

JBA
consulting

Training Courses 2013

Introduction



Introduction

Welcome to JBA's training course brochure for 2013. JBA has been a provider of a wide range of quality training programmes for all aspects of the water and environment industry since 1995, and in that time we have delivered over 2,000 days of training to over 8,500 people. We offer a wide range of programmes covering the theory and practice of environmental management, ecology, flood risk management, hydrology, hydromorphology, hydraulics, and the use of GIS. Tutors with years of practical experience will guide you through the course material, sharing with you their knowledge. The presentations are backed up with comprehensive course notes, exercises and additional support material.

Our courses are available as part of an open programme with scheduled dates throughout the year. We are also happy to talk to you about a bespoke programme, developed to meet your specific requirements, at a venue and time suited to your exact needs.

Course locations

Our training courses are offered at our offices in Skipton (North Yorkshire), Edinburgh, Atherstone (Warwickshire), Haywards Heath (West Sussex), Warrington, Newport (South Wales), and Limerick (Ireland). If you prefer a different venue, we would be pleased to arrange for any of the courses in this brochure to be delivered at another location. Training rooms at our offices in Newcastle and Doncaster are available as alternative venues or we are happy to come along to your office or hire somewhere specifically for the event.

What people say about our courses!

"A course with detailed knowledge interpreted into an understandable way for someone with minimal experience of SuDS" - SuDS and Biodiversity course

Tony Martin, Yorkshire Wildlife Trust

"Enjoyable course and good reference notes" - Introduction to Hydromorphology course

Paul Williams, Environment Agency

"Good knowledge gained, will be applied to my job"- FEH Users' course

Chris Jones, Mott MacDonald

"I found the course both interesting and informative, and would highly recommend it to anyone involved with the management of rivers" - River Restoration Practices Workshop

Gareth Pedley, Eden Rivers Trust

Very good course, thoroughly enjoyed"- FRA and Model Audit Review

Matthew Penny, Environment Agency

Training venues

Atherstone

Edinburgh

Haywards Heath

Limerick

Newport

Skipton

Warrington

Summary

- For further information contact us:
- T: +44 (0)1756 799919
- E: felicity.clarke@jbaconsulting.com

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Standard course costs

One day course

£275 + VAT per person

Two day course

£500 + VAT per person

The price for an individual delegate booking several one day JBA training courses would be as follows

Two courses £500 + VAT

Three courses £750 + VAT

Four courses £900 + VAT

These prices include lunch and morning/afternoon refreshments

A comprehensive set of course notes including spreadsheets and worked solutions are supplied.

Facilities

All courses at our venues use purposely-equipped training rooms with modern audio-visual equipment. Each delegate has access to a laptop PC with the various software packages loaded. Where appropriate example computer exercises will form part of the formal presentations.

Our training venues are also available for hire on a half day or full day basis for meetings and seminars. Please contact Felicity Clarke for more details.

Professional development

All JBA courses have been approved by our Supervising Engineer/Training Supervisor as suitable for credits towards Continued Professional Development (CPD) and Continued Education and Training (CET)

Training Course

Environmental Responsibilities of Land Drainage Authorities



Overview

There is a wide range of environmental legislation and policy that applies to drainage bodies when carrying out their functions.

This course will provide an overview of this legislation and policy, including the legal duties relating to conservation and biodiversity, protected species, non-native species, the Water Framework Directive and government policy requirements.

Who should attend

This course is aimed at those working in the land drainage/flood risk management sector that require an understanding of the environmental legislation and policies that apply to them, and how these may impact upon their activities. This includes the Environment Agency, internal drainage boards and local authorities.

Course outcomes

By the end of the course, delegates will have an understanding of the environmental legislation and policies that apply to them and be able to plan and undertake their work to ensure compliance with this legislation and policy.

Topics covered

- Nature conservation and biodiversity legal duties
- Protected species legislation, survey and mitigation
- Other legislation (EIA, archaeology, non-native species etc.)
- The Water Framework Directive
- Government policy requirements
- Water Level Management Plans
- Biodiversity Action Plans

Presenter

Rachael Brady BSc MSc PGCert MIEEM

Rachael has a BSc degree in Ecology and an MSc in Wildlife Conservation and Management. She is experienced in a wide range of environmental projects including Strategic Environment Assessments and Environmental Impact Assessments.

Delivery

This course will be a combination of presentations and case studies for discussion.

Related courses

Land Drainage/Flood Risk Management Law in England and Wales

Environmental Impact Assessment for Water Level Management

Introduction to Management of Sensitive Water Environments

Survey for River Models

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET points

Training Course

Environmental Awareness – half day course



Background

With many years experience in carrying out environmental and ecological work in advance of engineering schemes, we have a full understanding of the range of issues often overlooked in the early stages of projects which can result in considerable delay and additional expense later in the project planning process.

Half day awareness course

JBA Consulting's experienced ecologists can present a half day training course covering up-to-date legislative changes and how it can affect individual schemes. The course covers protected species, designated sites, non-native invasive species and the relevant legislation. In addition there is discussion of other environmental considerations such as archaeology and cultural heritage. Discussion of the common pitfalls and how to avoid them is included based on extensive experience and lessons learned.

Course outcomes

By the end of the course, delegates will have an understanding of the environmental legislation and policies that apply to them and be able to plan and undertake their work to ensure compliance with this legislation and policy.

Course Details

- Different levels of species protection including Great Crested Newt, bats and other European Protected Species, licensing and mitigation
- Hierarchy of designated sites - Local Wildlife Sites to Special Area of Conservation via SSSI
- Invasive plants and management plans, including dealing with Japanese Knotweed, and non-native animals, site hygiene and mitigation
- Overview of current legislation including Wildlife and Countryside Act 1981, Conservation of Habitats and Species Regulations 2010, Natural Environments and Rural Communities Act 2006, Land Drainage Act 1991 and Marine and Coastal Access Act 2009
- Marine licence and Land Drainage/Flood Consent
- Works affecting Scheduled Monuments
- Timing of surveys and work

We can tailor a training course to suit scheme designers and contractors to ensure all parties are aware of and meet their legal obligations.

