IWM

Water, Environment, Climate & ICT

TRAINING BROCHURE
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INSTITUTE OF WATER MODELLING

WE TRAIN
WE DEVELOP

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ABOUT US

Institute of Water Modelling (IWM) is a non-profit Trust organization. The Institute offers high-quality services in Water Modelling, Computational Hydraulics, and other related sciences for Integrated Water Resources Management both within Bangladesh and internationally.

The IWM modelling tools have a vast range of applications in water-related fields, including flood control and forecasting, water supply and sanitation, urban water management, irrigation and drainage, river morphology, sediment transport and salinity, coastal hydraulics, assessment of climate change impact, management of estuary, port and coast, environmental impact assessment, development of infrastructure for bridge hydraulics and related areas, and ICT GIS and Remote Sensing.

MISSION

Mission statement of the training programs

Improved water resource planning, design, management, and monitoring through state-of-the-art technology-based human resource development programs and training.

VISION

Vision statement of the training programs

Enhance knowledge and skills of professionals and researchers in the field of water resources management and ICT through advanced training and HRD programmes on the state-of-the-art technologies in water modelling, survey, and ICT solutions.

IWM TRAINING CALENDAR 2024

Environmental Modelling and ESIA

07-11 January 2024
Course Code: 0001
Venue: IWM Training Room, Dhaka

Application of Mathematical Modelling and GIS for Feasibility Study of Water Development Projects

04-15 February 2024
Course Code: 0002
Venue: IWM Training Room, Dhaka

Satellite-based Survey and Mapping using GPS for the Water Sector

03-07 March 2024
Course Code: 0003
Venue: IWM Training Room, Dhaka

Basic Geographic Information System

07-11 April 2024
Course Code: 0004
Venue: IWM Training Room, Dhaka

Advanced Geographic Information System

07-11 July 2024
Course Code: 0005
Venue: IWM Training Room, Dhaka

Integrated Water Resource Management

18-22 August 2024
Course Code: 0006
Venue: IWM Training Room, Dhaka

Hydro-Morphological Modelling for River Management

20-24 October 2024
Course Code: 0007
Venue: IWM Training Room, Dhaka

Environmental Modelling and ESIA

08-12 December 2024
Course Code: 0001
Venue: IWM Training Room, Dhaka

Environmental Modelling and ESIA

COURSE OBJECTIVE

The ESIA process will be taught through oral and visual aids, including videos, presentations, and reading material, to equip environmentalists and aspiring environmentalists better. Specific objectives of the training course include:

- Gain an understanding of environmental components and issues such as climate change and sustainability.
- Understand the primary environmental and social consequences that may arise from the execution of development projects.
- Learn to assess the environmental and social impacts using various management techniques and analytical tools.
- Learn ways to involve stakeholders in all stages of the project.

COURSE HIGHLIGHTS

- Introduction and overview of EIA
- EIA & Project Cycle
- Policy and Legal Framework
- Approach and Methodology for EIA Preparation
- Environmental Baseline Assessment
- Analysis of Alternatives
- Public Consultation / Stakeholder Engagement
- Environmental & Social Risks & Impacts Assessment
- Impacts Mitigation Measures
- Development of an Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP)
- EIA Reporting
- Obtaining an Environmental Clearance Certificate
- Critical Habitat Assessment (CHA) & Biodiversity Conservation and Management Plan
- Application of Modelling Tools in EIA
- Cumulative Impact Assessment
- Field Visit
- Case studies and group discussions

PARTICIPANTS

Industry professionals, environment consultants and environmental engineers, researchers and academics, and students aspiring to work in the field of environment.

CERTIFICATION

Participants will receive certificates upon successful completion of the course.

COURSE DURATION

01 Week

DATE

07-11 January 2024
08-12 December 2024

COURSE FEE

BDT 12,000 or USD 150 only per participant.
All Tax/VAT excluded.

Application of Mathematical Modelling and GIS Technology for Feasibility Study of Water Development Projects

COURSE OBJECTIVE

This training course covers the application of different mathematical modelling and GIS technologies for the feasibility study of water development projects. This course will also cover the use of different state-of-the-art survey technologies used to acquire data for mathematical modelling and GIS applications.

