Rs 3-/-

UNIVERSITY OF POONA

Circular No.53 of 1983-84

Subject:- Post Graduate Diploma Course in Hydrogeology

In pursuance of the decision taken by the University authorities, it is hereby notified for the information of all concerned that the Post Graduate Diploma Course in Hydrogeology shall be as given in Appendix 'A'.

The teaching of the course will commence from June, 1983.

The Head of the Department of Geology is particularly requested to bring the contents of this circular to the notice of the teachers and students concerned.

Ganeshkhind,
Pune-411007.
No.CBS/Geology/3258-3457
Date: 4-3-1983

Sd/-A.H.Thorat
for Registrar

Copy forwarded with compliments for information and necessary action to:-

1) The Head of the Department of Geology.
2) The Principals of affiliated Science Colleges.
3) The Deputy Registrar(Examinations).
4) The Asstt. Registrar(Examinations)(Co-ordination)
5) The Statutes Unit (E C 20 PEP/71-PA-1733 dt. 12-2-83)
6) The Librarian, Jayakar Library, Pune-7.
7) The Members, Board of Studies in Geology.

APPENDIX 'A'

Post Graduate Diploma Course in Hydrogeology

The University of Poona will offer a Post Graduate Diploma course in Hydrogeology at the Department of Geology, University of Poona from the beginning of the academic year 1983-84. The details of the course are as follows:

1. Duration: One academic year of two semesters.

2. Pre-requisite: M.Sc. in Geology or equivalent degree from any recognised University or Institution.

3. Syllabus:

Semester I : Three theory courses

HGL 1 : Principles of Hydrogeology
HGL 2 : Groundwater Exploration
HGL 3 : Groundwater Development and Management One practical course.
HGL 4 : Field and Laboratory techniques in hydrogeology

Each course will be of 100 marks.

Semester II : HGL 5 : A project work to be submitted at the end of the second semester. It will be of 200 marks

4. Evaluation:

Evaluation of courses HGL 1 to HGL 4 will be according the system followed for M.Sc. (Semester) examination.

Evaluation of project work will be done by the internal supervisor (80 marks) and an external examiner (120 marks) to be appointed by the Departmental Committee from a panel of examiners to be prepared by the Board of Studies in Geology. The internal examiner will evaluate the day-today work related to the project. The external examiner will evaluate, the project work.

Rules regarding passing and class will be the same as for M.Sc. (semester) examination.

HGL 1 : Principles of Hydrogeology:

Basic concepts of hydrogeology, Darcy's law, Basic equations of groundwater flow; Hydrological properties of rocks, Occurrence of groundwater, Types of aquifers, Principles of surfacewater hydrology including measurement of reiver flow; rainfall-run of relationship, principles of frequency analysis; Chemistry of waters including water soluble components in various rocks; hydrological inference from hydrochemical data: quality criteria for potable, agricultural and industrial waters.

HGL 2 : Exploration Techniques:

Basin as a unit for exploration studies; Hydrometeorology including types of climate, measurement of rainfall and of evaporation, computation of water balance from hydrometeorological data; remote sensing technique, geomorphological, and geobotanical techniques in groundwater; Hydrogeological surveys including well inventory and pumping tests; geophysical and geochemical studies, Bore-hole geophysics; Trace techniques, Expooration programme.

HGL 3 : Groundwater Development and Management:

Geological techniques and Hydrogeological framework of India with special reference to Maharashtra; Groundwater structures, drilling, pump-sets; Conjunctive use of surface and groundwaters, artificial reacharge; Problems related to water logging, salinity and pollution; Groundwater resource potential and utilisation Space application in water resources development; Monitoring of groundwater, Mathematical modelling.

HGL 4 : Laboratory studies related to hydrometeorology, geomorphology, remote sensing, water analysis; Field studies related to well inventory, pumping tests, geophysical investigations, collection of water samples for quality and pollution studies.

HGL 5 : Project work involving field and laboratory studies of a river basin or mini-watersheds, or a group of townships/villages, and evaluation of the data with reference to occurrence of groundwater/water balance/water utilisation.

REFERENCE BOOKS

Todd	:	Groundwater Hydrology
Tolman	:	Groundwater Geology
De Wiest	:	Geohydrology
Lender	:	Aerial Photographic Interpretation: Principles and Applications.
Heath and Trainer	:	Introduction to Groundwater Hydrology
Chorley	:	Introduction to Physical Hydrology
Rao	:	India's Water Welath
Charly & Dutt	:	Groundwater Development in India
Hari Narayan, Raghav Rao and S.Balakrishna	:	Exploration Techniques for Groundwater
Bouwer	:	Groundwater Hydrology
Campbell and Lehr	:	Water Well technology
Sokolov and Chapman	:	Methods for Water balance computation
Davis and De Wiest	:	Hydrogeology
NeFedov and Popova	:	Deciphering of groundwater from aerial Photographs
Kell	:	Application of aerial methods in groundwater studies
Fried	:	Groundwater Pollution
Mc Whorter and Sunanda	:	Groundwater Hydrology & Hydraulics
Kazmann	:	Modern Hydrology
Hall and Dracup	:	Water Resources system Engineering
Rodda	:	Facets of Hydrology
Verruijt	:	Theory of Groundwater Flow
Schoeller	:	And zone Hydrology-Recent Developments
Garg	:	Groundwater and Tube Wells
Ramachandra Rao	:	Outline of Geophysical Prospecting
Bhattacharya and Patra	:	Direct Current Geoelectric Sounding
Keller and Frischknecht	:	Electrical methods in geophysical prospecting
Koefoed	:	Geosounding Principles

Miller	:	Photogeology
Chow	:	Handbook of Applied Hydrology
Johnson	:	Groundwater & Wells
Walton	:	Groundwater Resource Evaluation
Eckenfelder	:	Principles of Water Quality Management
Hammaton & Sherratt	:	Analysis of Raw, Potable and Waster water,
Hammer	:	Water & Waste Water Technology
Nie & Hull	:	Statistical package for the social sciences
Davis	:	Statistics and Data Analysis in Geology
Harmon	:	Modern Factor Analysis Chemical Properties of groundwater
APHA & AWWA	:	Standard methods for Examination of water and waster waters.

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