



Pravara Institute of Medical Sciences

Deemed University

Loni Bk. 413 736, Tal. Rahata, Dist. Ahmednagar (M.S.)

Ref. No. PIMS/ CSM/ MPH/2014/1305

Date : 18 / 08 / 2014

Notification No : 34 / 2014


It is hereby notified for information of all concerned that as per decision taken by the authorities of the university the Master of Public Health (MPH) Post Graduate Degree course has been started from the Academic year 2014-15 in place of M.Sc (Public Health) at the Center for Social Medicine, Loni the constituent Institution of the Pravara Institute of Medical Sciences (Deemed University) Loni.

The syllabus of Master of Public Health (MPH) is hereby Published for information of all concerned.

The Director, Center for Social Medicine, Loni Bk - 413 736 is requested to bring the contents of the Master of Public Health syllabus to the notice of all concerned faculties and all concerned students.

Place : Loni Bk – 413 736.

Date : 18 / 08 / 2014


A. L. Bhosale
Registrar

Copy to :

Hon'ble Chief Executive, PIMS
Hon'ble Vice- Chancellor , PIMS

Copy for information and necessary action to : -

- 1) The Director, Center for Social Medicine, Loni Bk – 413 736
- 2) Controller of Examinations
- 3) Chief Accountant / Manager Accounts, PIMS
- 4) Asst. Registrar, (CET / Academic)
- 5) IT Manager – With a request to upload on university website.

MASTER OF PUBLIC HEALTH (MPH)

Academic Year: 2014-15

Centre for Social Medicine

Pravara Institute of Medical Sciences-Deemed University

Pravara Medical Trust,

Loni-413736, Dist. Ahmednagar, Maharashtra

Pravara Institute of Medical Sciences, (Deemed University)
Loni- 413 736, Maharashtra.

RULES AND REGULATIONS FOR THE COURSE
MASTER OF PUBLIC HEALTH (MPH)

1. Nomenclature of Degree:

The name of the course shall be Masters of Public Health (MPH)

2. Background of the course

This program has been specially designed to meet the ever increasing demand for well trained personnel with advanced & appropriate skills and knowledge to plan and implement innovative Public Health Schemes and Programs at regional, national and international level.

3. Objectives of the Course:

- To strengthen the Public Health system together with the technical and managerial skills.
- To train and develop a cadre of competent public health educators, researchers, practitioners, administrators, managers and policy makers.

4. Faculty

This course shall be under the Faculty of Allied Health Sciences

5. Eligibility for Admission to MPH Course:

- Graduate in Science (Physics, Chemistry, Mathematics, Botany, Zoology, Biotechnology, Dairy Science, Veterinary Science, Home Science, Health Science, Agriculture, etc.)
- Graduate in Social Sciences like Anthropology, Sociology, Psychology, LL.B, Journalism, Social Work
- Graduate in allied health sciences like public health, Health Sciences, nursing, physiotherapy, pharmacy, Veterinary etc
- Graduate in medical sciences - MBBS, BDS, BAMS, BHMS, BUMS.
- From any recognized Indian university or equivalent degree from any foreign university.

6. Admission Process-

Those satisfying the eligibility requirements will be included in the selection process. The admission to MPH will be purely on merit basis at the qualifying examination and the procedure of the admission will be followed as per the guidelines provided by the university.

7. Duration of the course:

Duration of the course will be Two Academic Years (Four Semesters)

8: Course Content

SEMESTER I

- MPH -101: Introduction to Public Health
- MPH -102: Human Biology & Public Health Chemistry
- MPH -103: Medical & Health Statistics
- MPH -104: Research Methods in Public Health
- MPH -105: Health Psychology, Communication & Counseling
- MPH -111: Practical's/Field visits based on 101 to 105

SEMESTER II

- MPH – 201: Epidemiology
- MPH – 202: Demography & Population Sciences
- MPH – 203: Project Planning & Management
- MPH – 204: Communicable & Infectious Diseases
- MPH – 205: Non-communicable Diseases
- MPH – 211: Practical's/Field visits based on 201 to 205

SEMESTER III

- MPH – 301: Health of Vulnerable Populations
- MPH – 302: Environmental Health & Sustainable Development
- MPH – 303: Occupational, Industrial and Urban Health
- MPH – 304: Health Policy, Planning & Economics
- MPH – 305: Public Health Internship
- MPH – 311: Practical's/Field visits based on 301 to 304

SEMESTER IV

- MPH – 401: Public Health Nutrition
- MPH – 402: Health Systems Development & Management.
- MPH – 403: International Health
- MPH – 404: Research Project
- MPH – 411: Practical's/Field visits based on 401 to 403

9. Eligibility for Appearing for Final University Examination:

- a) No student shall be allowed to appear for the Final University Examination conducted by P.I.M.S. unless he/she satisfies the requirement of attendance (75%), has satisfactory progress and conduct as stipulated by the Pravara Institute of Medical Sciences.
- b) The Dean / Principal should certify that the candidate appearing for University Examination satisfies above condition.

10. Detail Syllabus

Master of Public Health (MPH) -SEMESTER I

MPH - 101: Introduction to Public Health

- Introduction- Definition, Significance, Evolution of Public & Community Health
- Genesis and Development of the concept, Healthcare versus Medical Care, Approaches to Public Health
- Determinants of Health – Biological, Behavioral, Socio-economic, Cultural, Environmental, Geographical etc
- Concept of Primary Health Care.
- Community Diagnosis & Needs Assessment
- Community perception and priorities on health and disease
- Disease profiles & Epidemiological transition
- Public Health delivery system in India
- Ecology of health
- Right to health
- Introduction to National Health Policy – 1983 & 2002, National Population Policy – 2005, National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), National Public Health Programs.

Suggested Text Books/Publications:

1. *Oxford textbook of Public Health* Ed. Roger Detels, James McEwen, Robert Beaglehole, and Heizo Tanaka Oxford University Press (OUP) 4th Edition: 2002.28
2. *Public Health at the Crossroads – Achievements and Prospects.* Robert Beaglehole and Ruth Bonita 2nd Edition Cambridge University Press
3. *Maxcy-Rosenau-Last Public Health & Preventive Medicine, Fourteenth Edition* Ed Robert Wallace, MD, et al.
4. *Epidemiology and Management for Health Care: Sathe, P.V. Sathe, A.P., PopularPrakashan, Mumbai, 1991.*
5. *International Public Health: Diseases, Programs, Systems, and Policies* by Michael Merson, Robert E Black, Anne J Mills - Jones and Bartlett Publishers.
6. *Preventive and Social Medicine, K Park, Bansaridas Bhanot Publishing House.*

MPH - 102: Human Biology & Public Health Chemistry.

