CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of WATER MANAGEMENT

Semester 1st (Major Course)

Course Title: Fundamentals of Water Science

Course Code: UGWMT22J101
Credits: 4 (Theory: 3, Practical: 1)
Contact Hrs: 75 (Theory: 45, Practical: 30)

Max. Marks 100
Theory External: 60; Min Marks: 24
Theory Internal (Continuous Assessment): 15 Marks, Min Marks: 06
Practical Experimental Basis= 15, Min. Marks: 06
Practical Experimental (Continuous assessment) = 10, Min. Marks: 04

Learning Objectives:

Students will be able -

1. To learn about the importance of water.
2. To gain knowledge of various types of water sources, water scarcity and demand.
3. To become aware about sanitation and sustainability.
4. To become aware about various physico- chemical properties of water

Learning Outcomes:

After the completion of the syllabus, the student will gain knowledge of -

1. Sources of water
2. Water distribution
3. Consumption pattern and availability
4. Sampling techniques for water analysis

Unit- I: **15 Hours**

Water and its properties

1.1 Origin of water on earth

1.2 Forms of water

1.3 Physical Properties of water- Polarity, Density, Vapor pressure, Melting and boiling point

1.4 Chemical Properties of water - Solvent action of water, Amphoteric nature of water

1.5 Importance of water

Unit II **15 Hours**

Water sources and distribution

2.1 Distribution of water

2.2 Inland water sources

2.3 Ground water sources

2.4 Marine water sources

2.5 Cryosphere

Unit III **15 Hours**

Water use and availability

3.1 Availability and consumption patterns in domestic, industrial and agricultural sector.

3.2 Concept of water stress and scarcity

3.3 Water foot print

3.4 Concept of water, sanitation and hygiene (WASH)

3.5 Sustainable developmental Goal VI

Unit IV **30 Hours**

PRACTICAL (Laboratory Work)

1. Water sampling techniques.
2. Determination of odour and colour of different water samples.
3. Determination of transparency and depth of any water body.
4. Determination of pH of water samples.
5. Determination of Electrical Conductivity (EC) of water samples.
6. Determination of total solids, total suspended solids and total dissolved solids in water samples.
7. Determination of Turbidity in water sample.
8. Visit to any water body.

Suggested Readings

- Bansil, P.C. 2004. Water Management in India. Concept Publishing Company, India. Brebbia, C.A. 2013. Water Resources Management VII. WIT Press. CEA. 2011.
- Fundamentals of Groundwater. John Willey and Sons. Souvorov, A.V. 1999
- Vickers, A. 2001. Handbook of Water Use and Conservation. WaterPlow Press.
- Pepper, I.L., Gerba, C.P. &Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press
- C S Rao, Third Edition, Environmental Pollution Control Engineering