

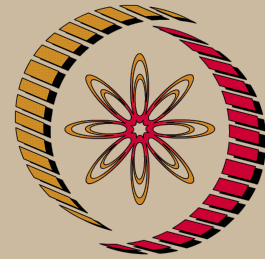
NOC:Sustainable River Basin Management - Video course

COURSE OUTLINE

This course links engineering sciences with social and economic sciences under the frame of sustainability with focus on water resources management at river basin level. It will deliver the following themes: Concept of sustainability; Hydrological and nutrient cycles; Social, ecological and economic factors influencing water resources; Water concepts such as water scarcity, virtual water; Planetary systems boundaries; Climate change; Management options and tools in sustainable river basin management; river restoration; supply and demand management; mainstreaming gender; communication and conflict management; data and information management; systems thinking and hydro-social modelling; land and water management best and worst practices are discussed.

COURSE DETAIL

Week. No	Topics
1.	<p><i>Concepts of sustainability</i></p> <ul style="list-style-type: none"> • Sustainability indicators, resources depletion, growth models • Planetary System Boundaries, footprints, prosperity • Globalization, inter-connected world • Stakeholders in sustainability
2 & 3	<p><i>Natural water resources</i></p> <ul style="list-style-type: none"> • Anthropocene • Climate change, climate variability • Hydrological cycle, water balance, catchment terminology, River basin management • Water availability, surplus, deficit • Water scarcity, water crisis • Stream morphology and land use



NP-TEL

NPTEL

<http://nptel.ac.in>

Civil Engineering

Pre-requisites:

Working knowledge of: the water cycle, water budget, hydrological parameters and instrumentation.

Coordinators:

Dr. Franziska Steinbruch
Department of Civil Engineering IGCs

- Nutrient cycles

4 & 5. ***Status and challenges regarding sustainability and river basin management***

- Water and society, poverty, demography
- Water governance, integrity, accountability
- Pollution, water related diseases, source water protection
- Water and land use, wetlands, desertification
- Dams, diversions, artificial rainfall
- Economic and financial instruments in water management
- Hydrological change due to climate change

6 & 7. ***Towards sustainability in river basin management - a holistic and interdisciplinary approach***

- Protecting water resources / improving water quality
- Living standards, equity, education and technology transfer
- Water conservation and efficiency
- Improving monitoring and data management, decision support systems
- Improving management and justice
- Improving administrative (transnational) structures
- Improving prediction and risk assessment

8. ***How to evaluate sustainability in river basin management?***

- Sustainability criteria (ecological, economic, institutional, social)
- Multi-criteria decision support