "Six Functions" of a health system.
- Exploring the Beveridge (UK), Bismarck (Germany), and National Health Insurance models.
- Understanding the dynamics of mixed health systems and the role of the private sector in global health.

Module II: Health Financing Mechanisms

- Key functions—revenue collection, risk pooling, and strategic purchasing
- Financing Models: Tax-based funding, Social Health Insurance (SHI), and Voluntary/Private Health Insurance.
- Economics of Universal Health Coverage (UHC): Analyzing out-of-pocket (OOP) spending, catastrophic health expenditure, and financial protection mechanisms.
- Health Insurance in India: Introduction to PM-JAY and state-level insurance schemes as drivers of financial risk protection.

References

1. Berman P, Bitran R, Broachi R. Getting health reform right: a guide to improving performance and equity. 2nd ed. Oxford: Oxford University Press; 2024.
2. Gottret P, Schieber G. Health financing revisited: a practitioner's guide. 2nd ed. Washington (DC): The World Bank; 2023.
3. Rice T, Unruh LY. The economics of health reimagined. 5th ed. Chicago (IL): Health Administration Press; 2025.

10. Health system of India

Course Code: HSM-05

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Analyze the organizational structure and administrative hierarchy of the Indian health system at the national, state, and local levels.
- Evaluate the role of public, private, and non-governmental sectors in health service delivery.
- Assess the impact of major health reforms and decentralized governance on population health outcomes.

Module I: Organizational Structure and Governance

- Understanding health as a State subject and the role of the Concurrent list in national health governance.
- Three-Tier Infrastructure: Detailed study of the public health delivery system, including Sub-Centres (HWCs), Primary Health Centres (PHCs), Community Health Centres (CHCs), and District Hospitals
- Administrative Hierarchy: The roles of the Ministry of Health and Family Welfare (MoHFW), Directorate General of Health Services (DGHS), and State Departments of Health.
- Decentralization: The impact of the 73rd and 74th Constitutional Amendments on local health governance and the role of Panchayati Raj Institutions (PRIs).

Module II: Reforms, Sectors, and Emerging Trends

- Analysis of the National Health Mission (NHM) and the transition toward Ayushman Bharat (PM-JAY and Health & Wellness Centres).
- The growth of the private healthcare market and the implementation of the Clinical Establishments Act.
- Indigenous Systems (AYUSH): Integrating Traditional, Complementary, and Integrative Medicine into mainstream healthcare delivery
- Digital Health Transformation: Exploring the Ayushman Bharat Digital Mission (ABDM) and the role of health informatics in system strengthening.

References

1. Park K. Park's textbook of preventive and social medicine. 28th ed. Jabalpur: Banarsidas Bhanot Publishers; 2025.
2. Kishore J. National health programs of India: national policies and legislations. 16th ed. New Delhi: Century Publications; 2024.
3. Reddy KS. Indian health system: the journey toward universal health coverage. 2nd ed. New Delhi: Public Health Foundation of India; 2023.

11. Principles of Public Health Nutrition

Course Code: EPGH-06

Semester: Semester I Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Assess the nutritional status of populations using anthropometric, biochemical, and dietary methods.
- Analyze the multi-sectoral determinants of malnutrition and its impact on the Global Burden of Disease.
- Design and evaluate evidence-based public health nutrition interventions and policies in the Indian context.

Course Content

Module I: Foundations of Nutrition and Global Burden

- Nutritional Epidemiology: Understanding the role of macro and micronutrients in population health and disease prevention.
- The Double Burden of Malnutrition: Analyzing the coexistence of undernutrition (stunting, wasting) and overnutrition (obesity/NCDs) in developing economies.
- Assessment Techniques: Introduction to population-level nutritional assessment tools, including anthropometry and clinical indicators.
- Life-Cycle Approach: Focus on nutrition during the first 1,000 days, adolescent nutrition, and maternal health.

Module II: Policy, Programs, and Interventions

- National Nutrition Frameworks: In-depth study of POSHAN Abhiyaan (National Nutrition Mission) and the Integrated Child Development Services (ICDS).
- Food Security and Legislation: Analyzing the National Food Security Act (NFSA) and the role of the Public Distribution System (PDS).
- Intervention Strategies: Strategic implementation of food fortification, supplementation, and nutrition education/behavior change communication (BCC).
- Global Nutrition Governance: Understanding the roles of WHO, UNICEF, and the Sustainable Development Goal (SDG) 2 (Zero Hunger).

References

1. Buttriss JL, Welch AA, Kearney JM, Lanham-New SA, editors. Public health nutrition. 2nd ed. Oxford: Wiley-Blackwell; 2018.
2. Vir SC, editor. Public health nutrition in India: issues and strategies. 1st ed. New Delhi: SAGE Publications India; 2023.
3. Gibney MJ, Margetts BM, Kearney JM, Arab L, editors. Public health nutrition. 2nd ed. Oxford: Wiley-Blackwell; 2024.

Semester II

Sl No	Title of the Course	Course Code
1	Primary Health Care, UHC, Public Health Interventions	HSM-06
2	One Health, Planetary Health and Pandemic resilience	EPGH-07
3	Health education and Communication	HSM-07
4	Occupational Health and disability management	HSM-08
5	Mental health and well being	EPGH-08
6	Equity and vulnerability	EPGH-09
7	Inventory Management	HSM-09
8	Health informatics & Health information system	HSM-10
9	Environmental Science and Disaster Management	EPGH-10
10	Research methodology workshop	EPGH-11
11	Medical Entomology workshop	EPGH-12

Epidemiology and Global Health-EPGH, HSM- Health System Management

12. Primary Health Care, UHC, Public Health Interventions and Levels of Prevention including vaccinology

Course Code: HSM-06

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Evaluate the principles of Primary Health Care and its role as the foundation for Universal Health Coverage.
- Design public health interventions that effectively integrate the four levels of prevention.
- Analyze the operational challenges of delivering comprehensive primary health care in diverse settings.

