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MA/MSc - II Syllabus in Geography (Credit System)

Revised Syllabus (from June, 2020)

Course: GGUT-243 Watershed Management

No. of Credits: 02

No. of Periods: 30

Topic No.	Topic	Sub topics	Periods
1	Concept of watershed management	i. Definition, concepts of watershed; watershed management, Principle of watershed management ii. Necessity of watershed management iii. Problems in watershed management	06
2	Characteristics of watershed	i. Delineation of Watershed ii. Characteristics: Size , Shape , Physiography , Climate, Drainage, Land use, Vegetation, Geology and Soils, Hydrology, Socioeconomics	06

3	Hydrological process in watershed	i. Precipitation, interception, infiltration, evaporation, evapo-transpiration, surface runoff, ground water-flow, water budget ii. Hydrological cycle	06
4	Water and soil conservation in watershed	i. Water conservation: Nala Bunding, Check dams, Farm ponds, Percolation tanks, Artificial recharge ii. Soil conservation- Contour Bunding, Gully plugging, Trench cum mound, Levelling	06
5	Watershed development	i. Application of Remote Sensing and GIS in watershed management ii. Integrated watershed development plans iii. Importance of watershed management in national development.	06

Reference Books

1. Dhruvanarayana, V.V., Sastry, G., Patnaik, U.S.: Watershed Management
2. Kakde, B.K.: Watershed Manual – A Guide for Watershed Development Practitioners and Trainers, BAIF Development Research Foundation, Pune.
3. Murthy, JVS: Watershed Management, New age International Publishers.
4. Rajesh Rajora: Integrated Watershed Management- A Field Manual for Equitable, Productive and Sustainable Development, Rawat Publication, Jaipur.
5. Singh Rajvir: Watershed Planning and Management, 2nd Edition, Yash Publishing House, Bikaner, India.
6. Suresh,R.: Soil and Watershed Conversation Engineering, 2nd Edition, Standard Publication Distributors, Delhi.
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MA/MSc - II Syllabus in Geography (Credit System)

Revised Syllabus (from June, 2020)

Course: GGDP-244 Practical in Multivariate Statistics

No. of Credits: 02

No. of Periods: 30

Topic No.	Topic	Subtopics	Practical (3 hours)
1	Introduction	i. Bivariate & Multivariate Analysis ii. Objectives of Multivariate Analysis a. Data reduction or simplification b. Sorting and Grouping c. Prediction d. Hypothesis Testing	01
2	Matrix Algebra	i. Matrix : a. Definition, Elements, Order and Types b. Determinant of a matrix c. Addition, subtraction and multiplication of matrices	02