- Public Health Biology – Introduction, Scope and Applications
- Human Life Cycle
- Medical Terminology- Introduction to bacteriology/virology/Mycology/parasitology/ Genetic diseases/ genetics/Pediatric diseases/problems/Neoplasia/Inflammation & healing
- Human Anatomy - General Anatomy of Human body
- Structure and function of organs and systems - Digestive, Respiratory, Excretory, Circulatory and lymphatic, Endocrine, Musculo-skeletal, Nervous, Reproductive.
- Human Immunology-Basic Principles & concepts of Immunology & Role of Nutrition, immunity to infection and role of vaccination,
- Human Pathology - General Pathology, Disease pathogenesis, diagnosis, diagnostic techniques – its role, importance and applications in public health
- Human Physiology - Introduction, Environmental Physiology (Respiratory), Cardiovascular Physiology, GIT, Reproductive Physiology, Blood Physiology
- Human Microbiology - Introduction, Sterilization, Anatomy of Bacteria, Bacteria in Water and Milk, Culture Media/Methods, T.B., Malaria, STI, RTI, AIDS.
- Medical Biochemistry – Biochemistry of human body and biochemical laboratory investigations – its role, importance and applications in public health

Suggested Text Books/Publications:

1. Guyton Arthur C., 1991, *Textbook of Medical Physiology*, A Prism Book Pvt. Ltd. Bangalore
2. Horton Casey, 1994, *Atlas of Anatomy*, Marshall Cavendish Books, London.
3. Keele, Neil et.al, 1991, *Samson Wright's Applied Physiology*, Oxford University Press, Delhi. 30
4. Winwood R.S, J.L.Smith, 1985, *Anatomy and Physiology for Nurses*, Education Academic and Medicinal Publishing Division of Hodder and Stoughton, London.

MPH - 103: Medical & Health Statistics

- Introduction, Scope & applications of Biostatistics in Medical & Public Health Sciences
- Concept & applications of descriptive statistics – collection, measurement, presentation and analysis of medical & public health data–Measures of Central Tendency, Measures of Variability, Coefficient of Variation
- Survey methods - quantitative and qualitative survey methods in medical & public health sciences
- Sampling methods and techniques
- Concept, significance of theory and computations of probability in medical and health sciences
- Concept of probability distributions – Binomial, Poisson, Normal and t distributions
- Statistical Inference
- Estimation of Population Parameters – Standard Errors, Confidence Intervals
- Testing of Hypothesis and Significance – Introduction & Concept
- Parametric Tests–Small samples & large samples & Quantitative and qualitative data – Z test, t test, X^2 test, ANOVA, F test, Multivariate Analysis
- Non-parametric Tests
- Correlation – Concept and Computation of Correlation Coefficient
- Regression - Concept and Computation of Regression Coefficient
- Health Statistics - Measurement of Health, Sickness, and Disease in a population
- Vital Statistics – Rates & Ratio's
- Hospital Statistics – Hospital Management Information Systems & Medical Records, Classification of Diseases, Procedures (ICPD), and Deaths
- Application of statistical software's in data management and analysis – SPSS, Istat, Systat etc.,

Suggested Text Books:

1. *An Introduction to Biostatistics: A manual for students in Health Sciences: P.S.S. Sundar Rao, J. Richard Prentice Hall, New Delhi, 1996.*
2. *Bio-Statistics: A foundation for Analysis in the Health Sciences: Daniel, W.W., John Wiley and Sons Pub., Canada, 1991.*
3. *Bio-Statistics: A Manual of statistical methods for use in the Health, Nutrition and Anthropology: K. Vishwas Rao, Jaypee Brothers Medical Pub., New Delhi, 1996.*
4. *Bio-Statistics perspective in Health care research and practice: Verma, B.L., Shukla, G.D., et., al, C.B.S. Pub. New Delhi 1993.*
5. *Handbook of Statistics: Krishnaiah, P.K. Rao, C.R. (ed), Elsevier Science Pub. Netherlands, 1988.*
6. *Sample Size Determination in Health Sciences – A Practical Manual by S.K. Lwanga & S. Lemeshow, World Health Organization, Geneva, 1991*
7. *Statistics in Small Doses by W. Castle*
8. *Biostatistics in Clinical Medicine by Ingelfinger*
9. *Primer of Biostatistics by Grant*
10. *Statistical Methods in Medical Research by P. Armitage*
11. *Studying a Study and Testing a Test by Riegelman*
12. *Survey Methods in Community Medicine by Abramson*
13. *Teaching Health Statistics (WHO) by S.K.LWanga*
14. *Understanding Medical Statistics by L.A. Goldstone*
15. *A Short Textbook of Medical Statistics by Bradford Hill.*

16. *Medical Statistics Made Easy* by Pipkin
17. *Multivariate Statistics for Nursing Research* by Volicer
18. *Principles and Practice of Biostatistics* by Dr. J.V. Dixit
19. *Methods in Biostatistics* by Dr. B.K. Mahajan
20. *Text book of P & S M* by Park & Park
21. *Statistical Methods for Biologists* by S. Palanichamy & M. Manoharan

MPH - 104: Research Methods in Public Health

- Introduction to Research- Definition, Types, Strategies & Designs
- Research Process and Cycle
- Descriptive/epidemiological studies–Cross sectional, Operational Research and correlation studies.
- Analytical Studies-Case control study, Cohort study
- Experimental Studies- Quasi-experimental Studies & Clinical trials- Introduction to various types and its application
- Research Methods -Qualitative (Development of conceptual framework, - Qualitative methods: FGDs, in-depth interviews, ethnographies, participatory methods, participant observation etc. Data collection, recording) & Quantitative.
- Statistical Methods in Public Health Research-Application and Interpretation
- Research Data Collection Tools & Methods-Sampling and survey methods, Sample size, Survey design & Planning, Interview schedule, questionnaire construction, validation etc
- Research Data Collection, Management, Coding procedures
- Participatory Research and Analysis (PRA) Methods
- Ethical Aspects in health research.
- Research paper/Proposal-Formulation, writing & critical review.
- Bibliography-Review of literature and bibliography

Suggested Text Books:

1. *Health Research Methods – A Guide for Training in Research Methods, World Health Organization, Manila, 2001*
2. *Research Methodology by A.P.Kulkarni Power Publication, Calcutta*
3. *Research Methods by Ranjit Kumar*
4. *Research Methods by Good & Hatt*
5. *Research Methods by P. V. Young*
6. *Research Methods by Media research methods by Barrie Gunter.*
7. *Research Methodology, 2nd Edt. By Kothari C.R. 2004, New Age International Pub.*
8. *Introduction To Epidemiologic Research Methods In Public Health Practice by Susan Bailey, Deepa Handu Published by Jones and Bartlett Publishers, 1st edition, 2012*

MPH - 105: Health Psychology, Communication & Counseling

- Human Psychology-Nature, scope & Factors influencing human behavior.
- Human growth and development across the Life span, Conflict resolution.
- Health Psychology- Concepts, Understanding, & health seeking behaviors, factors influencing health psychology
- Society & Health - socio-psychological barriers (Social taboos, blind faiths, believes, myths that affect health)
- Communication – Process, Types, Barriers, Tools & Techniques
- Health education/communication- Principles & Practice, Approach, Models, Content
- Information Communication Technologies (ICT) in health care and awareness. (Tele-medicine & e-health, community radio)
- Health Counseling- Introduction, theories, process & techniques.
- Stigma and discrimination: Definitions, context and role of stigma and discrimination in health and disease.
- Counselor- Personal and interpersonal development of the Counselor.
- Teaching technologies, methods and Microteaching

Suggested Books

1. Health Psychology, By Taylor Shelly E, Tata McGraw-Hill , first edition, 2006
2. Handbook of Cultural Health Psychology edited by Shahe S. Kazarian, David R. Evans, Academic press, 2001
3. Health Psychology: A Critical Introduction By Antonia C. Lyons, Kerry Chamberlain, Cambridge University Press
4. Health Communication in the 21st Century, By Kevin B. Wright, Lisa Sparks, H. Dan O'Hair, Blackwell publishing limited, 2013, first edition
5. Health Communication: From Theory to Practice, By Renata Schiavo, Published by Jossey Bash.
6. Health Communication R.D. Karma Published by Mohit Publications 2008.
7. Counselling in Health Care Settings: A Handbook for Practitioners by Professor Robert Bor, Riva Miller, Sheila Gill and Amanda Evans
8. Counseling Skills For Health Care Professionals 1st Edition by Rajinikanth AM published by Jaypee Brothers, 2010.
9. Counseling and Guidance by S Narayan Rao, 2nd edition. Mac Graw hill Publication.

MPH. --111- Practical/Field Visits

Practical's/Field visits based on MPH - 101 to MPH - 105

1. Visit to SC/PHC/RH/Civil Hospital
2. Visit to Private/NGO hospitals and Nursing Homes
3. Visit to village for Family Health Study (at least 10 families each student)
4. Visit to THO/DHO to study the National Public Health Program (TB, Cancer, Leprosy, Malaria, HIV/AIDS, RCH etc)
5. Visit to social welfare dept. at Block and District level to study Social health and Nutrition program (ICDS, Tribal development, Physically handicapped etc.)
6. Visit to District/State Public Health Laboratory
7. Inspection of eating/food establishment and visit to Food Inspector Officer
8. Visit to Milk Chilling, Pasteurization & Processing Industry
9. Estimation of Fat Content and tests on milk adulteration
10. Visit to Clinical laboratory & blood bank of Tertiary care hospital to study all biochemical, pathological and microbiological investigations.
11. Presentation of Data-Tabular & Graphical
12. Calculation of Measures of Central Tendency.
13. Calculation of Measures of Variation.
14. Normal distribution & Curve.
15. Test of Significance-Parametric (Quantitative/Qualitative - Large & Small Samples)- (Z test, Chi Square test, t-test, F test, ANOVA test)
16. Test of Significance-Non-Parametric
17. Correlation
18. Regression
19. Calculation of vital statistics-Rates and Ratio
20. Analysis of data through Statistical Software's (SPSS, Systat., Epiinfo.)
21. ICD classification
22. Calculation of Hospital Statistics.
23. Visit to district statistical office/district information officer.
24. Construction of data collection tools, Construction of research problem, hypotheses
25. Designing research study-Institutional/Community
26. Planning field level survey for a research study- Qualitative of Quantitative
27. Visit to library for Literature review and bibliography
28. Critical analysis of research articles published in indexed journals.
29. Visit to public health research institutes.
30. Visit to National Information Centre (NIC)
31. To develop health communication model-(Video Documentaries, Drama, Role play, Street Play, One act play, Traditional songs/acts, folk media etc).
32. To develop health awareness material i.e. IEC [Print media (leaflet, pamphlet, books, posters, flip chart, wall calendars, puzzles etc.) audio-visual material]
33. Visit to e-health centers/telemedicine centers
34. Visit to counseling centers. (HIV/AIDS, Cancer, Family welfare counseling etc.)
35. Writing of Health Messages
36. Handling of Communication Aids- Video and computer systems and their handling,
37. Developing Communication Campaigns – PLA, FGD, Counseling
38. Microteaching

Master of Public Health (MPH) : SEMESTER II

MPH - 201: Epidemiology

- Introduction to Epidemiology- Definition, History, Aims, Basic principles,
- Uses of Epidemiology
- Epidemiological methods: Descriptive Epidemiology, Analytical Epidemiology, Experimental Epidemiology
- Epidemiological study designs –Descriptive (cross-sectional), analytical (case control & Cohort) and experimental
- Determinants of disease, Natural history of disease
- Epidemic investigations
- Association and causation
- Risk measurement, Measurement of morbidity and mortality: Incidence, Prevalence, Age-adjustment and survival analysis, use of morbidity and mortality.
- Epidemiology of Communicable & Non-communicable Diseases- Risk factors, global profile and predictions prevention and control.
- Social epidemiology- Definition, History, Aims, Basic principles & Methods

Suggested text Books:

1. *Epidemiology* by P.V.Sathe, Popular Prakashan
2. *Gordis Leon Epidemiology (3rd edition)*, W B Saunders and Co.
3. *Beaglehole. R. Bonita, et. al Basic Epidemiology* :, WHO Publication, Geneva, 1993.
4. *David E., et. al. Foundations of Epidemiology* : Oxford University Press, New York, 1984.
5. *Barkar, D.J.P., Practical Epidemiology: Churchill pub, Livingstone, 1982.*
6. *Epidemiology in health care planning: E.A. Knox (ed), Oxford University Press, New York, 1979.*
7. *Katz Mitchell: Study Design and Statistical Analysis: A Practical Guide for Clinicians*
8. *Last, J.M., Spasoff, R.A. Harris, S. S. and Thuriaux, M.C. (Eds): A Dictionary of Epidemiology, Oxford University Press, New York, 4th Ed., 2001.*
9. *Mayer Dan Essential Evidence-Based Medicine Series: Essential Medical Texts for Students and Trainees*
10. *Silman and McFarland: Epidemiological Studies A Practical Guide 2nd Edition*
11. *Aschengrau and Seage: Essentials of Epidemiology in Public Health*
12. *Friis Robert: Epidemiology for Public Health Practice, Third Edition*
13. *Timmreck Thomas C: An Introduction to Epidemiology, Third Edition 2002*
14. *Szklo Moyses: Epidemiology: Beyond the Basics – 2003*
15. *Berkman, L.F. and Kawachi, I, Eds. 2000. Social Epidemiology. New York, Oxford University Press*
16. *Krieger, N. 2000. Epidemiology and Social Sciences: Towards a Critical Reengagement in the 21st Century. Epidemiologic Review, vol. 22-1: 155-63.*

MPH-202: Demography & Population Sciences

- Introduction: Definitions, Scope and nature, importance of the study, Historical review, difference and similarities between Demography and Population Sciences.
- Methods of Demographic Data Collection: Primary and Secondary sources of data collection, Procedures, Uses, Strengths and weakness of census, vital statistics, sample survey, dual reporting system – SRS, Data from national health program/disease surveillance, hospital statistics, police records, remand homes etc.
- Population composition: Sex composition, factors affecting sex composition, Age structure Population pyramids, impact of various demographic processes on the age structure. Comparison – developed and developing countries.
- Demographic transition
- Fertility: Determinants: Social economic, political, natural fertility levels and trends in India and world, Measures of fertility, Impact of level of fertility on reproductive health, selected theories of fertility, policies about fertility control.
- Mortality: Measures of mortality, Causes of Death: epidemiological perspective, Infant & neonatal mortality rates, maternal mortality, disease wise mortality, Trends of Mortality in India, differentials in mortality in developed and developing countries.
- Migration and urbanization: General terms and concepts, internal migration, measures of migration, Differential migration, International migration, Migration in India. Urban challenge of health and environment.
- Population Growth and Problems: Population growth, reasons for sudden growth in population, problems emerging out of that. Rural-urban distribution of growth pattern, population growth and related problems.
- Population Policy: Health planning in terms of Family planning, Health services, Vital processes. Policies and programmes influencing demographic processes in the context in India's population.
- Demographic dividend-Concept, scope and applications.

Suggested Text Books/References:

1. *Principles of population Studies: Asha Bhende and Tara Kanitkar, Himalaya Pub, Houses, Mumbai, 1996*
2. *Population: John Weeks, Wordsworth pub., California, USA, 1994.*
3. *Population Transition In India: S.N.Singh, M.K.Premi, P.S.Bhatia, B.R.Publishing Corporation, Delhi, 1989.*
4. *Population in the context of India's development: P.B. Desai UGC – UNFPA project, Ahmedabad, 1987.*
5. *Demography: Peter Cox, Cambridge University Press, U.K., 1989.*
6. *Demographic Diversity of India, Ashish Bose, B.R. Publishing Corporation, Delhi, July 1991*
7. *Techniques of Demographic Analysis: K.B. Pathak, F. Ram, Himalaya Publishing Houses, Mumbai, 1992.*
8. *Health Monitor: Foundation for Research in Health S, Mumbai, 1990.*
9. *National Family Health Survey – 1, 2 and 3: International Institute for Population Sciences, Mumbai.*
10. *Basic Demographic Techniques and Applications – K. Srinivasan, Sage Publications, 1998*
11. *World Population Prospects, United Nations Population division, Department of Economic and Social Affairs*

MPH - 203: Project Planning & Management

- Introduction to project planning and management in health care & public health
- Project Planning, Structure & Content – Personnel, Financial, Operational planning
- Decision making tools for project planning - Logical Framework Analysis (LFA) tools, SWOT Analysis for project development
- Project Life Cycle
- Project identification, preparation & formulation
- Project Proposal Writing
- Project budgeting and financing
- Project review and approval
- Project execution/implementation
- Project management – History, Roles & Responsibilities, Types of management (Strategic management, Operations management, Crisis management)
- Project evaluation – Internal and external evaluation, Participatory evaluation Methods, Tools & Techniques (PERT, CPM) & Indicators for project evaluation
- Fund raising for projects

Suggested Text Books/References:

1. *Project Management for Healthcare* By David Shirley, CRS Press, 2011
2. *Project Management in Health and Community Services-Getting good ideas to work*, By Judith Dwyer, Pauline Stanton, Valerie Thiessen, National Library of Australia,
3. *The ABCs of Program or Project Planning* By Sunny O'Flynn, Strategic book rights and publishing company, Houston

MPH - 204: Communicable & Infectious Diseases

- General overview of communicable diseases, impact of communicable diseases on developing countries. Characteristics of prokaryotes and eukaryotes, Structure and function of typical bacterial cell.
- Virulence factors, mode of action of toxins, cellular basis of disease
- Microbial subversion of host defense mechanisms
- Anti-microbial agents, mode of action, genetic basis of drug resistance, multi-drug resistance
- Biology of viruses, classification, and mechanism of pathogenesis
- Anti-viral agents
- Biology, pathogenesis and pathology, clinical presentation, of common infections -
Respiratory : Tuberculosis, leprosy, ARI's including pneumonia, measles, mumps , rubella
- Intestinal : Diarrhoea, typhoid, polio, hepatitis, worm infestations
- Contact : STDs and AIDS
- Vector borne : Plague, rabies, malaria and filaria, JE, dengue
- Disease prevention and control
- Malnutrition and infection
- Health aspects of Disaster management-Definition, types and management

Suggested Text Books/Publications:

1. *World Health Organization: Report on infectious diseases, and Report on Multidrug resistance, World Health Organization, Geneva*
2. *Principles and Practice of Medicine: Davidson, Edward, Bouchier et. Al., Pearson Professional Ltd. London, 1995*
3. *Biology of Disease: Jonathan Phillips, Paul Murray, Blackwell Science Ltd. Australia, 1995*
4. *Practical Medical Microbiology : Mackie and M.C. Cartney, Longman Group, U.K. 1995*
5. *Human Virology : A textbook of Students of Medicine and Microbiology, Dentistry, Leslie collier, John Oxford, Oxford University Press, Tokyo, 1993*
6. *Textbook of Medicine: Cecil, Bennett, et al., Harcourt Brace Joanvich Inc. U.S.A. 1992*
7. *Medical microbiology: Greenwood et al., Churchil Livingstone Longman group, London, 1992*
8. *Textbook of Medical Parasitology: Jayram Paniker, Jaypee Brothers, New Delhi, 1993*

MPH 205: Non-Communicable Diseases

- Overview and introduction to NCDs
- Epidemiology of NCDs, risk factors, prevention and management: general strategies
- New approaches and policies of NCDs.
- NCDs programs of WHO, PAHO, and Government of India.
- Some important NCDs: Following diseases will be covered for Etiology, Pathophysiology, Epidemiology, Prevention and Control. -Asthma , Cancer , Cardiovascular diseases , Chronic , rheumatic diseases , Diabetes , Tobacco use
- Mental Health: Classification, biochemistry, clinical manifestations, diagnosis and treatment and intervention and support services
- Concept of Mental Health
- Burden of Mental diseases
- Depression, Schizophrenia, Alzheimer's, Parkinson's, Senile dementia ,Suicides Substance Abuse
- National Mental Health Programme
- Emerging & re-emerging diseases
- Role of Voluntary organizations, self-help groups

Suggested Text Books/Publications:

1. *Global Handbook On Non-Communicable Diseases And Health Promotion* By David V. McQueen, Springer Publication.
2. *Education Of Communicable And Non-Communicable Diseases* S.L. Goel Published By Deep & Deep Publications Pvt. Ltd., 2009
3. *Burden Of Non Communicable Diseases (Paperback)*By (Author) M D Richa, By (Author) Gyan Prakash Singh, By (Author) C P Mishra Published By Lap Lambert Academic Publishing. 2012
4. *Park's Textbook Of Preventive And Social Medicine 21 Edition* By K. Park Published February 2011 By Banarsidas Bhanot Publishers .

MPH. - 211- Public Health Practical/Field Visits

Practical based on MPH. - 201 to MPH. - 205

1. Epidemiological Exercise on Water
2. Epidemiological Exercise on epidemiology
3. Medical Important Arthropods.
4. Measurement of morbidity and sickness-rates and ratio's.
5. Measurement of Risk Analysis for various morbidity, mortality and survival.
6. Exercise on Life tables-Life expectancy at birth and at different ages.
7. Exercise on RCH Logistics
8. Exercises on population trends and growth.
9. Exercises on mortality and fertility- rates and ratios.
10. Formulation of a project proposal on selective topic/problem based on all the concepts of project planning and management learnt in the theory topics.
11. Community Needs Assessment-To conduct the community needs assessment for different stakeholders- **Users**-Migrant workers, villagers, women, children, tribal, industrial workers, farmers etc. & **Doers**-Govt., NGO, Private sector etc.
12. Visit to Vector Breeding Places in villages as well as hotels, market place, slaughter houses, market, livestock shed etc.
13. Visit to district vector control office.
14. Visit to STI Clinics & ART Centre.
15. Visit to rehabilitations homes for mentally sick people.
16. Visit to police stations for collecting data on road traffic accidents and injuries.
17. Visit to Cancer Centre for study of cancer registry and various cancer prevention and treatment facilities.

Master of Public Health (MPH) : SEMESTER III

MPH 301: Health of Vulnerable Populations

- Definition and Concept of Vulnerable Populations
- Vulnerable groups their health and human rights
- Vulnerable Groups facing Structural Discrimination in India–Women, children, SC, ST etc
- Vulnerability by different factors- Race and ethnicity (Tribal, Dalits, Indigenous populations), Gender (male, female, transgender), Geographical area (rural/urban, remote & hilly areas), Age (Child, adolescent, elderly), Disability (Physical & Mental – Social and health inequalities) Migration & Displacement, Stigma and Discrimination (PLW HIV/AIDS, Sexual Minorities, Sex workers), High Risk Occupations (Farmers-Farm workers, Industrial workers, Mining workers, Sex Workers, Child Labour, Street Children) Environment, War and Natural Calamities .
- Violation of right to health of vulnerable populations- Concept of gender, Social structure and gender, Gender discrimination, Consequences of gender discrimination on health, Gender in the context of development, Violence against women, Girl trafficking, Global issues related to gender, Legal aspects and acts related to gender:MTP,PNDT,Prostitution, homosexuality etc.
- Issues related to Children and Adolescent- Child abuse/Child labour/Street Children & malnutrition, Girl Trafficking & anemia in adolescents, reproductive rights of adolescents.
- Health inequality and health care disparities among vulnerable populations
- Advocacy of health and human rights of vulnerable groups
- Public health preparedness of vulnerable populations
- Vulnerable populations in medical/health research
- Assessment & addressing the needs of vulnerable populations
- Special schemes, projects, programs for vulnerable populations
- International aid agencies supporting vulnerable populations

Suggestive Text Books/References:

1. *Vulnerable Groups in India* by Chandrima Chatterjee & Gunjan Sheoran, CEHAT, Mumbai
2. *Vulnerable Populations in the United Nations* by Leiyu Shi & Gregory D. Stevens, 2nd Edition, Published by Jossey-Bass, A Wiley Imprint, San Francisco
3. *Public Health Preparedness and Response for at-risk populations* by Anne Rader, Margo Edmunds, John Bishop, Booz Allen Hamilton Publications
4. *Vulnerable Populations in Research (ppt)* by Dr. G.D. Ravindran, St. John's Medical College, Bangalore
5. *Tribal Health Problems, Disease Burden and Ameliorative Challenges in Tribal Communities with special emphasis on Tribes of Orissa* by R.S. Balgir,
6. *Ethical Values in Health Care*, Dr. S.K. Pandya, Dr. E. Hamrin, Dr.R. Vaidyanathan
7. *An International Conference*, Jan. 2-4, 1998
8. *Women and Health*, Patricia Smyke, Zed Books Ltd-London & New Jersey, 1991
9. *Women and Disability*, Esther Boylan, Zed Books Ltd-London & New Jersey, 1991
10. *Women and Environment*, Annabel Rodda, Zed Books Ltd-London & New Jersey, 1991