Module I: PHC Foundations and Universal Health Coverage

- Evolution from Alma-Ata to the Astana Declaration; core principles of equity, community participation, and intersectoral coordination.
- Understanding the UHC "cube" (population coverage, service coverage, and financial protection).

- The transformation of Sub-Centres and PHCs into Ayushman Bharat Health and Wellness Centres (HWCs).

Module II: Levels of Prevention and Intervention Design

- Detailed study of Primordial, Primary, Secondary, and Tertiary prevention strategies.
- Designing evidence-based interventions for infectious diseases, maternal-child health, and chronic conditions.
- Strategies for "Health in All Policies" (HiAP) and collaborative advocacy to address the social determinants of health.

References

1. Park K. Park's textbook of preventive and social medicine. 28th ed. Jabalpur: Banarsidas Bhanot Publishers; 2025.
2. Scheffler RM, editor. World scientific handbook of global health economics and public policy. 2nd ed. Singapore: World Scientific Publishing; 2024.
3. Detels R, Gulliford M, Karim QA, Tan CC, editors. Oxford textbook of global public health. 7th ed. Oxford: Oxford University Press; 2022.

13. One Health, Planetary Health and Pandemic resilience

Course Code: EPGH-07

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Analyze the drivers of zoonotic spillover and the impact of environmental degradation on planetary health.
- Evaluate the "One Health" framework for the integrated surveillance and management of high-threat pathogens.
- Design resilience strategies for health systems to maintain core functions during climate-related disasters and pandemics.

Module I: One Health and Environmental Interdependence

- The One Health Paradigm: Historical evolution and the tripartite collaboration (human-animal-environment).
- Planetary Health & Climate Change: Analyzing the health impacts of biodiversity loss, deforestation, and global warming on disease ecology.
- Zoonoses and Emerging Threats: The science of viral spillover; focus on high-threat pathogens such as Nipah, Avian Influenza, and SARS-CoV-2.
- AMR and One Health: The role of the environment and animal husbandry in the rise of Antimicrobial Resistance; overview of the KARSAP framework.

Module II: Pandemic Resilience and Disaster Management

- Building Resilient Health Systems: Characteristics of resilience (absorptive, adaptive, and transformative capacities) during health emergencies.
- Pandemic Preparedness: Strategic planning for surge capacity, essential service continuity, and resource optimization (material/HR management).
- Integrating public health into disaster management cycles; focus on floods, landslides, and climate-induced emergencies.
- Engaging local governance (PRIs) and community partnerships to strengthen grassroots pandemic response.

References

1. Atlas RM, Maloy S, editors. One Health: people, animals, and the environment. 2nd ed. Washington (DC): ASM Press; 2024.
2. Myers SS, Frumkin H, editors. Planetary health: protecting nature to protect ourselves. 2nd ed. Washington (DC): Island Press; 2025.
3. Horton R, Lo S, editors. The Lancet handbook of pandemic resilience and global health security. 1st ed. Amsterdam: Elsevier; 2026.

14. Health education and Communication

Course Code: HSM-07

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Apply theories of health behavior change to design effective health education programs.
- Develop strategic Social and Behavior Change Communication (SBCC) materials tailored to diverse audiences.
- Manage crisis communication and public health advocacy to influence policy and community action.

Module I: Foundations of Health Education and Promotion

- Principles of Health Education: Distinguishing between health education, health promotion, and propaganda.
- Behavior Change Theories: Understanding the Health Belief Model, Theory of Planned Behavior, and the Transtheoretical Model (Stages of Change).
- Community Engagement: Strategies for community mobilization, participation, and the role of local leaders in health promotion.
- Planning Health Education: Identifying target audiences, setting communication objectives, and selecting appropriate channels.

Module II: Strategic Communication and Advocacy

- Designing evidence-based communication strategies for maternal health, NCDs, and infectious disease control.
- Managing information flow during outbreaks (e.g., Nipah, COVID-19) to mitigate panic and misinformation.
- Techniques for influencing policy-makers, utilizing mass media, and leveraging digital/social media for public health campaigns.
- Monitoring and Evaluation: Assessing the reach, recall, and impact of health communication interventions.

References

1. Glanz K, Rimer BK, Viswanath K, editors. Health behavior: theory, research, and practice. 6th ed. San Francisco (CA): Jossey-Bass; 2024.
2. Schiavo R. Health communication: from theory to practice. 3rd ed. San Francisco (CA): Jossey-Bass; 2025.
3. World Health Organization. Communicating for health: a guide to developing and delivering public health messages. Geneva: WHO; 2024.

15. Occupational Health and disability management

Course Code: HSM-08

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Evaluate workplace environments using the principles of ergonomics to prevent musculoskeletal disorders and enhance productivity.
- Identify and mitigate occupational health issues across various sectors, including chemical, physical, and biological hazards.
- Design safety and wellness protocols specifically tailored for healthcare workers to address needle-stick injuries, radiation exposure, and burnout.

Module I: Foundations of Occupational Health and Ergonomics

- Principles of Ergonomics: Understanding the "Person-Machine-Environment" interface; anthropometry in workstation design; and the prevention of Work-Related Musculoskeletal Disorders (WMSDs).
- Industrial Hazards: Classification of occupational hazards: Physical (noise, heat), Chemical (dusts, fumes, lead), and Biological.
- Occupation-Related Health Issues: Pathogenesis and prevention of Pneumoconiosis (Silicosis, Asbestosis), occupational dermatoses, and noise-induced hearing loss.
- Legal Frameworks: Overview of the Factories Act (1948) and the Employee's State Insurance (ESI) Act in the Indian context.