Presenter

Christopher Toop BSc

Chris has been instrumental in delivering EIA for large scale land drainage pumping schemes and numerous flood defence schemes. He's also been involved in large infrastructure projects including surveys for and on behalf of Network Rail. These have included novel approaches to project planning, troubleshooting and navigating a course through environmental legislation to allow schemes to proceed on time and within budget. This experience allows a pragmatic approach to your own schemes.

Delivery

This course will be a combination of presentations and case studies for discussion.

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Half day awareness course
- £150 + VAT per person
- Counts as 3 CPD/CET points

Training Course

Introduction to Management of Sensitive Water Environments



Overview

A hands-on, example driven course that provides an introduction to managing sensitive water environments. The course looks at a number of types of groundwater and surface water dependent environments which are often designated as SSSI (Sites of Special Scientific Interest). A basic introduction to understanding surface water and groundwater hydrology is provided. This is then applied to a number of hydro-ecological environments. The basis for site monitoring and the options for site water management are explored.

Who should attend

People involved in site management, whether this is sites with some water-environment interest, SSSI sites, local or national nature reserves. Those involved in water level management plans, or managing wetland sites for other purposes such as flood mitigation.

Course outcomes

By the end of the course, participants will have developed a basic understanding of the processes controlling water within a site and be able to develop a monitoring plan and outline a water management strategy for a site.

Topics covered

- Introduction to sensitive water environments (SSSI, SAC, NNR, LNR, SEGI, WFD etc.) - targets for favourable condition/recovering to favourable condition
- Surface water and groundwater hydrology, hydrogeology
- Water environment on sensitive sites
- Peat bogs: blanket mires, valley mires, raised mires, wetlands
- Worked example to understand the key water processes on a site
- Water management for drainage and flooding
- Land drainage, Internal Drainage Boards (IDBs)
- Washlands
- Maximising environmental benefits
- Effective monitoring on sensitive sites - what to monitor and how
- Effective water management on sensitive sites
- Case studies

Presenter

Rachael Brady BSc MSc PGCert MIEEM

Rachael has a BSc degree in Ecology and an MSc in Wildlife Conservation and Management. She is experienced in a wide range of environmental projects including Strategic Environment Assessments and Environmental Impact Assessments.

Delivery

This course will be a combination of presentations and case studies for discussion.

Course dates

Please contact us for details

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Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Environment Impact Assessments for Water Level Management



Overview

Almost all land drainage improvement works undertaken by drainage bodies are “permitted development” under the Town and Country Planning (General Permitted Development) Order 1995 and therefore exempt from planning permission. Since such works might have significant effects on the environment, the principles of Environmental Impact Assessment (EIA) need to be applied to them. This is done through the Environmental Impact Assessment (Land Drainage Improvement) Regulations 1999 (as amended). This course considers the EIA process in the context of land drainage/flood risk management works. It explains the processes and procedures involved, and uses a number of case studies to illustrate EIA in practice.

Who should attend

This course is aimed at those working in the land drainage/flood risk management sector that require an understanding of how the EIA Regulations apply to them, the processes involved and the constraints it may impose on their activities.

Course outcomes

By the end of the course, participants will have an understanding of how the EIA Regulations apply to land drainage/flood risk management works and be able to identify when an EIA is required.

Topics covered

- Background to EIA legislation
- Land drainage improvement works
- EIA Process
- Determining the level of significance
- Scoping
- Environmental Statement
- Impact Assessment and mitigation
- Consultation
- Works which may require planning permission

Presenter

Rachael Brady BSc MSc PGCert MIEEM

Rachael has a BSc degree in Ecology and an MSc in Wildlife Conservation and Management. She is experienced in a wide range of environmental projects including Strategic Environment Assessments and Environmental Impact Assessments.

Delivery

This course will be a combination of presentations and case studies for discussion.

Related courses

Land Drainage/Flood Risk Management Law in England and Wales

Environmental Responsibilities of Land Drainage Authorities

Introduction to Management of Sensitive Water Environments

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CDD/CET hours

Training Course

SuDS and Biodiversity



Overview

This one day training course looks at the basics of SuDS and how they are designed together with examples of how biodiversity can be incorporated into SuDS schemes. The course focuses more on the ideas rather than the detail and provides case studies of designs that can be improved to benefit wildlife.

Who should attend?

SuDS Advisory Bodies, local authority planners, engineers and other specialists working in development control or the design of new infrastructure, would benefit from attending this course.

Course outcomes

After the course delegates will know:

- What is SuDS
- Types of SuDS
- Examples of SuDS in action
- Benefits to biodiversity

Topics covered

- Principles of SuDS
- Overview and problems of SuDS
- SuDS measures
- Types of SuDS
- Barriers to SuDS
- Flood Risk and SuDS - useful tools
- Design considerations and guidance
- Ecological design and enhancement
- Complications and management
- Managing urban stormwater using 'music'
- SuDS case studies - SuDS and Biodiversity

Presenter

Kieran Sheehan BSc MSc PGCE MIEEM MIFL

Kieran is a plant phytosociologist with an expertise in upland and wetland ecosystems. He is currently the Project Manager for the Water Level Management Plan on Thorne Moors, England's largest raised bog, and is a former member of Scotland's Moorland Forum. Kieran has taught ecology at Bishop Burton College (University of Hull) and has undertaken ecological works, including planting schemes, for local authorities and drainage boards.

Delivery

The course will be a combination of presentations and case studies.

Related courses

Environmental Impact Assessment for Water Level Management

Introduction to Water Management for Sensitive Water Environments

Environmental Responsibilities of Land Drainage Authorities

Stormwater modelling using 'music'

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Flood Risk Assessment



Overview

This course outlines the requirements for Flood Risk Assessments at a site specific scale for individual sites and is aimed at those undertaking studies for proposed developments. Reference will be made to the relevance of Strategic Flood Risk Assessments and Catchment Flood Management Plans.

Who should attend

The course is designed for professionals carrying out Flood Risk Assessments. It is also relevant to managers and regulators involved in reviewing and approving FRAs.

Course objectives

To give an overview of the regulatory background behind the need for FRAs, the scope, content and purpose of FRAs, and the methodologies employed within these studies.