MPH (302): Environmental Health & Sustainable Development

Environmental Health

- **Environment**-Definition, Concept, Components
- **Environmental Pollution**- Sources, Impacts and treatments of Air (Indoor/Outdoor), Water, Soil, Nuclear, Solid waste, Biomedical waste, e- waste etc.
- **Development & Environmental issues** -Environmental Ethics, Global Warming, Climate Change, Ozone Depletion, Acid Rain etc.
- **Eco-friendly environmental practices**-Waste management, Energy practices, Agriculture Practices.
- **Environmental Disaster**- Definition, types and management.
- **Environment & Health Impact Assessment**-Concept, Steps and application

Sustainable Development

- **Development**- Definitions & Concept
- **Development theories**- Modernization, structuralism, dependency, basic needs, neoclassical, sustainable, human development.
- **Sustainable Development** –Introduction, principles, models
- Rights Based Approach for development and health
- **Developmental Planning**-Macro & Micro level
- **Healthy Settings**-Cities, Villages, Schools.
- Poverty & Its Measurements
- Wellbeing and its measurements
- Human Development and Its measurements.
- Societal Health & Development.
- Community Organization and participation

Suggested Text Books/References

1. *Environmental and Health Impact Assessment of Development Projects: A* edited by Robert G. H. Turnbull, Elsevier Sciences Publication
2. *Environmental Chemistry*, B.K.Sharma, Krishna Prakashan Media.
3. *Environmental Science* by S C Santra, Publisher: : New Central Book Agency Calcutta, 2001
4. *Perspectives in Environmental Health -Vector and Water Borne Diseases* Mukhopadhyay Aniruddha, De A K
5. *Sociology Anthropology, and Development*, Michael M. Cernea, The World Bank Washington, D.C, 1994
6. *Development and the Environment*, Lewis T. Preston, The World Bank Washington, D.C, 1992
7. *Environment and Development in Africa*, Jonathan M. Blackwell, Roger N. Goodwillie & Richard Webb, The World Bank Washington, D.C, 1991
8. *Environment, Health And Sustainable Development* by Landon, Megan McGraw-Hill International, 2006.
9. *An Introduction to Sustainable Development* By Peter P. Rogers, Kazi F. Jalal, John A. Boyd, Earthscan publication, UK, 2008
10. *Sustainable Development: Mobilisation and Globalisation*, D. K. Bhatnagar, Cyber Tech Publications, 01-Jan-2008

MPH - 303: Occupational, Industrial and Urban Health

- Fundamentals of occupational Health.
- Principles and Relevance of Industrial and occupational Health
- **Occupational Health** – Prevention, promotion, access to health services, legal aspects.
- **Occupational Safety & Health:** Chemical and physical exposures, control of occupational exposures, injury control
- Occupational health disorders and diseases
- Industrial Hygiene
- Ergonomics
- Industrial Psychology
- Occupational Services at workplace
- Legislations related to occupational health and safety
- **Occupational health of working population of organized and unorganized sectors**-Farmers, Industrial Workers, health workers, CSW, etc.
- **Urban population:** Definition, demography and trends
- Determinants of urban health
- Consequences of urbanization and Urban health services
- Concept of urban health planning and practices.
- National Urban Health Mission.

Suggested Text Books/References

1. *Occupational Health: Management and Practice for Health Practitioners* By S. P. Hattingh, 3rd edition.
2. *Urban Health: Global Perspectives* edited by David Vlahov, Jo Ivey Boufford, Clarence E. Pearson, Laurie Norris, published by Jossey bass
3. *Industrial Health* Jack E. Peterson American Conference of Governmental Industrial Hygienists, 1991

MPH - 304: Health Care Policy, Planning & Economics

Health Care Policy

- **Health Policy**:-Understanding, need and goals for various policies related to public health - Health policy, population policy, nutritional policy-food security, research policy, women policy, child policy etc.
- Health Policy environment
- Methods to assess the needs of for the policy development / assessment process.
- Frameworks for policy analysis, applying these to the assessment of current policies.
- Factors influencing the policy: external factors (interest groups as one example), politics, globalization and the like.
- **Healthcare Legislation in India**: Legal aspects of healthcare, the Medical, Termination of Pregnancy Act, The maternity benefit act, The immoral traffic, (prevention) act, The transplantation of human organs act, PNDT Act, The registration of birth and Death act, The child labour (prohibition and regulation) act, Biomedical waste Rules, COPRA Act, Indian factories act, ESI act.

Health Planning

- **Health Planning** –History, Concept, models
- Strategic planning, implementation and evaluating
- Health care manpower planning and development
- Health Care Utilization Patterns
- Management of Primary Health Care
- Health Sector Reforms
- Organizational behavior and development
- Privatization, commercialization & globalization of health care
- Public- Private partnership
- Health care quality assurance

Health Economics, Budgeting and Financing

- Health economics
- Investment in Health Care & Public health
- Financing of Health Care – Public, Private & Community/Individual
- Health Insurance Schemes
- Development Partners in Public health

Suggested Books/References:

1. *Health Care Financing, Regional Seminar on Health Care Financing, Asian Development Bank, Economic Development Institute and East-West Center, 27- July 3 August 1987*
2. *Health Care Policy: Issues and Trends, Jennie Jacobs Kronenfeld, Publisher: Praege, 2002*
3. *Health Care and Public Policy by David A. Reisman, published by Edward Elgar publishing, UK, 2007.*
4. *Health Planning in India by G. Ramachandrud.*
5. *Health economics, H P S Rana by Alfa Publications (2009)*
6. *Health Economics: An International Perspective by Barbara McPake, Charles Normand, Samantha Smith, Publisher: Routledge; 3 edition*

MPH 305: Public Health Internship

Four Weeks of Public Health Internship is part of the MPH Program which should be facilitated by the Constituent Unit of PIMS University at any approved regional/national renowned Public/Community Health, Development, Research & Academic/Training Organizations. This course will be scheduled between Semester II & III. Report may be submitted at the end of Semester III.