Module II: Occupational Health for Healthcare Professionals

- Clinical Hazards: Biological risks (Blood-borne pathogens like HIV, Hep-B); Chemical risks (anesthetic gases, disinfectants); and Physical risks (ionizing radiation).
- Patient Handling & Safety: Ergonomic techniques for patient transfer to prevent lower-back injuries among nursing and paramedical staff.
- Psychosocial Hazards: Managing high-stress environments, shift-work disorders, and the prevention of professional burnout and "compassion fatigue."
- Disability Management: Principles of vocational rehabilitation; assessing "Permanent Physical Impairment" (PPI) and the legal rights of persons with disabilities in the workforce.

Referencing

1. Koh D, Aw TC, editors. Textbook of occupational medicine. 5th ed. Singapore: World Scientific Publishing; 2024.
2. Levy BS, Wegman DH, Baron SL, Sokas RK, editors. Occupational and environmental health: recognizing and preventing disease and injury. 8th ed. New York: Oxford University Press; 2025.
3. Park K. Park's textbook of preventive and social medicine. 28th ed. Jabalpur: Banarsidas Bhanot Publishers; 2025.

16. Mental health and wellbeing

Course Code: EPGH-08

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Analyze the global and national burden of mental health disorders and their impact on socioeconomic development.
- Evaluate the effectiveness of mental health policies and community-oriented care models in India.
- Design integrated public health interventions that address mental health stigma and promote psychological resilience.

Module I: Foundations of Public Mental Health

- Epidemiology of Mental Health: Global and national trends in common mental disorders (CMDs) and severe mental illnesses (SMIs).
- Social Determinants of Mental Health: Analyzing the impact of poverty, gender, conflict, and environmental disasters on psychological wellbeing.

- Stigma and Human Rights: Addressing the cultural and social barriers to mental health care and the rights of persons with mental illness.
- The Life-Course Perspective: Mental health needs across different stages, from childhood and adolescence to geriatric mental health care.

Module II: Policy, Programs, and Integrated Care

- National Mental Health Policy & Program: In-depth study of the National Mental Health Programme (NMHP) and the District Mental Health Programme (DMHP) in India.
- Integration into Primary Healthcare: Strategies for "Task-Shifting" and the role of Health and Wellness Centres (HWCs) in mental health screening and counseling.
- Workplace & School Mental Health: Designing promotional and preventive interventions in organizational and educational settings.
- Crisis and Disaster Mental Health: Psychosocial support frameworks during public health emergencies and natural disasters.

References

1. Patel V, Minas H, Cohen A, Prince MJ, editors. Global mental health: principles and practice. 2nd ed. New York: Oxford University Press; 2024.
2. Knifton L, Quinn N, editors. Public mental health: global perspectives. 2nd ed. London: Open University Press; 2025.
3. Thara R, Vijayakumar L, editors. Mental health in India: issues and concerns. 1st ed. New Delhi: SAGE Publications India; 2023.

17. Equity and vulnerability

Course Code: EPGH-09

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Analyze the multi-dimensional nature of vulnerability (spatial, socio-economic, and political) and its impact on health access.
- Evaluate the equity-gap in national and state-level health outcomes using a social-determinants framework.
- Advocate for policy modifications that address the specific needs of marginalized and migratory populations.

Module I: Frameworks of Equity and Spatial Vulnerability

- Theories of Equity: Distinguishing between equality and equity; horizontal vs. vertical equity in health financing and service delivery.

- Spatial Vulnerability & Tribal Health: Analyzing the "geography of exclusion"—challenges of distance, terrain, and transport for tribal populations in remote or forested areas.
- Coastal Vulnerability: Socio-economic and environmental challenges for coastal communities, including occupational hazards, climate-induced displacement, and limited access to secondary care.
- Urban Inequity: The "urban health paradox"—analyzing health disparities in informal settlements (slums) and the specific needs of the urban poor.

Module II: Socio-Economic Drivers and Migration Issues

- The Migrant Health Crisis: Understanding the "healthy migrant effect" vs. the "migrant health penalty"; barriers faced by internal migrant workers, including language, lack of documentation, and poor living conditions.
- Marginalized Identities: Examining the intersectionality of gender, caste, and disability in determining health-seeking behavior and treatment adherence.
- Life-Cycle Vulnerabilities: Specific focus on the elderly, orphaned children, and the homeless as high-risk groups within the health system.
- Inclusive Advocacy: Developing strategies for community-based monitoring and social auditing to ensure accountability in the delivery of National Health Programmes to the last mile.

References

1. Marmot M. The health gap: the challenge of an unequal world. 2nd ed. London: Bloomsbury Publishing; 2024.
2. Sen G, Ostlin P, editors. Gender equity in health: the shifting frontiers of evidence and action. 1st ed. New York: Routledge; 2023.

18. Inventory Management

Course Code: HSM-09

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Apply scientific inventory control techniques to optimize resource allocation and prevent stock-outs.
- Design efficient procurement and supply chain workflows for hospitals and public health programs.
- Evaluate the quality and safety of stored medical commodities, including cold-chain integrity for vaccines.