Mirza Ferdous Alam

COURSE OUTCOME

At the end of the training course participants are expected to achieve the necessary knowledge and skills in the development and application of the mathematical model to analyse the state of water resources, generate required data for feasibility study and carry out impact assessment of various development options. The participants will also learn about using GIS technology to analyze spatial data and mapping. The training will introduce the use of state-of-the-art survey technology to acquire data necessary for mathematical modelling and GIS mapping.

COURSE HIGHLIGHTS

The training will be conducted taking a case study. Topics included are as follows:

- The purpose and principles of Feasibility Studies
- Appreciating the overall objective of the project
- Assessment of baseline condition of the study area.
- Acquisition of primary data using state-of-the-art survey technologies
- Use of RS data and GIS for spatial data analysis, extraction and mapping
- Mathematical modelling techniques for surface water and groundwater assessment
- Climate change impact assessment
- Design of hydraulic structure
- Mathematical modelling for project impact assessment and generation of hydraulic design parameters
- Economic analysis
- Environmental and social assessment

PARTICIPANTS

Project Sponsors, Project Managers, Project Consultants, Engineers, academicians, and students aspiring to learn about the feasibility study.

CERTIFICATION

Participants will receive certificates upon successful completion of the course.

COURSE DURATION

02 weeks (10 working days)

DATE

04-15 February 2024

COURSE FEE

BDT 20,000 or USD 200 only per participant. All Tax/ VAT excluded.

Satellite-based Survey and Mapping using GPS for the Water Sector

COURSE OBJECTIVE

The aim of this training program is to provide a theoretical understanding and a practical introduction to Global Positioning Systems (GPS) surveying equipment, related field procedures, and analysis of GPS data. Emphasis is on GPS applications related to mapping, engineering and construction projects. Specific objectives include:

- Clear understanding of Global Positioning

- Well known for GPS equipment and their proper application to surveying, mapping and engineering

- Collect and analyze GPS data and compare the results of GPS-derived positions with classical survey methods over small areas

- Recognize how to evaluate GPS-derived coordinates and data

- Identify the advantages and disadvantages of surveying with GPS vs. other (traditional surveying) methods.

COURSE HIGHLIGHTS

- Introduction and overview of Global Positioning System (GPS)
- GPS equipment
- Map projections and coordinate systems used by GPS
- Mapping of water and environmental features,
- GPS for land navigation and survey reconnaissance
- Static / Differential Positioning
- Dynamic / Kinematic Positioning
- Dissemination of new information and knowledge

FIELD AND EQUIPMENT DEMONSTRATION

Introduction to Real-Time Local Networks may also include field trip(s), equipment demonstrations with data captured by UAV Drone and guest lecturers from professionals working in the surveying, mapping and construction fields.

PARTICIPANTS

Surveyors & engineers directly/indirectly involved in the water/environmental sector, especially those involved in the mapping, planning and project management. Pre-requisites are a basic knowledge of computing and water-related topics.

CERTIFICATION

Participants will receive certificates upon successful completion of the course.

COURSE DURATION

01 Week

DATE

03-07 March 2024

COURSE FEE

BDT 15,000 or USD 200 only per participant.
All Tax/VAT excluded.

Basic and Advanced Geographic Information System

COURSE OBJECTIVE

GIS is constantly evolving with new strides made each day, which improve the way we work with, view, store, and analysis and share geographic data in this digital age. As a result, it is for most of us, difficult to keep up with the technology and continual updates in GIS. This training will help in building the capacity to work efficiently with the latest updates in geospatial technology.

COURSE HIGHLIGHTS (BASIC)

- Fundamentals of GIS
- Software Demonstration with its Basic Modules (ArcGIS)
- Spatial Referencing (Map Projection and Coordinate system)
- Digitizing, Editing and GIS Database Building
- Spatial Analysis (Basic Geoprocessing & Raster Analysis)
- Cross-platform GIS: Google Earth, KML files
- Working with maps, templates, and reports

COURSE HIGHLIGHTS (ADVANCED)

- Advance Spatial Referencing (Geographic Transformation)
- Geodatabase and Topology Building
- Advance Digitizing & Editing (working with ArcScan)
- Advance Spatial Analysis (Working with Spatial Analyst)
- Terrain Analysis (Working with 3D Analyst)
- Advance Labeling (Working with Spatial Maplex)
- Map series production tool (Data Driven Pages)

PARTICIPANTS

Professionals viz. Planners, Engineer, Architect, Geographer, Environmentalist, students, researchers and others who are working in the relevant sector especially applications of Geographical Information Systems (GIS) into everyday workflows.