Purpose of the Public Health Internship

To expose the student to various programmes/activities in Public Health and develop a comprehensive understanding of programme design, strategies and planned intervention, research etc

Objectives of Public Health Internship:

- To collect the information about organization—Areas of expertise, bonafides, stakeholders, length of the work, type of organization (govt., semi-govt., NGO, voluntary, corporate etc.)
- To learn about the different projects/programs (institutional/community based) run by the organization.
- To be familiar with communication procedure between health workers and community.
- To acquire practical knowledge & practices about project planning and implementation.
- To discover the problems encountered & solutions arrived while implementing the project.
- To learn about working of the Management information system (MIS).
- To know about method and source of evaluation.

Suggestive Format for Internship Report Writing

1. Title of the project
2. About the organization
3. Introduction and objectives of the project/programme / organization
4. Funding agency— about the agency, how to get funding, Nature of funding agency
5. Staffing pattern of the project with their functions
6. Major activities being undertaken under the project
7. Results achieved so far (target Vs achievement)
8. Role of the candidate in the project/programme / organization
9. Project/Program Evaluation by the candidate.

The type written report should have 25 to 50 printed pages.

Method of Evaluation of Internship

Evaluation of the subject will be carried out by University with following method

- Report writing
- Presentation
- Viva-voce

MPH.311- Practical/Field visits

Practical based on MPH. - 301 to MPH. - 304

1. Visit to Tribal Population of Hilly/mountainous area
2. Visit to Blind, Deaf & Dumb School
3. Visit to Migratory Sugarcane Harvest Workers Families
4. Visit to CSWs, MSM and Migrant population Projects
5. Visit to Old Age Homes, Rehabilitation & Remand Homes
6. Visit to ART Centre for PLW HIV/AIDS & NGOs
7. Visit to sewage/effluent treatment Plant
8. Estimation of available chlorine in bleaching powder and disinfection of open well/ bore well/tank water.
9. Estimation of quality of water through water quality testing (OT, pH, TDS, Hardness, Nitrate, Chloride, Iron, Fluoride, Bacteria etc.)
10. Visit to community water purification/treatment Plant
11. Visit to Biomedical waste treatment Plant
12. To study Ecofriendly Practices
13. To Visit the Pollution Control board laboratory.
14. To measure Poverty, wellbeing, human development.
15. To plan for healthy setting.
16. Micro level planning for village level sustainable development.
17. Visit to Industry to study occupational health hazard and safety of industrial workers.(Sugar factory/Milk dairy/Cottage/SME industries etc.)
18. Visit to municipalities and corporations to study urban health planning and practices.
19. Visit to agricultural fields to study occupational health of farming community (Farmers and farm workers)

Master of Public Health (MPH) : SEMESTER IV

MPH - 401: Public Health Nutrition

- Principles of human nutrition – relationship between nutrition, health & disease
- **Nutrition and Health:** Classification and Nutritional profiles of various foods and drinks, Balanced diet, Diet survey, consumption unit, nutritional classification, Nutritional problems e.g. LBW, PEM, Xerophthalmia, IDD, etc. Nutritional factors in selected/ major diseases (Cardiovascular, Diabetes, Obesity, Cancer),
- Digestive absorption, metabolism of carbohydrates, proteins and lipids
- Energy, water, minerals, vitamins
- Applied nutrition
- Nutrition assessment
- Community nutrition – Recommended dietary allowances, nutrition throughout life cycle, malnutrition and chronic energy, micronutrient disorders, Food toxicity, socio-ecology of nutrition
- Maternal and child nutrition,
- Methods of promoting dietary change
- Effect of processing on nutritive values of foods
- Habitual diets in India and their adequacy
- Nutritional deficiencies-prevention and control
- Nutrients and their functions.

Suggested Text Books/References:

1. *Advanced textbook on food and Nutrition: Dr. M Swaminathan, The Bangalore Publishing Co. Ltd. Bangalore, 1974*
2. *Recent Trends in Nutrition: C Gopalan, Oxford University Press, New York 1993.*
3. *Nutrition for Developing Countries: E. Savage King, Oxford University Press, Oxford, 1992.*
4. *Nutrition problems and Programmes in South East Asia: Dr. C. Gopalan, World Health Organization, New Delhi, 1987.*
5. *Perspective in Nutrition: Gordon M. Wardlaw, Paul M. Injel, Time/Mosby College Publishing, St. Louis, 1990.*
6. *Fundamentals of food and Nutrition: Sumati R. Mudambi, M.V. Rajagopal, V.R. Damodharan, Wiley Eastern Ltd. New Delhi, 1982.*
7. *Clinical Dietetics and Nutrition, F.P. Antia, Oxford University Press, Delhi, 1993.*
8. *Human Nutrition and Dietetics, J.S. Garrods & W.P.T. James, Churchill Livingstone, London, 1993.*
9. *Nutritional Sciences: Sreelakshmi*
10. *Nutritive value of Indian foods by C.Gopalan, B.V.Rama Sastri & S.C. Balasubramanian, National Institute of nutrition, ICMR*

MPH - 402: Health Systems Development & Management

Health Systems Development

- Introduction to various Health System Models
- Health services philosophies
- Levels of health care-Primary, Secondary & Tertiary
- Health care providers (Government, Private, Voluntary/NGO, Indigenous)
- Alternative systems of medicine (AYUSH)
- Integrated health care delivery-Preventive, promotive, curative & rehabilitative
- Inter-sectoral approach for health care delivery
- Decentralized health care delivery system
- Sustainable, Grassroots & Comprehensive Health Models
- Appropriate technology in health
- Health Systems research – 10/90 Gap in medical research

Health Management:

- Strategic management in Public Health
- Organization Behavior and Design
- Human Resource Development Quality & Assurance.
- Management Information and Evaluation System.
- Health resources & Management
- Total Quality Management & ISO certification of health systems

Suggested Books/References:

1. *Health Care Administration: Planning, Implementing, and Managing Organized Delivery Systems, Third Edition*, by Lawrence Wolper, Jones and Bartlett Publishers International, UK.
2. *Essentials of Public Health Management* by L. Fleming Fallon Jr., Eric Zgodzinski, Jones & Bartlett Publishers, 2011
3. *Health Management* by Preeti Oberoi, Sarup & Sons publication

MPH - 403: International Health

- Introduction to international health, scope & importance.
- Socio-cultural perspectives of International health
- Health Problems, Issues and concerns that transcend national boundaries
- Policy development in international health, health care, educational and economic development.
- Globalization-Cultural, Political, Social and economic globalizing processes at work in today's world.
- Global burden of Diseases-How disease burden is measured and the causes of morbidity and mortality at global scale.
- Global Governance-Neoliberal and neorealist regime theory, critical theory approaches, international law, role of corporations and private authority and the activity of global civil society.
- Public Health in developing & developed countries
- International Drug Policies & programmes
- International health legislations-Recruitment laws, Health Insurance Policies, academic equivalence etc.
- International funding for health care & conditions-Structural Adjustment Program (SAP).
- International Health Agencies and their role and contribution
- International Public Health Programs- Millennium Development Goals (MDG)
- International Health tourism
- Ethical issues in international health research.