Module I: Inventory Control and Strategic Procurement

- Foundations of Material Management: Understanding the "Seven Rights" of procurement (right price, right quality, etc.) and the material management cycle.
- Scientific Inventory Control: Practical application of ABC (Always Better Control), VED (Vital, Essential, Desirable), and FNS (Fast, Normal, Slow) analysis to prioritize medical stock.
- Economic Order Quantity (EOQ): Balancing ordering costs against carrying costs to determine optimal stock levels and re-order points.
- Procurement Systems: Exploring open tenders, rate contracts, and the role of the Government e-Marketplace (GeM) in Indian health administration.

Module II: Supply Chain, Warehousing, and Quality

- Warehousing and Storage: Principles of Good Storage Practices (GSP); First-In-First-Out (FIFO) and First-Expiry-First-Out (FEFO) methods.
- Cold Chain Management: Maintaining the integrity of temperature-sensitive items (vaccines, blood products) from manufacturer to end-user.
- Supply Chain Digitalization: Introduction to Hospital Information Systems (HIS) and e-Aushadhi for real-time inventory tracking and demand forecasting.
- Waste Minimization and Auditing: Strategies for managing expired drugs, surgical item tracking, and conducting physical vs. book inventory audits.

References

1. Gupta S, Kant S. Hospital and health care administration: theory and practice. 3rd ed. New Delhi: Jaypee Brothers Medical Publishers; 2026.
2. Waters D, Rinsler S. Logistics: an introduction to supply chain management. 4th ed. New York: Kogan Page; 2024.
3. Sathe V. Administrative management. 2nd ed. New Delhi: Vikas Publishing House; 2004 (Reprinted 2023).

19. Health informatics & Health information system

Course Code: HSM-10

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 1+1+0

Upon successful completion of this course, students will be able to:

- Evaluate the architecture and functional requirements of Hospital Information Systems (HIS) and Electronic Health Records (EHR).
- Analyze national digital health platforms and their role in improving health system efficiency and patient outcomes.
- Utilize health informatics tools for data visualization, real-time surveillance, and evidence-based decision-making.

Module I: Foundations of Health Informatics and HIS

- Introduction to Health Informatics: Definitions, core concepts, and the evolution of digital health.
- Hospital Information Systems (HIS): Functional modules of HIS, including Patient Registration, Laboratory Information Systems (LIS), and Pharmacy Management.
- Electronic Health Records (EHR): Standards for data interoperability (HL7, FHIR), clinical coding systems (ICD-11, SNOMED CT), and the benefits of longitudinal patient records.
- Data Security and Privacy: Ethical and legal frameworks for health data protection, including informed consent in digital spaces and cybersecurity in health systems.

Module II: Digital Health Transformation and Data Analytics

- National Digital Health Ecosystem: In-depth study of the Ayushman Bharat Digital Mission (ABDM), ABHA IDs, and the unified health interface in India.
- Public Health Information Systems: Utilizing platforms like IHIP (Integrated Health Information Platform) and e-Sanjeevani (telemedicine) for disease surveillance and remote care.
- Health Data Analytics: Introduction to Big Data in healthcare, predictive modeling, and the use of dashboards for real-time health system monitoring.
- Telehealth and mHealth: Strategic use of mobile health applications and remote monitoring tools to improve access for vulnerable and rural populations.

References

1. Shortliffe EH, Cimino JJ, editors. Biomedical informatics: computer applications in health care and biomedicine. 5th ed. New York: Springer; 2021
2. Sathe V. Administrative management. 2nd ed. New Delhi: Vikas Publishing House; 2004 (Reprinted 2023).

20. Environmental Science and Disaster Management

Course Code: EPGH-10

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this course, students will be able to:

- Analyze the impact of environmental factors (air, water, soil) and climate change on population health outcomes.
- Evaluate the components of the disaster management cycle and the role of health systems in each phase.
- Design emergency preparedness plans that integrate intersectoral coordination and community resilience.

Module I: Environmental Health and Climate Crisis

- Environmental Determinants: Impact of water quality, sanitation, and hygiene (WASH), air pollution, and hazardous waste on the global burden of disease.
- Climate Change and Health: Analyzing the mechanisms through which global warming influences vector-borne diseases, heat stress, and food insecurity.
- Occupational and Industrial Health: Basics of industrial safety, chemical hazards, and the protection of workers in high-risk environments.
- Environmental Legislation: Overview of national and international environmental standards and the role of public health advocacy in environmental protection.

Module II: Disaster Management and Health System Resilience

- Disaster Management Cycle: Strategic focus on Mitigation, Preparedness, Response, and Recovery (The 4 Phases).
- Mass Casualty Management: Triage protocols, field hospitals, and the logistics of medical relief during natural and man-made disasters.
- Public Health Emergencies: Managing health needs in shelters, disease surveillance post-disaster, and ensuring mental health and psychosocial support (MHPSS).
- Governance and Coordination: The role of the National Disaster Management Authority (NDMA) and State-level frameworks (KSDMA) in Kerala; fostering intersectoral collaboration with local bodies.

References

1. **Friis RH.** Essentials of environmental health. 4th ed. Burlington (MA): Jones & Bartlett Learning; 2024.
2. **Landesman LY, Weisfuse IB.** Public health management of disasters: the practice guide. 5th ed. Washington (DC): American Public Health Association; 2025.

21. Research methodology workshop

Course Code: EPGH-11

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this workshop, students will be able to:

- Construct a robust research protocol including sample size estimation and tool validation.
- Execute advanced data management and statistical testing using software (e.g., SPSS, R, or Epi Info).

- Interpret statistical outputs to generate evidence-based conclusions for public health advocacy.