Topics covered

- Introduction and overview
- Planning Policy and Guidance (main emphasis on England and the NPPF, TAN15, SPP and PPS15 also briefly mentioned)
- Data requirements and reporting
- FRA content
- Modelling overview
- The assessment of risk
- Mitigation measures
- Surface Water Drainage
- Case studies
- Do's and don'ts

What is not covered in the course

The course does not include detailed training on hydrological assessment, hydraulic modelling, or the design of SuDS, please see 'Related courses'.

Presenter

Tom Sherwood MphysGeog HND ND Misc

Tom specialises in producing flood risk and drainage impact assessments to support planning applications. He has experience of the design of culvert replacement schemes, exceedance overflow channels, detention ponds, compensatory floodplain storage schemes, surface water drainage systems and other related drainage and land drainage studies.

Delivery

This course will be delivered through presentations, exercises and case studies.

Related courses

[Flood Estimation Handbook \(FEH\)](#)

[Introduction to HEC-RAS](#)

[Urban Hydrology \(for Drainage Impact Assessment type studies\)](#)

[Land Drainage/Flood Risk Management Law in England and Wales](#)

[Sustainable Drainage Systems \(SuDS\)](#)

[SuDS and Biodiversity](#)

[Flood Risk Management in Scotland](#)

Course dates

28 February 2013 - Skipton

29 May 2013 - Atherstone

17 October 2013 - Warrington

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Flood Risk Assessment and Model Audit Review



Overview

Computer models are now almost universally used to provide information on flood levels, flood extents and hydraulic capacity. The range of models is wide from simple 'shareware' programs to very complex integrated packages. This course provides a guide to the various generic model types and their capabilities and limitations. This knowledge is then used to show how to review the appropriateness of a particular modelling approach and the corresponding outputs and to assess whether the results are likely to be suitable.

Who should attend

Professionals involved in development control and consenting for flood risk management and drainage.

Course objectives

To provide the knowledge to undertake 'high level' reviews of models used for estimating flood levels and hydraulic capacity of drainage systems.

Topics covered

- Types of computer model (hydrological, hydraulic, 1D, 2D and 3D)
- Data requirements (topographic, coefficients, calibration data)
- How flood outlines are produced
- Review of models for Flood Risk Assessments
- Review of models for Drainage Impact Assessments
- Review of models for Flood Hazard Maps
- The '1-Hour Model Review'

Presenter

Jeremy Benn FREng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Delivery

This course is delivered through a series of presentations and case studies and four hands-on exercises.

Related courses

[Flood Estimation Handbook](#)

[River Modelling Methods](#)

[2D Modelling for Project Managers](#)

[WinDes: Use in Auditing](#)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Land Drainage/Flood Risk Management Law in England & Wales



Overview

The Flood and Water Management Act 2010 has changed the way flooding and land drainage issues are addressed in England and Wales. As these changes are being implemented staff from a range of organisations including local authorities, internal drainage boards, developers, insurers etc, are asking and being asked to meet new challenges resulting from changing weather conditions, new institutional arrangements and an increase in public awareness of drainage issues.

Who should attend

The course is designed to give a practical understanding of drainage issues and responsibilities. It is not designed to give definitive legal guidance but to indicate general responsibilities and the statutes under which they are founded. It is not necessary, therefore, that course attendees should have a legal background. Typically they will be engineers, planners and policy staff working with land drainage authorities, developers and their agents, land managers, etc. In fact any professional dealing with the day-to-day management and development of land with land drainage concerns.

Course objectives

To provide an overview of the current legislation relating to Land Drainage in England and Wales. The general philosophy behind the course is to provide:

- Practical advice to delegates on the rights, powers and duties that ensue from case law, common law and legislation
- Direction to available information sources for future reference

Topics covered

The course will draw on typical case studies and will look at issues such as:

- What are the powers and responsibilities for flood risk management?
- What are the changes resulting from the Flood and Water Management Act?
- Whose responsibility is it to maintain a water feature and to what extent?
- Is it a public sewer or a culverted watercourse or a highway drain?
- What consents and permissions are required for a new structure?
- What is the current land drainage law?
- What responsibilities do local councils, Environment Agency and Internal Drainage Boards have?
- Where can I find the answers?

Presenter

Ronald Watson DipCE CEng MICE
MCIWEM C.WEM

Ron is a highly experienced flood defence engineer with over 35 years' experience

Dr Peter Jones CEng FICE

Peter is a highly experienced flood risk manager with over 36 years' experience.

Delivery

Presentations and practical exercises based on case studies.

Related courses

Flood Risk Management in Scotland

Flood Risk Assessment

Environmental Impact Assessment for Water Level Management

Environmental Responsibilities of Land Drainage Authorities

Course dates

9 April 2013 - Newport

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Flood Risk Management in Scotland



Overview

A two day course covering the latest legislation including the 2009 Flood Risk Management (Scotland) Act and the Scottish Planning Policy SPP Planning and Flooding Guidance. The course highlights the responsibilities of key stakeholders including the Scottish Government, SEPA, local authorities, developers and land owners. It will concentrate on the practical implications of the legislation and guidance, what it means in terms of cost and resource requirements, and how stakeholders need to respond.

Who should attend

Planning staff from Scottish local authorities, consultants and developers involved with planning applications, flood risk/drain impact assessments, management and maintenance of watercourses and flood risk management measures.

Topics covered

Day 1

- Legal background (including EU Flood Directive and Water Framework Directive)
- Responsibility for flooding and drainage
- Role of the Government, Local Authorities, SEPA, Scottish Water
- Responsibilities on reservoir owners/operators
- The framework for co-ordination and co-operation between all organisations involved in flood risk management
- Enabling stakeholders and the public to contribute to managing flood risk
- Reference to case law and insurance issues

Day 2

- National flood risk data
- Flood zones and functional floodplains
- Preparation of flood risk management plans
- Requirements for Flood Risk Assessments
- Requirements for Drainage Impact Assessments

Presenter

David Bassett BSc MSc CEnv MCIWEM C.WEM

David is a chartered water and environmental manager with over 19 years' experience.

Delivery

The course will be a combination of presentations and hands-on exercises involving model calibration.