CERTIFICATION

Participants will receive certificates upon successful completion of the course.

COURSE DURATION

01 Week

DATE

07-11 April 2024 (BASIC)
07-11 July 2024 (ADVANCED)

COURSE FEE

BDT 12,000 or USD 150 (BASIC) BDT 15,000 or USD 200 (ADVANCED) All Tax/VAT Excluded.

Integrated Water Resource Management

COURSE OBJECTIVE

The course will help develop and reinforce participants' knowledge and understanding of water management and water policy. It will empower participants with the required skills to formulate and implement successful water management policies and water management strategies.

COURSE HIGHLIGHTS

- Acquire knowledge of national, regional and community water resources management planning and its components in general.
- Review the policy plans and analyze problems/ challenges of water resource management.
- Develop a water resources management plan at different scales.
- Identify resources needed for implementing/materializing resource management initiatives.
- Identify roles and responsibilities of water resource management professionals.

PARTICIPANTS

Water Resource professionals, environment consultants and environment engineers, researchers and academics and students aspiring to work in the field of environment.

CERTIFICATION

Participants will receive certificates upon successful completion of the course.

COURSE DURATION

5 days from 10:00 am to 4:00 pm

DATE

18-22 August 2024

COURSE FEE

BDT 15,000 or USD 200 All Tax/ Vat Excluded.

Hydro-Morphological Modelling for River Management

COURSE OBJECTIVE

This module is specifically customized to monitor and manage the erosion-deposition process that takes place in rivers. It involves the application of intelligent and sophisticated data collection systems supported by predictive models and vice versa. The principal application of this technology is in designing river training works for bank protection, bridge hydraulics, optimization processes in dredging and navigational route maintenance.

This training provides the participants with a full understanding of erosion management & river training works; model appraisal; capability to develop & operate models in groups.

COURSE HIGHLIGHTS

- Adoption of hydrodynamic models for sediment transport in rivers
- Sediment transport
- Erosion-deposition process in river bed and bank
- Prediction models in river morphology (MIKE 21C)
- Selection of bridge sites
- Determination of bridge opening
- Determination of scour depth
- Model applications with different river training aspects
- Case studies

PARTICIPANTS

Professionals working in the field of water resources, river management, environmental management, students, researchers and others who are working in the relevant sector.

CERTIFICATION

Participants will receive certificates upon successful completion of the course.

COURSE DURATION

01 Week

DATE

20-24 October 2024

COURSE FEE

BDT 15,000 or USD 200
All Tax/ Vat Excluded.

Bespoke Training Programs
Available on Demand

Institute of Water Modelling offers the following tailor-made training programs with flexible schedules as per client requirements.

Modelling Sediment Transport and Morphology in Rivers

ABOUT THE TRAINING

The modular MIKE 21 Curvilinear Flow Model (MIKE 21C) is ideal for river morphology studies as it supports both standalone hydrodynamics and combined hydrodynamic and sediment transport simulations. This enables users to accurately describe flow dynamics, helical flow (secondary currents), sediment transport, alluvial resistance, scour and deposition, as well as bank erosion and planform changes.

EXPECTED OUTCOMES

Upon completion of the course, the trainee will be able to understand the principles of sediment transport and river morphology modelling with MIKE 21C. He/she will be able to create a river morphology model to include all the relevant processes. The knowledge and lessons learnt in the course aim to be transferable to his/her real projects and other modelling scales.

COURSE MODULES

Theoretical background and preliminary steps Modelling, sediment transport Modelling, morphology.