Workshop Module I: Study Design & Protocol Development

- Lecture: Advanced Review of Observational and Experimental Designs (Case-Control, Cohort, RCTs).
- Hands-on Exercise: Designing a research question and selecting the appropriate study design for a specific public health problem (e.g., "Factors affecting KARSAP implementation").
- Lecture: Sampling Techniques and Power Analysis.
- Hands-on Exercise: Using sample size calculators (e.g., OpenEpi, G*Power) to determine requirements for various study types.
- Lecture: Tool Development and Validation (Questionnaire design, Reliability/Validity testing).
- Hands-on Exercise: Drafting a digital survey tool using ODK (Open Data Kit) or Google Forms with logic branching.

Workshop Module II: Data Analytics & Software Application

- Lecture: Data Cleaning and Management (Coding, Recoding variables, Handling missing data).
- Hands-on Exercise: Importing raw datasets into statistical software and performing data "audits" to ensure quality.
- Lecture: Descriptive and Inferential Statistics (T-tests, ANOVA, Chi-square, Correlation).
- Hands-on Exercise: Running parametric and non-parametric tests on provided health datasets and interpreting p-values and Confidence Intervals.
- Lecture: Introduction to Multivariable Analysis (Linear and Logistic Regression).
- Hands-on Exercise: Performing regression analysis to control for confounders in epidemiological data.
- Lecture: Data Visualization and Scientific Writing.
- Hands-on Exercise: Creating publication-quality tables, Forest plots, and Epidemic curves; drafting the "Results" and "Discussion" sections of a research paper.

22. Medical Entomology workshop

Course Code: EPGH-12

Semester: Semester II Credits: 2 Credit Breakup (L+T+P): 2+0+0

Upon successful completion of this workshop, students will be able to:

- Identify key morphological features of mosquitoes, sandflies, ticks, and mites of medical importance.

- Execute standardized field collection techniques for vector surveillance in diverse ecological settings.
- Analyze the transmission dynamics of vector-borne diseases to design integrated vector management (IVM) strategies.

Workshop Module I: Vector Biology & Field Surveillance

- Lecture: Epidemiology and Transmission Dynamics of Vector-Borne Diseases (VBDs); the concept of Vectorial Capacity and Basic Reproduction Number (R_0) in the context of climate change.
- Field Exercise: Collection of Mosquitoes (Larval and Adult). Using dippers for aquatic stages and light traps/aspirators for adult collection in residential and peri-domestic areas.
- Demonstration: Sampling of "Hard-to-Reach" Vectors. Techniques for dragging/flagging for Ticks and soil/scrub sampling for Mites (vectors of Scrub Typhus) and Sandflies (vectors of Leishmaniasis).
- Field Discussion: Ecological niche mapping and the impact of urbanization and deforestation on vector proliferation.

Workshop Module II: Laboratory Identification & Management

- Lab Session: Microscopic Demonstration of Vectors. Identification of genera (*Anopheles*, *Aedes*, *Culex*) and species-level differentiation using entomological keys.
- Hands-on Exercise: Dissection techniques for parity and infection rate determination (e.g., gut and salivary gland dissection for Malaria parasites).
- Demonstration: Insecticide Resistance Testing. Performing WHO susceptibility tests (Bioassays) to monitor resistance patterns in local vector populations.
- Group Discussion: Integrated Vector Management (IVM). Designing multi-sectoral strategies involving environmental modification, biological control, and chemical interventions.

Semester III

Sl No	Title of the Course	Course Code
1	Workshop on Public Health Surveillance Systems, Field epidemiology and Outbreak Management	HSM-11
2	Economic evaluation HTA workshop	HSM-12
3	Workshop on data analysis and reporting (including referencing)	EPGH-13
4	Workshop on National Health Programmes in India	HSM-13
5	Assignment on international health analysis	EPGH-14
6	Systematic review, meta-analysis and review writing	EPGH-15
7	Seminars and journal clubs	PID-01

23. Workshop on Public Health Surveillance Systems, Field epidemiology and Outbreak Management

Course Code: HSM-11

Semester: Semester III

Credits: 3

Credit Breakup (L+T+P): 1+2+0

Upon successful completion of this workshop, students will be able to:

- Analyze real-time surveillance data to detect anomalies and potential outbreaks.
- Conduct a full outbreak investigation using standardized field epidemiology protocols.
- Design rapid response and containment strategies, including risk communication and intersectoral coordination.

Workshop Module I: Surveillance Systems & Data Intelligence

- Lecture: Architecture of the Integrated Health Information Platform (IHIP) and the Integrated Disease Surveillance Programme (IDSP).
- Hands-on Exercise: Analyzing "S" (Suspected), "P" (Presumptive), and "L" (Laboratory) forms for trend analysis and threshold detection.
- Demonstration: Utilizing GIS (Geographic Information Systems) for spatial mapping of disease clusters.
- Practical: Developing a sentinel surveillance plan for a specific high-threat pathogen (e.g., Nipah or Leptospirosis).

Workshop Module II: Field Epidemiology & Outbreak Simulation

- Simulation (The 10 Steps): Students are presented with a "Mystery Outbreak" and must work through:
 1. Verifying the diagnosis.
 2. Confirming the existence of an outbreak.
 3. Defining and identifying cases.
 4. Performing descriptive epidemiology (Time, Place, Person).
- Hands-on Exercise: Constructing and interpreting Epidemic Curves (Point source vs. Propagated outbreaks) and calculating Attack Rates.
- Field Exercise: Designing a line-listing tool and conducting mock "Contact Tracing" interviews.
- Lecture: Environmental and Laboratory investigation linkages—how to coordinate with the One Health team for sample collection.
- Discussion: Implementing containment measures (Quarantine, Ring Vaccination, Vector Control) and the "Risk Communication" strategy for public briefing.