Related courses

Flood Risk Assessment

Course dates

24 and 25 April - Edinburgh

Summary

- Introductory two day course
- £500 + VAT per person
- Counts as 12 CPD/CET hours

Training Course

Getting started with the Flood and Water Management Act



Overview

The Flood and Water Management Act significantly changes the roles of county councils and local authorities with respect to flood risk management in England and Wales. In particular councils must consider mapping, assessment and formulation of strategies for ordinary watercourses, groundwater and surface water drainage and the “designation” and registration of features affecting flood risk. This one day training course provides managers and officers with an appreciation of the institutional, policy, operational and tactical implications of establishing management structures and practices to efficiently and effectively meet the needs of Local Flood Risk Management.

Who should attend

Officers, professionals and managers faced with the challenge of preparing for new responsibilities who want to plan for the future using a good basic understanding of the technical, institutional and policy aspects of Flood and Coastal Risk Management.

Course outcomes

The course provides attendees with:

- A thorough understanding of the key concepts used in the understanding and management of flood risk
- An appreciation of the implications of applying the techniques used to assess flood risk hazards and the effects on receptors
- Guidelines on the approach to preparing Local Flood Risk Management Strategies
- Approaches to the designation of features that affect flood risk

Topics covered

The course involves the following topics:

- The definition of flood risk, the risk based approach and the implications of climate change
- How Local Flood Risk Management fits in with the bigger picture
- The characteristics of flooding from different sources
- An overview of the methods used to understand flood risk
- What is involved in preparing integrated responses to flood risk
- Surface Water Management Plans
- Preliminary Flood Risk Assessments and Assessment of Significant Risk
- Designation of features affecting flood risk
- Funding and Management Plans for Local Flood Risk

Presenter

Alastair Dale BSc PGDip MIAHR

Alastair is a Director with JBA and has over 29 years' experience of flood risk.

Delivery

The course will be a combination of presentations and practical exercises together with discussion in workshop sessions.

Related courses

Flood Risk Management in Scotland
Land Drainage/Flood Risk Management
Law in England and Wales

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Stormwater Modelling with 'music'



Overview

music - "Model for Urban Stormwater Improvement Conceptualisation" - is designed to help urban stormwater professionals visualise possible strategies to tackle urban stormwater hydrology and pollution impacts.

music provides the ability to simulate both quantity and quality of runoff from catchments ranging from a single house block up to many square kilometres, and then simulate and measure the effect of a wide range of SuDS treatment measures (such as bioretention, infiltration, wetlands, filter strips and swales) on the quantity and quality of runoff downstream.

music is an aid to decision-making. It enables users to understand pollutant removal effectiveness, and flow, of Sustainable Drainage Systems (SuDS) to ensure they are appropriate for their catchments. **music** will simulate the performance of a group of stormwater management measures, configured in series or in parallel to form a "treatment train". **music** runs on an event or continuous basis, allowing rigorous analysis of the merit of proposed strategies over the short-term and long-term.

Who should attend

music training is aimed at professionals in government, consultancies and waterway and catchment management agencies seeking to implement SuDS. This workshop is appropriate for those who have had no prior training in the **music** software, but an understanding of hydrologic and water quality processes, preferably within an urban context, are a prerequisite for the course.

Course outcomes

Delegates attending the course will learn how to simulate and evaluate the performance of stormwater treatment measures, either singularly or in a treatment train using the **music** software.

Topics covered

- An overview of the theory and assumptions behind **music**
- An introduction to the **music** Model
- Methodologies to use when applying **music** to urban stormwater management scenarios
- Strategies to successfully model stormwater treatment
- Building, running and reviewing **music** models
- Examination of stormwater management applications

Presenter

Tony Weber

Tony is the Water Quality Practice Leader in Australia and an Associate at BMT WBM. Tony is a member of the eWater **music** Development Team and is lead trainer for the software. Tony has worked in the water industry (including water supply and laboratory analysis, stormwater management, and strategic urban water management) for over 20 years.

Delivery

This course will be presented as a two day workshop providing hands-on experience in building models and configuring **music** for modelling different treatment measures

Related courses

Flood Hydrology for Non Specialists
Urban Hydrology
Sustainable Drainage Systems(SuDS)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

More information about **music**, its capabilities and application is available at

<http://www.music4water.co.uk/>

Summary

- Two day introductory course
- £500 + VAT per person
- Counts as 12 CPD/CET points

Training Course

Sustainable Drainage Systems (SuDS)



Overview

This is a two day course providing an overview of the processes involved in assessing and controlling runoff from development. Participants may attend either or both days.

The first day concentrates on the key concepts and the key benefits of SuDS and will be suitable for the drainage engineer needing to understand the performance and key features of SuDS systems, and also planners, developers and architects who may be interested in the other benefits of SuDS use, such as amenity, ecology, water harvesting and green infrastructure. Practical application of SuDS in the context of the emerging guidance and legislation will be discussed.

The course also provides an introduction to water sensitive urban design and the benefits to "liveability" which can arise from integrated SuDS use. Examples of SuDS use in a variety of situations will be given

The second day, will concentrate on the design of SuDS systems, from outline design concepts to assessment of performance. Data requirements will be discussed and the estimation of flow and water quality loading. Design examples for swales, attenuation tanks and ponds and infiltration systems will be covered to enable attendees to undertake detailed design of these features.

Who should attend

Engineers and other specialists working in development control or the design of new infrastructure; planners and developers; architects and masterplanners.

Topics covered include

- What are SuDS?
- The surface water management train Infiltration devices
- Planning issues; designing and planning SuDS
- UK and Irish Legislation and the adoption of SuDS infrastructure
- Swales and filter strips
- Permeable surfaces; ponds, basins and wetland
- Obtaining consents
- The CIRIA SuDS manual
- Water Sensitive Urban Design

Presenter/s

Jeremy Benn FREng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Bob Sargent BSc MBA CEnv CSI
FCIWEM C.WEM

Bob is the water specialist at Environmental Gain Ltd and has been involved in the implementation of SuDS for many years, in both the private and public sectors. He was a member of the CIRIA steering group that produced the first guidance for SuDS in the UK, and the development of best practice.

Delivery

This course will be a combination of presentations and case studies.

