M.Sc (PUBLIC HEALTH) SYLLABUS

PAPER I – PRINCIPLES OF EPIDEMIOLOGY

UNIT-I: FUNDAMENTALS OF EPIDEMIOLOGY

Definitions of epidemiology - Epidemiology in Public Health- Natural history of disease - Historical aspects of Epidemiology - Common risk factors- Tools of Epidemiology- Measures of Disease, Risk Rates, Descriptive Epidemiology, Measuring infectivity, Survey methodology including census procedures, Surveillance, outbreak investigation in public health & contact investigation

Unit-II: FUNDAMENTALS OF RESEARCH METHODOLOGY

Research Question, Study Designs, Literature Retrieval, Organising Literature, Critical Appraisal, Diagnostic tests, Measurement issues qualitative research, Mixed designs- Statistical support to epidemiology (Sample selection, Sample size), Tools, Bias, Outcome measures, Analysis and reporting, Research Ethics

Unit -III: MEDICAL ETHICS

Historical perspectives & Introduction to Bioethics, Nuremberg Code, Declaration of Helsinki, Principle of essentiality, informed consent, confidentiality, minimisation of risk, accountability and responsibility. Ethics of clinical trials: Drug trials, vaccine trials, Clinical trials with medical devices/surgical procedures/radioactive materials, Research in transplantation and stem cell therapy. Regulatory framework and guidelines for conduction of human research: Review processes, Institutional ethical committees, composition of committees, review procedures, WHO, UNESCO and ICMR guidelines.

Paper :II PRINCIPLES OF BIO-STATISTICS

Unit-1: FUNDAMENTALS OF BIOSTATISTICS

Introduction- Concepts, types, significance and scope of bio-statistics, Collection and Classification of Data - Scales of Measurement- Tabular , Diagrammatic and Graphical Representation of data – Types of Variables

Unit -II MEASURES OF CENTRAL TENDENCY AND DISPERSION & PROBABILITY THEORY

Mean, mode and median- Measures of variability; Range, Percentiles, average deviation, quartile deviation, standard deviation & co-efficient of variation, Spread of distribution .

Probability : Concept and probability distribution. and distributions – Poisson, Binomial Normal distribution— density curves, applications and statistical tables.- Sampling Techniques

Unit-III: PRINCIPLES OF MEASUREMENTS

Types of measures- Reliability- Validity- Accuracy- Questionnaire construction- Index construction and scaling- Observe variation- Diagnostic tests- Measurement issues- Evaluating sources of data- Direct and indirect standardization

Unit-IV: INFERENTIAL STATISTICS

Estimation - Significance Of Statistic And Significance Between Two Statistics (Testing Hypothesis) Non Parametric Test – Chi-Square Test, Sign, Median Test, Mann Whitney Test. Parametric Test – 'T' Test, Anova, Manova,Ancova - Sample size calculation

Unit-V: MEASURES OF RELATIONSHIP

Correlation and Regression – need and meaning Rank order correlation; Scatter diagram method Product moment correlation Simple linear regression analysis and prediction-

Unit-VI: SURVIVAL ANALYSIS & HEALTH INFORMATICS

Kaplan Mayer- Cox PH Regression- Life table (construction and uses) – key survey data of National & Regional value, Indian statistics on key health indicators.

PAPER III– DISEASES OF PUBLIC HEALTH IMPORTANCE AND CONTROL

Unit-I: EPIDEMIOLOGICAL ASPECTS OF DISEASES OF NATIONAL IMPORTANCE

Background to communicable and non-communicable diseases. The communicable disease process. Epidemiology- Agents and vectors of communicable diseases of public health importance. Transmission of communicable diseases. Immunity of communicable diseases. Community aspects of disease control: investigation of disease outbreaks- Surveillance strategies. Risk factor concept for non-communicable.

Unit-II: COMMUNICABLE AND NON-COMMUNICABLE DISEASES (NCD) PREVENTION AND CONTROL

The major vector borne disease in India. Diarrhoeal diseases- Zoonoses -Viral hemorrhagic fevers- Primary infections of the liver- Primary infections of the brain- Mycobacterial infections- Sexually transmitted diseases- Human Immunodeficiency Virus/Acquired Immuno Deficiency Syndrome (HIV/AIDS)- Emerging disease threats- Severe Acute Respiratory Syndrome (SARS) and Avian flu- Dengue, Swine,Flu, Chikungunya- Epidemiology, prevention and control of non-communicable diseases- Rheumatic heart disease- Infective endocarditis- Ischaemic heart disease- Respiratory diseases - Eye diseases- Dental disorders. Metabolic disorder- Neoplastic disorders, Cardiovascular disorders, Pyschiatric disorders-Injuries -Emerging and Re- Emerging – Diseases, National Programmes related to Communicable and Non Communicable diseases

Unit-III: CHILD, ADOLESCENT & GERIATRIC HEALTH

Women’s Health including reproductive health- Child Health- Adolescent Health- Life-cycle approach - Family welfare - Men’s health – old age issues & care

Unit -IV: PROGRAM PLANNING, POLICY, DISASTER PREPAREDNESS AND RESPONSE

Situational Analysis, planning, assessments, Public health policy, - Public health emergencies- Public health in disasters and conflicts- Principles of disaster preparedness-Principles of disaster management- Rapid health assessment techniques

