आपदा न्यूनीकरण एवं प्रबन्धन उत्कृष्टता केन्द्र, भारतीय प्रौद्योगिकी संस्थान रूड़की,
रूड़की – 247667
CENTRE OF EXCELLENCE IN DISASTER MITIGATION & MANAGEMENT, 3rd Floor,
New Building, Opposite Biotechnology Department
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, ROORKEE – 247667, UTTARAKHAND, INDIA
Tel: 01332-28- 6616 (Office), E-mail: coe_dmm@iitr.ernet.in; www.coedmm.org

1. Subject Code : **DMN-504** Course Title: **Hydrological Data Collection, Processing and Analysis**
2. Contact Hours: **L:** 3 **T:** 2 **P:** 0
3. Examination Duration (Hrs.) : **Theory:** 3 **Practical:** 0
4. Relative Weight : **CWS** 25 **PRS:** 0 **MTE** 25 **ETE** 50 **PRE** 0
5. Credits: **4** 6. Semester: **Autumn** 7. Subject Area: **PEC**
8. Pre-requisite: Nil
9. Objective : To introduce various methods for hydrological data collection, processing and analysis.
10. Details of Course :

Sl. No.	Particulars	Contact Hours
1	Hydrologic Cycle, Types of hydrometeorological data and their importance, time oriented, space oriented and relational data	3
2	Observation of hydrometeorological data - rainfall, temperature, evaporation, discharge and other parameters, observational and instrumental errors and quality control. Guidelines of WMO, BIS & ISO	5
3	Storage, transmission and retrieval of data, different formats adopted by IMD, CWC and WMO.	4
4	Design and optimization of monitoring systems for rainfall, evaporation, gauge and discharge networks and groundwater data monitoring stations.	4
5	Estimation of missing data in rainfall, runoff and other parameters, record extension for rainfall and runoff data, interpolation and kriging techniques, statistical rainfall-runoff models.	6
6	Development of stage discharge curves using graphical, physical and analytical methods for various types of streams.	3
7	Automatic weather stations - types, data storage and retrieval; Automatic water level recorders - types, data storage and retrieval.	4
8	Analysis of randomness and trends in hydrometeorological data; Computation of statistical parameters and standards errors, components of time series, concepts of short and long term dependence in hydrometeorological data.	5
9	Estimation of extremes using frequency analysis; Graphical and analytical methods for normal, lognormal and Gumbel distributions.	4
10	Case Studies	4
	Total	**42**

11. Suggested Books:

S No	Name of Authors/Book/Publisher	Year of Publication / Reprint
1	Kottegoda N.T., "Stochastic Water Resources Technology", John Wiley & Sons	1980
2	Chow V. T., Maidment D. R. and Mays L. W., "Applied Hydrology", McGraw-Hill	1988
3	Maidment, D.R., "Handbook of Hydrology", McGraw Hill Inc.	1993
4	Singh V. P., "Elementary Hydrology", Prentice-Hall of India Private	1994
5	Hornberger G. M., Raffensperger J. P., Woberg P. L and Eshleman K. N., "Elements of Physical Hydrology", The Johns Hopkins University Press	1998
6.	S.K. Jain & V.P. Singh, "Water Resources Systems Planning and Management", Elsevier ISBN:8131205916 (HB)	2006
7.	Viessman W. and Lewis G. L., "Introduction to Hydrology", Pearson Education	2007
8.	Subramanya K., "Engineering Hydrology", Tata McGraw Hill Ltd	2008