Related courses

Flood Hydrology for Non-Specialists

Urban Hydrology

Flood Risk Assessment

Stormwater Quality Modelling with 'music'

Course dates

12 and 13 March 2013 - Haywards Heath

14 and 15 May 2013 - Atherstone

15 and 16 October 2013 - Skipton

Summary

- Introductory course, either one day or two days
- One day £275 + VAT per person
- Two days £500 + VAT per person
- Counts as 6 CPD/CET points per day

Training Course

River Modelling Methods



Overview

This course provides an overview of the generic types of river model and how to select the best model for a particular application for flood risk management (flood warning, flood risk mapping, broad scale models, feasibility and design of flood mitigation measures).

Who should attend

Professionals and managers wanting a non-mathematical and easily understood introduction to the mysteries of river modelling.

Course outcomes

After the course delegates will:

- Understand the key differences between models
- Know how to choose the most appropriate modelling approach
- Understand the differences between commercial software packages
- Know what is good practice in modelling

Topics covered

- River modelling applications
- Integrating hydrological and hydraulic models
- Differences between 1D, 2D and 3D models
- Generic model types (routing, steady state, hydrodynamic)
- Overview of proprietary software
- Modelling of structures (bridges, culverts, weirs, sluices, pumping stations)
- Tidal rivers
- Modelling large flood plains
- Choosing a model for a particular application
- What can go wrong with models
- Model audit/review
- Effective project management of modelling studies

The course includes information from the Environment Agency's Modelling Specifications.

Presenter

Jeremy Benn FREng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Delivery

This course will be a combination of presentations and practical exercises together with discussion of case studies.

Related courses

[Introduction to HEC-RAS](#)

[Introduction to ISIS](#)

[Survey for River Models](#)

[2D Hydraulic Modelling](#)

Course dates

14 March 2013- Skipton

26 September 2013 - Newport

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Introduction to HEC-RAS



Overview

A basic course introducing the hydraulic model parts of the HEC-RAS 1D river modelling package. At the end of the course the delegate should be able to construct a simple steady state model including in-line structures such as weirs, bridges and culverts.

Who should attend

Engineers and scientists wishing to undertake flood risk assessment and watercourse design. No prior knowledge or experience of HEC-RAS is required, although some knowledge of river modelling/hydraulics will be beneficial and delegates should be familiar with Windows-based software.

Course outcomes

After the course delegates will be able to:

- Build a simple model
- Develop ratings
- View results / spot basic errors
- Know whether or not a steady flow model is suitable

Topics covered

- Principles of 1D steady state modelling
- Data requirements (flows, cross-section survey, roughness and other parameters)
- Basic model schematisation (build)
- Running a steady model and analysing the output
- Model calibration
- Modelling bridges
- Modelling culverts
- Modelling in-line weirs and gates

Delivery

Presentations followed by hands-on exercises using HEC-RAS (version 4.1).

Software

Copies of the HEC-RAS software are available from www.hec.usace.army.mil or can be purchased from JBA.

Presenter/s

Matthew Scott BSc MSc

Matthew is experienced in hydraulic and hydrological modelling with particular emphasis on ISIS, HEC-RAS, TUFLOW and the FEH.

**Jeremy Benn FEng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv**

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Related courses

Intermediate HEC-RAS

Advanced HEC-RAS

HEC-RAS Masterclass

Course dates

6 March 2013 - Skipton

13 May 2013 - Atherstone

17 September 2013 - Warrington

Summary

- Introductory one day course
- £275 + VAT person
- Counts as 6 CPD/CET hours

Training Course

Intermediate HEC-RAS



Overview

An introductory course to the unsteady hydraulic model within HEC-RAS. At the end of the course the delegate should be able to construct a simple unsteady state model including off-line structures such as storage reservoirs and lateral weirs.

Who should attend

Engineers and scientists wishing to undertake flood mapping studies, breach analyses and flood storage calculations. A basic knowledge of using HEC-RAS for steady state modelling is assumed.

Course outcomes

After the course delegates will be able to:

- Decide when to use unsteady models
- Build a simple unsteady model
- Convert steady state models to unsteady
- Undertake breach analysis
- View results
- Undertake basic troubleshooting
- Know whether or not an unsteady flow model is required

Topics covered

- Principles of 1D unsteady state modelling
- Data requirements (unsteady flow files)
- Running an unsteady model and analysing the output
- Lateral weirs and gates
- Pumping stations
- Approaches to modelling floodplains: extended sector, off-line storage and parallel conveyance
- Modelling dam-breach
- HEC-RAS Routing Sections
- RAS-Mapper
- Optimal computational time step

Delivery

Presentations followed by hands-on exercises using HEC-RAS (version 4.1).

Presenter/s

Matthew Scott BSc MSc

Matthew is experienced in hydraulic and hydrological modelling with particular emphasis on ISIS, HEC-RAS, TUFLOW and the FEH.

**Jeremy Benn FEng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv**

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Related courses

[Introduction to HEC-RAS](#)

[Advanced HEC-RAS](#)

[HEC-RAS Master class](#)

Course dates

[7 March 2013 - Skipton](#)

[14 May 2013 - Atherstone](#)

[18 September 2013 - Warrington](#)

Summary

- Intermediate one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Advanced HEC-RAS



Overview

An advanced course for those already familiar with HEC-RAS but wishing to learn more about its use to model floodplains. At the end of the course the delegate should be able to build stable unsteady models and know how to cure instability problems in unsteady flow. The course also includes advice on how to geo-reference model data to allow easier creation of flood maps.

Who should attend

Engineers and scientists wishing to undertake flood mapping studies and analysis of floodplain behaviour. Previous experience in the use of HEC-RAS is assumed.

Course objectives

To provide a detailed insight into the steady and unsteady versions of HEC-RAS and to give guidance on resolving complex modelling issues.

Topics covered

- Pilot channels
- Dealing with 'low flow' problems
- Dealing with 'steep channel' problems
- Geo-referencing models
- Improving the look of geometry files
- Split flow optimisation

Delivery

Presentations followed by hands-on exercises using HEC-RAS (version 4.1).

Presenter/s

Matthew Scott BSc MSc

Matthew is experienced in hydraulic and hydrological modelling with particular emphasis on ISIS, HEC-RAS, TUFLOW and the FEH.