24. Economic evaluation HTA workshop

Course Code: HSM-12

Semester: Semester III

Credits: 3

Credit Breakup (L+T+P): 1+2+0

Upon successful completion of this workshop, students will be able to:

- Apply the principles of health economics to conduct Cost-Effectiveness (CEA) and Cost-Utility Analyses (CUA).
- Construct basic decision trees and Markov models to simulate health outcomes and costs.
- Interpret HTA reports to provide evidence-based recommendations for resource allocation and insurance package design.

Workshop Module I: Economic Evaluation Methodologies

- Lecture: Types of Economic Evaluation: Cost-Minimization, Cost-Benefit, Cost-Effectiveness (CEA), and Cost-Utility Analysis (CUA).
- Hands-on Exercise: Identifying and measuring costs (Direct, Indirect, and Intangible) for a specific intervention (e.g., "Dialysis vs. Kidney Transplant").
- Lecture: Measuring Health Outcomes: Introduction to DALYs (Disability-Adjusted Life Years) and QALYs (Quality-Adjusted Life Years).
- Practical: Calculating ICER (Incremental Cost-Effectiveness Ratio) and understanding the "Cost-Effectiveness Threshold" in the Indian context.

Workshop Module II: Modeling and HTA Application

- Lecture: Decision Analytic Modeling: Introduction to Decision Trees and Markov Models.
- Hands-on Exercise: Building a simple Decision Tree in Excel to compare two screening strategies for a high-threat pathogen like Nipah or Cervical Cancer.
- Lecture: The HTA Process in India: Role of DHR (Department of Health Research) and HTAIn (Health Technology Assessment India).
- Practical: Critical appraisal of a published HTA report. Students will evaluate how HTA informs the inclusion of a drug in the National List of Essential Medicines (NLEM) or state insurance schemes like PM-JAY.
- Discussion: The "Value for Money" framework and navigating ethical dilemmas in rationing healthcare resources.

25. Workshop on data analysis and reporting (including referencing)

Course Code: EPGH-13

Semester: Semester III

Credits: 3

Credit Breakup (L+T+P): 1+2+0

Upon successful completion of this workshop, students will be able to:

- Perform advanced data management and transformation to ensure "analysis-ready" datasets.
- Create compelling data visualizations (Infographics, Dashboards, and Plots) to communicate health trends to non-technical stakeholders.
- Produce high-quality technical reports and research papers using standardized referencing styles and citation software.

Workshop Module I: Advanced Analysis and Visualization

- Lecture: Data "Wrangling"—advanced techniques for merging datasets, handling outliers, and creating composite indices (e.g., Wealth Index).
- Hands-on Exercise: Taking a "messy" public health dataset (like a sample from NFHS) and preparing it for final analysis.
- Lecture: The Principles of Data Visualization—choosing the right chart for the right data (Distributions, Trends, and Comparisons).
- Lecture: Interpreting Complex Outputs—translating Adjusted Odds Ratios (aOR) and p-values into plain language for policy briefs.

Workshop Module II: Scientific Reporting and Referencing

- Lecture: Structuring the Public Health Report—the IMRaD format (Introduction, Methods, Results, and Discussion) and the "Executive Summary" for administrators.
- Hands-on Exercise: Drafting a 2-page Policy Brief based on a provided statistical analysis of a local outbreak.
- Lecture: Academic Integrity and Referencing—understanding Plagiarism, Vancouver vs. APA styles, and the importance of evidence-based citation.
- Hands-on Exercise (Software): Training in Reference Management Software (e.g., Zotero). Students will learn to build a library, insert citations, and generate bibliographies automatically.
- Discussion: Peer Review and Publication—navigating the submission process for journals and writing for the media to influence public opinion.

26. Workshop on National Health Programmes in India

Course Code: HSM-13

Semester: Semester II Credits: 3 Credit Breakup (L+T+P): 1+2+0

Upon successful completion of this workshop, students will be able to:

- Analyze the strategic objectives, organizational structure, and components of major NHPs.
- Utilize national reporting portals (HMIS, Nikshay, RCH) to monitor program performance and data quality.
- Design corrective action plans for program bottlenecks at the district and sub-district levels.

Workshop Module I: Reproductive, Maternal, and Communicable Disease Programs

- The NHM Framework: Understanding the National Health Mission (NHM) architecture and the role of "Flexi-pools" in state health financing.
- RMNCH+A Strategy: Deep dive into Maternal and Child Health programs (JSY, JSSK, Mission Indradhanush) and the use of the RCH Portal for tracking.
- Communicable Disease Control:
 - NTEP (Tuberculosis): Operationalizing the National TB Elimination Programme and using the Nikshay platform for notification.
 - NVBDCP (Vector Borne): Strategy for Malaria, Dengue, and Filariasis control; focus on integrated vector management.
- Hands-on Exercise: Analyzing a District Health Action Plan (DHAP) and identifying gaps in physical vs. financial progress.

Workshop Module II: Non-Communicable Diseases and Digital Transitions

- NP-NCD Framework: Strategies for screening and managing Hypertension, Diabetes, and common Cancers; the role of Health and Wellness Centres (HWCs).
- National Mental Health Programme: Integrating mental health into primary care and the administrative role in the District Mental Health Programme (DMHP).
- Ayushman Bharat & Digital Integration:
 - PM-JAY: Understanding the insurance model, empanelment, and claims processing.
 - ABDM: Implementing the digital health mission at the facility level.
- Hands-on Exercise: Extracting and visualizing data from the HMIS (Health Management Information System) portal to create a "District Health Scorecard."
- Field Simulation: Designing a "Monitoring and Supervision" checklist for a routine visit to a Primary Health Centre (PHC)..

