

Pokhara University
Faculty of Science and Technology

Central Entrance Examination Curriculum

Master of Science in Environmental Management (EM), Interdisciplinary Water Resources
Management (IWRM), Natural Resources Management (NRM),

Total marks: 150

Qualifying marks: 75 (Paying)/53(Scholarship)

Time: 3 hrs

Entrance curriculum mainly covers common topics of various streams: Mathematics (Quantitative aptitude), General Awareness, Basic Water Science, Engineering and Hydrology, Natural Resources Management, Environmental Management.

Section	Course	Weightage (%)
A	Fundamental of Mathematics	15
B	General awareness	10
C	Basic Water Science, Engineering and Hydrology	25
D	Natural Resources Management	25
E	Environmental Management	25
	Total	100

Section A: Fundamental of Mathematics

Basic Mathematics (Numbers: Fractions, Decimals and Percentages; Ratio and Proportion; Roots and Power; Logarithms; Progressions; Elementary Geometry; Elementary Trigonometry; Introductory Set Theory) Algebra (Polynomial, Equations and Inequalities; Simultaneous equations and solutions; Elementary Linear Programming, Vector Algebra); Calculus (limits and continuity, differentiation, integration, ordinary first order linear differential equation, partial differential equation), Introduction of Probability and Statistics, Permutations and Combinations.

Section B: General Awareness

General knowledge of environment, geography, environment/water law and regulations; economics and human development indicators, physics and chemistry, Environmental Protection Guidelines, Concept of Environmental System, Environmental Impact assessment process and its requirement, Global water and climate issue.

Section C: Basics of Water Science, Engineering and Hydrology

Physical properties, Fluid pressure, Equilibrium stability of floating bodies, Fluid kinematics, Classification of fluid flow, Dynamics of flows, Euler's equation, Bernoulli's equation, Navier stokes equation Boundary layer theory, Momentum equation, Open channel flow, Uniform and Non uniform flow, Energy & momentum principle for open channel flow, Flow in mobile boundary channel, Flow over notches & weirs, Gradually varied flow, Hydraulic Jump and its analysis, Similitude and physical modeling, Physical hydrology, Surface runoff, Rainfall-runoff

correlation, Hydrograph Analysis, Unit hydrographs, Peak flow estimation, measurement of flow, hydrology and climatology

D. Natural Resource Management

Natural resources and associated problems, Forest / mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. Food resources: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems. Energy resources: growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Land resources: land as a resource, land degradation, man induced landslides. Conventions related to global warming, climate change and ozone depletion.

E. Environmental Management

Concept of Environmental Chemistry, Air pollution: sources, types, gaseous and particulate matter, smog, greenhouse effect, acid rain and ozone depletion. Water pollution: types, sources and classification of water pollution, ground water pollution, marine water pollution. Concept of DO, BOD, CODS their effects on flora and fauna. Soil pollution: sources and types – classification of soil pollutants, effects of pollution on soil, to health and productivity. Sewage – municipal sewage, lake/pond, river water.