**Jeremy Benn FEng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv**

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Related courses

[Introduction to HEC-RAS](#)

[Intermediate HEC-RAS](#)

[HEC-RAS Master class](#)

Course dates

3 April 2013 - Skipton

26 June 2013 - Atherstone

Summary

- Advanced one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

HEC-RAS Master Class



Overview

An advanced course for those already familiar with HEC-RAS but wishing to be able to build models faster and also to use the software for river channel restoration or modification and the design of flood protection and erosion protection schemes. A basic knowledge of using HEC-RAS for steady state modelling is assumed.

Who should attend

Engineers and scientists undertaking large scale flood mapping studies or detailed channel design calculations.

Course objectives

To provide a detailed insight into the steady and unsteady versions of HEC-RAS and to give guidance on resolving complex modelling issues.

Topics covered

- Using the channel improvement options
- Hydraulic tables and their use in building stable unsteady models
- Stable channel design
- Bridge scour calculations
- Water temperature modelling
- Sediment transport modelling
- Running models in batch mode

Delivery

Presentations followed by hands-on exercises using HEC-RAS (version 4.1).

Presenter

Jeremy Benn FREng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Related courses

Introduction to HEC-RAS
Intermediate HEC-RAS
Advanced HEC-RAS

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Advanced one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Introduction to ISIS 1D



Overview

The course provides an introduction to the ISIS by Halcrow™ modelling suite and a more detailed overview of the ISIS™ Flow hydrodynamic module.

Who should attend

The course is designed for managers, engineers and modellers requiring an overview of the capabilities of the ISIS™ system and practical tuition on the use of ISIS™.

Course objectives

To provide an overview of the ISIS™ software and to ensure that delegates can use the software to build and run 1D hydrodynamic models.

Topics covered

- Overview of the ISIS™ suite
- The Workbench - data entry and data manipulation
- Model schematisation
- Modelling open channel
- Modelling bridges and culverts
- Modelling weirs
- Modelling spill units and reservoirs
- Floodplain mapping and animation
- Run-time problems
- Interpreting results

Presenter

David Kearney BSc MSc

David is an experienced river modeller and expert ISIS user.

Delivery

Practical exercises based on actual case studies will be used as an integral part of the teaching. Delegates will have access to the ISIS™ software for the course. Example data files and worked solutions will be provided to all participants.

Related courses

River Modelling Methods

Introduction to ISIS Mapper™

Introduction to Flood Modelling using TUFLOW

Course dates

17 and 18 April 2013 - Atherstone

1 and 2 October 2013 - Skipton

Summary

- Introductory two day course
- £500 + VAT per person
- Counts as 12 CPD/CET hours

Training Course

Introduction to ISIS Mapper



Overview

This one day course provides an introduction to ISIS Mapper by Halcrow™, the new GIS utility which forms part of ISIS™ version 3.3. The course will show users how to get the most out of this new application.

Who should attend

Those already familiar with ISIS™ (or who have attended the Introduction to ISIS™ course) and who wish to learn how to link ISIS™ (and TUFLOW) models to geo-reference datasets such as Google Earth, DTMs and aerial photography.

Course outcomes

By attending the course delegates will learn to:

- Use ISIS™ Mapper to develop 1D models
- Post process 1D model results using ISIS™ Mapper
- Use ISIS™ Mapper to set up a simple linked ISIS™ -TUFLOW model
- Post process 2D model results using ISIS™ Mapper

Topics covered

- Extending cross-sections
- Abstracting data for reservoir units
- Import hydraulic model results from ISIS™ and TUFLOW into ISIS™ Mapper
- Create floodplain maps and outlines from ISIS™ and TUFLOW output
- Linking to ArcGIS™

Presenter

David Kearney BSc MSc

David is an experienced river modeller and expert ISIS user.

Delivery

Practical exercises based on actual case studies will be used as an integral part of the teaching. Delegates will have access to the ISIS™ software for the course. Example data files and worked solutions will be provided to all participants.

Related courses

River Modelling Methods

Introduction to ISIS

Introduction to Flood Modelling using TUFLOW

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- A comprehensive set of course notes together with example
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Introduction to Flood Modelling using TUFLOW - Part 1



Overview

This two day course provides delegates with hands-on use of two-dimensional flow modelling and a basic understanding of coupled 1D-2D flow modelling using the ISIS and TUFLOW software. TUFLOW is particularly suitable for modelling flow in coastal waters, estuaries, rivers, floodplains and urban areas, where flow patterns are primarily 2D in nature. Coupled ISIS-TUFLOW modelling seeks to combine the best attributes and functionality of each industry-standard model to provide a software tool capable of modelling the most complex flood flow problems.

The course provides delegates with an introduction to the mechanics of TUFLOW and guides delegates through the development and evaluation of a TUFLOW model. No prior knowledge of TUFLOW is assumed but previous experience of MapInfo Professional GIS software would be beneficial.

NB Modellers that are proficient in 2D modelling, may wish to attend part 2 of this course only.

Who should attend

Environmental modellers with reasonable IT and GIS skills.

Course outcomes - part 1

By attending the course delegates will:

- Understand when TUFLOW can be used
- Understand the basic mechanics of TUFLOW
- Learn how to install TUFLOW and associated programs
- Learn how to set up, run and evaluate a simple TUFLOW model
- Gain an awareness of the advance features of TUFLOW
- Understand the limitations of TUFLOW

Course outcomes - part 2

- Gain an understanding of the basic principles of coupled 1D-2D flow modelling
- Learn how to install the ISIS-TUFLOW link
- Learn how to set up, execute and evaluate a simple ISIS-TUFLOW model
- Gain an appreciation of the advantages and limitations of coupled 1D-2D flow models
- Have the opportunity to discuss any specific modelling questions during the course 'clinic'

Presenters

Dr Neil Hunter BSc MBCS

Neil is a Senior Analyst with JBA and an experienced modeller. He has worked on several key national R&D projects looking at evaluating 2D model performances.

Guy Dixon BSc MSc

Guy is an Analyst with JBA and has worked on a range of flood mapping studies using hydraulic modelling packages such as ISIS™ and TUFLOW.