27. Assignment on international health analysis

Course Code: EPGH-14

Semester: Semester III

Credits: 3

Credit Breakup (L+T+P): 0+3+0

Methodology: International Health Analysis Report

This methodology follows a five-step analytical framework to ensure the report meets the academic rigor of the MPH-HSMPGH program.

Step 1: Selection of the Global Health Issue & Peer Countries

Students must select a specific public health challenge and identify three countries for comparison (ideally one High-Income, one Middle-Income, and one Low-Income/Peer country to India).

- Suggested Issues: Maternal Mortality Trends, Antimicrobial Resistance (AMR) policies, Universal Health Coverage (UHC) progress, or Vaccine Coverage for high-threat pathogens.

Step 2: Data Sourcing & Extraction

Students must utilize recognized, publicly available global databases.

- Primary Sources:
 - WHO Global Health Observatory (GHO): For core health indicators and IHR capacity scores.
 - The World Bank Open Data: For health expenditure, GDP, and socio-economic determinants.
 - IHME Global Burden of Disease (GBD) Compare: For DALYs, YLLs, and risk factor analysis.
 - UNICEF Data: For child nutrition and immunization trends.

Step 3: Comparative Analytical Framework

The analysis should be structured using the WHO Health Systems Framework (Six Building Blocks) to understand *why* outcomes differ between the selected countries.

- Indicators to Analyze:
 - Impact: Incidence/Prevalence/Mortality rates.
 - Output: Service coverage and access.
 - Input: Health expenditure as % of GDP, Out-of-pocket (OOP) spending, and health workforce density.

Step 4: Evaluation of International Policy Response

Students must analyze the international legal and strategic frameworks governing their chosen issue:

- IHR Compliance: How the countries align with International Health Regulations (2005) for that specific issue.
- SDG Alignment: Progress toward relevant Sustainable Development Goals (e.g., SDG 3.1 for Maternal Health or 3.8 for UHC).

Step 5: Synthesis and Recommendations

The final section of the report must synthesize the findings into a "Lessons for India" or "Policy Brief" format:

- Identify "Best Practices" from the international analysis.

- Discuss the scalability of these practices within the Indian/Kerala health system context.

28. Systematic review, meta-analysis and review writing workshop

Course Code: GC-08

Semester: Semester III

Credits: 3

Credit Breakup (L+T+P): 2+1+0

Upon successful completion of this workshop, students will be able to:

- Formulate answerable research questions using the PICO (Population, Intervention, Comparison, Outcome) framework.
- Execute systematic searches and screening processes following PRISMA guidelines.
- Perform statistical meta-analysis, including the assessment of heterogeneity and publication bias.

Workshop Module I: Protocol and Systematic Search

- The Hierarchy of Evidence: Understanding why systematic reviews sit at the apex of the evidence pyramid.
- PICO Framework: Developing a precise research question (e.g., "Effectiveness of ring vaccination vs. mass vaccination in Nipah outbreaks").
- Search Strategy: Advanced search techniques for PubMed/MEDLINE, Cochrane Library, and Embase; using Boolean operators and MeSH terms.
- Screening and Selection: Hands-on training in using tools like Rayyan or Covidence for title/abstract and full-text screening.
- Data Extraction: Designing standardized extraction forms to capture study characteristics and outcome data.

Workshop Module II: Meta-Analysis and Synthesis

- Quality Assessment: Utilizing tools such as the Cochrane Risk of Bias (RoB 2) or Newcastle-Ottawa Scale to evaluate study rigor.
- Statistical Meta-Analysis:
 - Fixed-effects vs. Random-effects models.
 - Calculating pooled Effect Sizes (Odds Ratios, Risk Ratios, Mean Differences).
- Interpreting Results: Understanding Forest Plots, I-squared (I²) statistics for heterogeneity, and Funnel Plots for publication bias.
- Writing the Review: Structuring the manuscript for high-impact journals; focusing on the "Discussion" to translate findings into policy recommendations.

29. Seminars and journal clubs

Course Code: PID-01

Semester: Semester II Credits: 2

Credit Breakup (L+T+P): 0+2+0

Upon successful completion of this course, students will be able to:

- Critically Appraise the methodological and statistical validity of peer-reviewed research.
- Synthesize complex public health data into structured, persuasive professional seminars.
- Utilize advanced teaching aids and data visualization tools to communicate evidence to diverse stakeholders.

Component I: The Journal Club (Critical Audit)

Students must choose an original research article from a reputed international journal (e.g., *The Lancet*, *NEJM*, *WHO Bulletin*) to perform a deep-dive analysis.

- Methodological Audit: Evaluation of the PICO framework, study design suitability, and measures taken to mitigate selection and information bias.
- Statistical Audit: Critiquing the choice of statistical tests (e.g., Logistic Regression, Survival Analysis) and interpreting the clinical vs. statistical significance of P-values and Confidence Intervals (CI).
- Peer Defense: Presenting the audit findings to a panel and defending the critique during a Q&A session.

Component II: The Public Health Seminar (Issue Advocacy)

Students must select a public health problem related to their electives (e.g., One Health, Mental Health, or Environmental Health) and present a comprehensive solution-oriented seminar.

Evaluation and Assignment Methodology

- The Portfolio: Students submit a written "Critical Appraisal Report" for the JC and a "Seminar Technical Brief" for the presentation.
- Teaching Aids: Marks are specifically allocated for the innovative use of digital tools and visual models to simplify complex public health concepts.
- Peer Feedback: Each session includes a peer-evaluation component, fostering a culture of professional critique and collaborative learning.