Course Code: 0008   **COURSE DETAILS ARE AVAILABLE ON REQUEST**

Modelling Urban Drainage

ABOUT THE TRAINING
This comprehensive and holistic course will enable the participants to consolidate and continue developing his/her modelling skills up to the level where the trainee can apply his/her knowledge across a variety of urban drainage projects.

EXPECTED OUTCOMES
Upon completion of the course, the trainee will be able to apply the features of MIKE+ that are essential to set up urban collection system models, run simulations and review results across a variety of urban drainage projects. The knowledge and lessons-learnt in the course aim to be transferable to his/her real projects and other modelling scales.

COURSE MODULES
- Course Overview
- Introduction to MIKE+
- Introduction to modelling theory and practice
- Import – Export facilities
- Model setup
- Time series editor and boundary conditions
- Running simulations and viewing results

Course Code: 0009   **COURSE DETAILS ARE AVAILABLE ON REQUEST**

Integrated Urban Flood Modelling

ABOUT THE TRAINING

This course will teach the trainee how to address integrated urban flood modelling in a comprehensive and holistic way. It will enable him/her to consolidate and continue developing his/her modelling skills up to the level where the trainee can apply his/her knowledge across a variety of integrated urban flood modelling projects.

EXPECTED OUTCOMES

Upon completion of the course, the participants will be able to apply the features of MIKE+ that are essential to set up integrated urban flood modelling models, run simulations and review results across a variety of integrated urban flood modelling projects in flood risk management and planning, and related domains.

COURSE MODULES
- Course Overview
- 1D modelling and flood analysis
- Integrated urban flood model preview
- 2D Overland modelling and building urban meshes
- Coupling network and 2D overland models
- River networks and channels in MIKE+
- Flood model simulations and results

Course Code: 0010   **COURSE DETAILS ARE AVAILABLE ON REQUEST**

Water Quality Assessment and Monitoring

ABOUT THE TRAINING

The course aims to provide training to manage aquatic ecosystems effectively, collect physical, chemical, and biological data, and analyze, interpret, and report, carry out water quality modelling.

EXPECTED OUTCOMES

Upon completion of the course, the participants will be able to apply the knowledge gained to collect and analyze water quality data, water quality modelling, and know about the standards for establishing water quality monitoring systems.

COURSE MODULES

- Select and apply appropriate methods to assess water quality in natural waters in relation to their anticipated use.

- Design and evaluate water quality monitoring networks for different types of surface water in relation to set objectives.

- Report the results of water quality assessment and monitoring programmes using appropriate statistical tools for interpretation and presentation of large data sets.

- Application of water quality models for data generation, water quality improvement option studies

Course Code: 0011

COURSE DETAILS ARE AVAILABLE ON REQUEST

Advanced Taylor-Made Courses

1. Hydrodynamic modelling of river systems using MIKE+ RIVERS & HEC-RAS (Course Code: 0012)

2. Groundwater modelling using MIKE SHE and MODFLOW (Course Code: 0013)

3. Modelling sediment transport & morphology in river using MIKE 21C (Course Code: 0014)

4. Modelling salinity intrusion in rivers and groundwater systems using 1D-MIKE 11 & 2D-MIKE 21 for rivers and FEEFLOW for groundwater systems (Course Code: 0015)

5. Modelling sediment transport & morphology on coastlines: Littoral processes by LPFM and shoreline morphology using MIKE21 FLOW MODEL FM (Course Code: 0016)

6. Water quality & environmental modelling of rivers using MIKE ECO LAB (Course Code: 0017)

7. Flood forecasting and flood management (Course Code: 0018)

8. River basin modelling using MIKE HYDRO BASIN (Course Code: 0019)

9. Water distribution modelling using WATERGEMS & MIKE+ (Course Code: 0020)

10. Three-dimensional hydrodynamic modelling using MIKE 3 (Course Code: 0021)

11. Hydrodynamic & morphodynamic modelling using DELFT3D (Course Code: 0022)

12. Water resources assessment (Course Code: 0023)

13. Climate change impact assessment (Course Code: 0024)

14. Use of GIS and Remote Sensing for water resources modelling and management (Course Code: 0025)

COURSE DETAILS ARE AVAILABLE ON REQUEST

Connect with us

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