Summary

- Introductory course
- £275 + VAT per person per day
- Discount for booking two days £500 + VAT per person
- Counts as 6 CPD/CET points per day

Training Course

Introduction to Flood Modelling using TUFLOW - Part 2



Course structure

Part 1

- Introduction to TUFLOW
- How to install TUFLOW and associated programs
- Theory and model configuration
- Exercise - Model set-up and execution
- Exercise - Evaluation of model results
- Course clinic - general discussion

Part 2

- Introduction to coupled 1D-2D modelling
- Limitations of coupled 1D-2D models
- Coupled ISIS-TUFLOW modelling
- Exercise 1 - Model set-up and execution
- Exercise 2 - Evaluation of model results
- Course clinic/improving the cast study models
- Summary
- Reviewing TUFLOW models

The course includes information from the CIRIA guidance note 'Development and flood risk - guidance for the construction industry' published in 2004 and Environment Agency guidance on modelling Areas Benefiting from a Defence.

Presenters

Dr Neil Hunter BSc MBCS

Neil is a Senior Analyst with JBA and an experienced modeller. He has worked on several key national R&D projects looking at evaluating 2D model performances.

Guy Dixon BSc MSc

Guy is an Analyst with JBA and has worked on a range of flood mapping studies using hydraulic modelling packages such as ISIS™ and TUFLOW.

Delivery

This course will combine several presentations and a single 'start-to-finish' modelling case study that will result in a fit-for-purpose TUFLOW model. A short course 'clinic' will also provide delegates with the opportunity to discuss specific modelling queries

Related courses

2D Hydraulic Modelling

Course dates

26 and 27 February 2013 - Skipton

3 and 4 July 2013 - Warrington

9 and 10 October 2013 - Newport

Summary

- Introductory course
- £275 + VAT per person per day
- Discount for booking two days £500 + VAT per person
- Counts as 6 CPD/CET points per day

Training Course

2D Modelling for Project Managers



Overview

This new one day course is aimed at project managers or commissioners of 1D/2D and 2D hydraulic models. Through this course, participants will gain confidence matching models to specific project requirements, developing realistic costs and programmes for their delivery, and maximising the value of their modelling investment.

Who should attend

- Procurers of 2D modelling projects
- Project managers with responsibility for delivery of 2D modelling projects

Course objectives

By completing the course, delegates will learn how to:

- Match modelling approaches to specific project requirements
- Develop realistic costs and programmes for their delivery
- Provide intelligent challenge to typical modelling issues that may arise
- Maximise the value of their (or their client's) investment in modelling solutions

Topics covered

The course will help non-technical decision makers to:

- Appreciate the range of applications for models (coastal, river, surface water, dam break and integrated drainage studies)
- Select the right hydraulic modelling strategy for the job
- Understand the process of building 1D/2D and 2D hydraulic models
- Successfully procure and specify 2D hydraulic modelling commissions
- Competently oversee the model building process, including the main risks and tried and tested mitigation strategies
- Understand the 'headline' pros and cons of particular commercial software packages
- Make the most of 1D/2D and 2D model results, including analysis, checking and visualisation of model results

The course is not tied to any particular software program and is intended to provide transferable lessons that are relevant now and in the foreseeable future. However, the course contents can be tailored to particular software (e.g. TUFLOW, ISIS-2D, JFlow, InfoWorks, MIKE FLOOD).

Presenter

Dr Neil Hunter BSc MBCS

Neil is a Senior Analyst with JBA and an experienced modeller. He has worked on several key national R&D projects looking at evaluating 2D model performances.

George Baker BEng AIEMA CEnv IEng MCIWEM C.WEM

George is an environmental engineer specialising in flood risk management, hydrometry (hydrometric site design + project management), 3D visualisation, reservoir inundation, survey management, and the design, selection and implementation of flood alleviation schemes.

Delivery

The course is delivered as a series of presenter-led workshop sessions that are designed to provide maximum opportunity for delegates to ask questions and share any previous experiences, lessons learned etc.

Related courses

Introduction to Flood Modelling using TUFLOW

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

WinDes: Use in Auditing



Overview

The course provides an overview of the use of the WinDes® drainage design software developed by Micro Drainage Limited with a view to auditing drainage calculations.

Who should attend

Those who are involved in development control and in particular in the review of drainage calculations and the output from WinDes® models. In-depth knowledge of civil engineering and drainage design is not required (this is not a drainage design course).

Course outcomes

Following the course delegates should be able to:

- Understand the capabilities of WinDes and the principles of urban drainage design
- Know the key things to look for in auditing a WinDes® / urban drainage model

Topics covered

- Estimating greenfield runoff (using IH124, ADAS345 and FEH)
- Estimating development runoff (using IH124, ADAS345 and Wallingford Procedure)
- Overview of the design, scheduling and analysis of drainage networks with WinDes®
- Use of controls and the use of storage functions within WinDes®
- Quick balancing storage estimates
- Design and analysis of systems to comply with standards for Sewers For Adoption
- Introduction to Sustainable Urban Drainage principles
- WinDes® Source Control Module (infiltration, dry swales, ponds and tanks)
- What to look for in Audits

Presenter

Daryl Taylor BEng MSc

Delivery

The course is delivered as a combination of presentations and practical exercises together with discussion of case studies.

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Two day course
- £500 + VAT per person
- Counts as 12 CPD/CET hours

Training Course

Survey for River Models



Overview

This one day course provides practical advice on planning, managing and carrying out surveys for 1D and 2D river models. The course aims to inform surveyors of how river models work and to inform modellers and managers of how a survey is planned and executed. The course does not cover survey principles.

Who should attend

Land surveyors, hydraulic modellers and project managers involved in both topographical surveys and model building/management.

Course outcomes

By attending the course delegates will:

- Know how to specify and undertake an optimum survey for a river model
- Appreciate possible pitfalls

Topics covered

- Survey requirement for 1D and 2D river models
- Location of model boundaries
- Location of cross-sections
- Survey of floodplains
- Survey of hydraulic structures (bridges, culverts, weirs, sluices, pumping stations)
- Survey outputs (drawings, model files)
- Planning a survey (budget estimation, health and safety, access)
- Successful survey management
- Post-flood surveys
- Integrating DTMs and DEMs with cross-section data
- Preparing data for 2D models

Presenter

Robert Cowan BSc MCInstCES MRICS

Robert is a Chartered Land Surveyor with over 21 years' experience of hydrographic survey for asset management and river modelling.