Semester IV

Sl No	Title of the Course	Course Code
1	Internship	PID-02
2	Project	PID-03
3	Logbook and reporting	PID-04

PID- Practical, Internship and Dissertation

Log Book

The student shall maintain a comprehensive Logbook documenting all daily academic and field-level activities. This record must be updated regularly and verified with the signature of the concerned faculty supervisor on a weekly basis.

Internship

Candidates will undergo a two-week immersive internship at a selected institution, department, or organization aligned with their elective specialization. This placement is guided by specific, pre-defined learning objectives. Upon completion, the candidate must submit:

- A Completion Certificate from the host authority.
- An Accomplishment Report detailing the achievement of learning objectives.
- A verified Attendance Certificate.

Project/Dissertation

A mandatory research project must be conducted on a relevant public health topic using either primary or secondary data. The project carries 12 credits and is intrinsically linked to the student's elective theme.

Timeline & Milestones:

- Semester I: Finalization of the research concept and problem statement.
- Semester II: Submission of the Research Synopsis, including validated data collection tools and requisite Institutional Ethics Committee (IEC) or administrative permissions.
- Semester III: Completion of data collection, cleaning, and statistical analysis.
- Semester IV: Final dissertation submission and Viva Voce examination.

VIII. Elective Specializations & Collaborating Institutions

The elective phase allows students to deepen their expertise in specific domains, directly linking their coursework to their internship and primary research project. Students select one elective in Semester III based on their career path.

1. Infectious Disease Epidemiology and One Health

- Thematic Focus: Infectious disease modeling, zoonoses (Nipah, KFD, Avian Flu), medical entomology (arboviral dynamics), and intersectoral collaboration.
- Suggested Institutions: * Institute of Advanced Virology (IAV), Thiruvananthapuram (Viral Epidemiology)

- ICMR-National Institute of Virology (NIV), Alappuzha Unit (Outbreak Investigation)
- Kerala Veterinary and Animal Sciences University (KVASU), Wayanad (Zoonoses & One Health)
- ICMR-Vector Control Research Centre (VCRC), Kottayam (Entomology)

2. Social Epidemiology and Behavioural Interventions

- Thematic Focus: Social determinants, participatory research, and Social and Behavior Change Communication (SBCC) for marginalized communities.
- Suggested Institutions:
 - Rajiv Gandhi Centre for Biotechnology (RGCB), Thiruvananthapuram (Community health services)
 - State Health Systems Resource Centre (SHSRC), Kerala (Equity-based research)
 - Kudumbashree (State Poverty Eradication Mission) (Community mobilization)

3. Planetary Health and Disaster Resilience

- Thematic Focus: Climate change impacts, disaster management (floods/landslides), environmental justice, and humanitarian response.
- Suggested Institutions:
 - Kerala State Disaster Management Authority (KSDMA), Thiruvananthapuram (Disaster response)
 - Kerala Forest Research Institute (KFRI), Peechi (Environment & Disease ecology)
 - Centre for Water Resources Development and Management (CWRDM), Kozhikode (Water-borne risks)

4. Digital Health and Data-Driven Public Health

- Thematic Focus: mHealth, Big Data, AI application, and evaluating digital solutions (ABDM/IHIP) for decision-making.
- Suggested Institutions:
 - Digital University Kerala (DUK), Pallippuram (Health informatics)
 - C-DAC, Thiruvananthapuram (Health technology development)
 - Indian Institute of Science (IISc), Bangalore (Computational epidemiology)

5. Public Health for Vulnerable and Marginalised Populations

- Thematic Focus: Life-cycle health, urban health, and the health needs of tribal, coastal, and migratory communities.
- Suggested Institutions:

- Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram (Urban health & NCDs)
- Integrated Tribal Development Project (ITDP) Units (Tribal health delivery)
- Matsyafed (Kerala State Co-operative Federation for Fisheries) (Coastal health interventions)

6. Health Systems, Economics, and Policy Innovation

- Thematic Focus: Health financing, Health Technology Assessment (HTA), and evidence-based policy evaluation.
- Suggested Institutions:
 - State Health Systems Resource Centre (SHSRC), Kerala (UHC & Health planning)
 - Gulati Institute of Finance and Taxation (GIFT), Thiruvananthapuram (Health economics)
 - NHSRC, New Delhi (National-level policy analysis)

7. Evidence Synthesis and Precision Public Health

- Thematic Focus: Systematic reviews, meta-analysis, and utilizing disaggregated data for targeted health interventions.
- Suggested Institutions:
 - ICMR-National Institute of Epidemiology (NIE), Chennai (Advanced methods)
 - Cochrane India (CMC Vellore) (Systematic reviews)
 - Centre for Development Studies (CDS), Thiruvananthapuram (Population data analysis)

8. Management of Health Systems, Programs, and Projects

- Thematic Focus: Strategic governance, planning of State health programs (NHM), M&E frameworks, and supply chain logistics.
- Suggested Institutions:
 - National Health Mission (NHM) State HQ, Thiruvananthapuram (Program management)
 - Kerala Medical Services Corporation Ltd (KMSCL) (Supply chain & Inventory)
 - Administrative Staff College of India (ASCI), Hyderabad (Strategic governance)

Schedule of Examinations

Semester	Papers	Duration	Maximum marks
1	Epidemiology and Global Health -1	3 Hours	100
	Health System Management -1	3 Hours	100
II	Epidemiology and Global Health -2	3 Hours	100
	Health System Management -2	3 Hours	100
III	Epidemiology and Global Health -3	3 Hours	100
	Health System Management -3	3 Hours	100
	Practical	3 Hours	100
IV	Hard Copy Evaluation of Thesis		100
	Thesis Defence	1 Hour	100