Suggested Text Books/Publications:

1. *Textbook of International Health: Global Health in a Dynamic World* By Yogan Pillay, Timothy H. Holtz, 3rd Edition. Oxford University Press.
2. *Textbook of International Health* By Paul F. Basch, Oxford University Press
3. *Global Health 101*, By Richard Skolnik, 2nd Edition,
4. *An Introduction to International Health*, By Michael Seear, Published by Canadian Scholars Press Inc.
5. *Essentials of International Health* By Manoj Sharma, Ashutosh Atri,
6. *Global Health –Disease, Programmes, Systems and Policies* edited by Michael Merson, Robert E, 3rd Edition.

MPH - 404 -Research Project/Dissertation

Based on the actual training imparted in the course, the student shall conduct a research project under the guidance of a faculty of the constituent Institute. The topic for the research project may be related to any current public health issue and can be selected in consultation with the guide and the head of the Institute. The project has to be initiated during third semester in order to enable maximum exposure of student to the research topic and research field. After completion of the research project, the student has to submit the report to the Head of the institute before examination. The Research Project will carry 200 marks and shall be assessed both internally (50 marks) and externally (150 marks). For external evaluation there will be a report evaluation, presentation and viva voce at the end of fourth semester. Such assessment shall be conducted by a panel of two referees appointed by the University.

MPH - 411-Practical's/Field Visits-

Practical/Field visits based on MPH. - 401 to MPH. – 403

1. Visits to approved public health organization working in the field of international health either locally or nationally. (The visits should cover study of the theory, the concepts taught in the subject to real life practices)
2. Planning, preparation and nutritional evaluation of diets in relation to activity levels and physiological state.
 - a. Planning and preparation of a balanced diet for a pregnant woman.
 - b. Diet during complication of pregnancy.
 - c. Planning and preparation of a balanced diet for a lactating woman.
 - d. Preparation of weaning foods.
3. Nutritional value & criteria of food selection in Indian diet according to ICMR Diet and nutrition surveys:
 - (a) Identification of vulnerable and risk groups.
 - (b) Diet survey for breast-feeding and weaning practices of specific groups.
 - (c) Use of anthropometric measurement in children.
4. - Dietary planning for HIV and Aids
5. Problem Based Learning
6. Group Discussion
7. Seminar

10. Assessment:

The final total assessment of the student shall be made in terms of an internal assessment and an external assessment. The internal and external assessment will constitute separate heads of passing and they will be shown separately in the marks sheet. For each paper meant for University evaluation, the ratio of marks for internal assessment in relation to external assessment shall be 25:75. The internal assessment will be continuous throughout the semester; however the external assessment shall be based upon the external written examination to be held at the end of each semester. The Internal Examination marks shall immediately be communicated to the university. The project Report and viva shall constitute one head of passing.

The marks awarded by a teacher in the internal evaluation shall be immediately communicated to the student. The Institute should communicate internal marks to the students. Reassessment of Internal Marks –in case of those students who have secured less than passing percentage of marks in the internal evaluation, the Constitute Unit should administer a separate internal test for these 25 marks in the subsequent semester.

11. Scheme of Examination

There will be 75 marks assessment of all subjects by the university at the end of each semester. Subject MPH-404 (Research Project) will be assessed for 150 marks by the university. The pattern of question paper will cover the entire syllabus. The paper will consist of SAQ and LAQ. Following is the subject wise details of examination scheme.

Theory subjects mentioned below in all semesters

Semester I-Subject Code – 101,102,103,104,105

Semester II- Subject Code- 201,202,203,204,205

Semester III- Subject Code- 301,302,303,304

Semester IV- Subject Code- 401, 402,403

Question Paper Format

Time: 3.00 Hours

(Max Marks: 75)

Instruction to the candidates:-

1. Attempt any three from Section I and three from Section II
2. Neat diagrams must be drawn wherever necessary
3. Figures to the right indicate full marks

Section – I (30 Marks)		
Q.1	Short Answer Question	10 Marks
Q.2	Short Answer Question	10 Marks
Q.3	Short Answer Question	10 Marks
Q.4	Short Answer Question	10 Marks
Section – II (45 Marks)		
Q.5	Long answer Question	15 Marks
Q.6	Long answer Question	15 Marks
Q.7	Long answer Question	15 Marks
Q.8	Long answer Question	15 Marks

Practical subjects mentioned below in all semesters

Semester I- Subject Code – 111

Semester II- Subject Code- 211

Semester III- Subject Code- 311

Semester IV- Subject Code- 411

Question Paper Format

(Max Marks : 75)

Instruction to the candidates:-

1. All questions are compulsory
2. Figures to the right indicate full marks

O. 1		Lab work/ Practical –30 marks	30 Marks
	a)	Experiment 1 (15 Marks)	
	d)	Experiment 2 (15 Marks)	
Q.2		Spots & Exercise	20 Marks
	a)	Spots (5* 02 Marks) – 10 Marks	
	b)	Exercise (2* 05 Marks) – 10 Marks	
Q.3		Viva-Voce	15 Marks
Q. 4		Journal	10 Marks

Public Health Internship and Research projects of following semesters

Semester III- Subject Code – 305

Semester IV- Subject Code-404

For external evaluation of these subjects there will be a report assessment, presentation and viva voce at the end of respective semester. Such assessment shall be conducted by a panel of two referees appointed by the University. Following will be the distribution of marks.

Subject Code – 305

Report/Dissertation- 25 Marks

Presentation 25 Marks

Viva Voce 25 Marks

Total Marks- 75 Marks.

Subject Code-404

Report/Dissertation- 75 Marks

Presentation 25 Marks

Viva Voce 50 Marks

Total Marks- 150 Marks.

Rules of Passing:

- a) The candidates must secure a minimum of 50% marks in each head of passing in the internal as well as University Examination.
- b) Theory and Practical will be treated as separate head for passing.
- c) Grace marks are as per university rules.
- d) All other rules will be as per University.