Unit-V: INTERNATIONAL AND GLOBAL HEALTH COMPETENCY

Globalization and Health- Global Population Change- Global comparisons in Health indicators, situation and systems.- Global Health Collaboration- International Health Regulations- International and Regional Health

Paper-IV: **Biological basis of health** (Candidates admitted without health background will have to appear for paper IV)

Unit 1: Basics of Anatomy, Basics of Physiology, Basics of General Medicine

Field Work in 1st Year

Any one of the Electives for practicum (Field project Report)

- ✓ Outbreak investigations
- ✓ Secondary data analysis at State level
- ✓ Secondary data analysis with appropriate qualitative research (FGD,etc.)
- ✓ Health Communication Modules
- ✓ Infectious disease epidemiology
- ✓ NCD and injury epidemiology

CORE THEORY SUBJECTS IN THE SECOND YEAR

PAPER –V EPIDEMIOLOGICAL METHODS IN HEALTH MANAGEMENT

Unit-1: Health programmes

National Health Programs - Nutritional Disorders related National Health Programmes-- MCH and Demographic related National Health Programmes- Advocacy- Monitoring and evaluation health programmes- Health Evaluation.

UNIT-II: PRINCIPLES OF HEALTH ECONOMICS, ADVOCACY & ECONOMICS FOR DEVELOPMENT

Cost benefit, cost effectiveness and cost utility including costing.- Efficacy, effectiveness and efficiency - Evaluation needs and methods - Public health laboratory utilization of services - Health Promotion and advocacy including - Health Advocacy- Health informatics and IT in healthcare- Health team building- Health counseling- Health empowerment.

Unit-III: DEMOGRAPHY

Age sex distribution of population - Population pyramid - Sex ratio, dependency ratio - Factors affecting demographic profile(fertility, mortality and migration)- Measures of fertility - Crude birth rate, child woman ration, general Fertility rate, age specific fertility rate, total Fertility rate, gross reproduction rate, net Reproduction rate - Preparation of Educational materials - The role of the tutor on small group tutorials - Small group tutorials and group dynamics - Workshop organization - Principles of learning- Factors affecting fertility- Measures of mortality- Crude death rate - Age specific death rate - SMR- Sources of demographic data - Registration of vital events - Sample surveys - Census - Demographic transition

Unit-4: ENVIRONMENTAL & OCCUPATIONAL HEALTH

Environmental factors than can affect health- Physical- Chemical- Biological - Measurement of exposure to physical and chemical agents-- Prevention of environmental pollution- Injury control in working environment - Epidemiology of road traffic accidents

Unit-5: ORGANISATION BEHAVIOUR & COMMUNICATIONS IN PUBLIC HEALTH

Formation and structure of a society -Cultural practices and the effect on health and and illness behavior - Time & material management – time motion studies – inventory – MIS- Modern management technique

Communication- Methods- Barriers - Health education - Effect of social changes on health states – Motivation, dynamics, leadership, conflict management, public relations, Supervision & Monitoring – Performance appraisal

Electives for Thesis in the Second Year

(Exams at 24th month)

1. Health policy or Health System research
2. Evaluation of health programme
3. Demographic/Health Survey
4. Public health nutrition
5. Food Safety
6. Occupational and environmental health
7. Water, Sanitation and Hygiene (WASH)
8. Health Leadership
9. Health Economics
10. Infectious disease epidemiology
11. NCD and injury epidemiology
12. Disaster Management

Outcome 1: Dissertation project** (12,000 words thesis**)
Outcome 2: Manuscript of dissertation/part of dissertation with proof of submission for publication to a peer-reviewed, index journal

Books for Reference

Book Name	Author Name
Epidemiology & Management for Health Care for All	**P V Sathe & A P Sathe**
Economics Of Education and Health in India	Anil kumar
Infections Disease Epidemiology	Jones and Bartlett
Text book of Community medicine	Rajvir Bhalwar
Principles of Statistical inference	D.R.Cox
Methods in BioStatistics	Mahajan Khanal
Statistics in Health Administration	Broyles
Health and Numbers	A Problem Based intriduction to Biostatitics
Epidemiology ,Third Edition	Leon Border
Environmental Epidemiology	Principles of Methods
Disease management	A system Approach to improving outcomes-Darren
International public health policy& Ethics	Micheal Boolean
Effective management of Long term care facilities	Singh community Health promotion-Kerr
Social determinants of health	Micheal Morita &Richard .G.Wilson
Health & college education	A jay Sahara pal

Managed health care handbook IV	Peter R.Songstress
Clinical Epidemiology essentials	Robert H Fletches / suzanne Grant.s. Fletches
Epidemiology for undergraduates	Marian Baines,Micheal Benzeual
GI Epidemiology	Nicholas J.Talley,G.Richard LocheIII
Community Medicine	Jaypee
Health ,Hazards and public Debate	Carlos Dora
Evidence Based Healthcare public Health	Chiuchill Lingstone
Zoonoses and communicable disease	Pedro.N.Acha and Boriszyfrees
Biostatistics	Prabhdevan
Fundamentals of Bio statics	Veera Bala Rastogi
Basic & Clinical Biostatistics	Dawson Trapp
Medical Biostatistics	Indrayan
Epidemiology of aging	William A.Satarians
Epidemiology	Leon Gordis
Public Health innovation and intellectual property rights	S.L.God
Health Promotion Throughout the life span	Edelman,kudzma mandle
Leadership in Health care	Neil Goodwin

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