Delivery

This course will be a combination of presentations and practical exercises together with discussion of case studies.

Related courses

River Modelling Methods

2D Hydraulic Modelling

Environmental Responsibilities of Land Drainage Authorities

Introduction to ArcGIS™ v10

Course dates

26 March 2013 - Warrington

Related publications

The text book 'Floodplain Modelling using HEC-RAS' is a useful addition to this course see Publications.

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Bridge and Weir Design



Overview

One day course providing practical advice on the hydraulic design of bridges and weirs. This course is 'stand alone', but also follows on from the Bridge Scour course to provide the second day of a two day course.

Who should attend

The course is designed for any professional who is likely to be involved in the design of hydraulic assessment of bridges and weirs. It is also relevant to managers and regulators involved in consenting works in watercourses.

Course outcomes

Following the courses, delegates should have a good appreciation of the principles of bridge and weir hydraulic design plus knowledge of environmental, maintenance and health and safety issues. Details of current key references and best practice guides will be provided. The exercises will include hand calculation for weir design and computer analysis of bridge hydraulics/afflux.

Topics covered

Bridges

- Bridge types
- Types of bridge flow
- Methods of hydraulic analysis
- Hydraulic design principles
- Scour
- Design and construction issues
- Health and safety issues
- Environmental issues
- Maintenance
- Debris
- Computer modelling

Weirs

- Weir types
- Types of weir flow
- Methods of hydraulic analysis
- Hydraulic design principles
- Design and construction issues
- Environmental issues
- Maintenance
- Computer modelling
- Rehabilitation case studies

The course includes information from the following guidance

- Highways Agency - Design Manual for Road Bridges
- Environment Agency River Weirs - Good Practice Guide
- Environment Agency - Bridge Afflux System

Presenter

Jeremy Benn FREng MA MSc FICE
FCIWEM C.WEM MASCE MIEI CEng
CEnv

Jeremy is Chief Executive of JBA and has over 29 years' experience of hydrological and hydraulic modelling and has published and lectured widely on these subjects.

Delivery

This course will be a combination of presentations and practical exercises/calculations together with discussion of case studies.

Related courses

Bridge Scour

Culvert Design and Operation

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours



Training Course

Culvert Design and Operation

Overview

The design and operation of culverts is critical to effective flood risk management. Inadequate design or neglect can lead to severe flooding. This training, based on CIRIA C689 Culvert design and operation guide, provides guidance on the whole-life cycle of culverts, recognising that there is an enormous stock of existing culverts of various types, sizes, age and condition.

Developed by CIRIA in conjunction with JBA Consulting and Royal Haskoning, this **two day training course** provides asset managers and designers with a comprehensive understanding of the whole-life cycle of a culvert, providing guidance on inspection, assessment, maintenance and renewal of existing culverts, as well as their design. The training is underpinned by the principles of whole-life asset management and a systems approach to drainage. Guidance will be given on cutting edge hydraulic assessment techniques, taking account of developments in hydrology and hydraulic analysis.

Who should attend

The course will be relevant to infrastructure asset managers, flood risk and drainage engineers, landscape architects, planners, architects, and those working in or with environmental regulators, local authorities, highway authorities, developers, consultants and contractors.

Course outcomes

Following the course, delegates will have a good appreciation of the factors affecting culvert design and the principles of hydraulic design and assessment, as well as good design practice and methods of improving hydraulic performance. Delegates will be given experience in hand calculation methods and advice on computer software for culvert assessment.

Topics covered

- Setting performance requirements
- Hydraulic assessment of culverts and screens
- Available computer software
- Policy and legal background
- Environmental considerations
- Health and safety requirements
- Good design practice
- Improving hydraulic performance

Presenters

Day 1 - Culvert whole-life management

Matthew Balkham - Senior Engineer, Royal Haskoning

Matthew has significant experience in river engineering projects and was the lead author of the CIRIA Culvert design and operation guide.

Day 2- Culvert design

Dr Amanda Kitchen MEng CEng MICE

Amanda is a chartered engineer with 15 years' experience of water engineering including flood risk management and river and canal engineering. She was a co-author of the 2010 update to the CIRIA Culvert design and operation guide.

Delivery

The course will be delivered through presentations and exercises, some of which are numerical.

Course dates

For further information and to book a place on the course see <http://www.ciria.org/training>

This course includes information from the following guides

CIRIA (2010) Culvert Design and Operation Guide

Environment Agency (2009) Trash and Security Screen Guide

Office of Public Works (Section 50 Design Guide)

Summary

- Two day course
- CIRIA Core members/SMEs/Local Authority member £495 + VAT
- Non members £595 + VAT
- Counts as 12 CPD hours

Training Course

Bridge Scour



Overview

One-day training course on the prediction of scour at bridges over water or floodplains due to hydraulic action and the management of high risk bridges, drawing on international good practice guidelines. The UK has a large stock of historic bridges with shallow foundations which can be susceptible to undermining by scour. The prediction of scour and management of vulnerable bridges can help to prevent the catastrophic failures seen in Cumbria in 2009, whilst ensuring cost-effective use of resources.

Who should attend

Professionals involved in the assessment of scour or the design of scour protection works at existing bridges, as well as the design of new bridges over water or floodplains. Owners and asset managers responsible for the management of bridges over water or floodplains.

Course outcomes

By attending course delegates will gain:

- An appreciation of the mechanisms of bridge scour and factors affecting scour
- An awareness of notable bridge failures and lessons learnt
- An awareness of guidance documents, their evolution and limitations
- Experience in qualitative and quantitative scour assessment using methods from a range of guidance documents, including wide abutments
- Experience in prioritising and choosing scour management strategies, including flood warning and emergency response, specialist assessment, monitoring and scour protection
- Awareness of hydrodynamic forces on bridges

Topics covered

- Mechanisms of bridge scour
- Historic bridge failures and lessons learnt
- Guidance documents
- Data gathering and site inspection
- Predicting contraction scour
- Predicting local scour at piers and abutments
- Assessing priority rating
- Scour management strategies

This course includes information from the following guidance

- Network Rail Standards and EX2502
- Rail Safety and Standards Board Safe management of railway structures
- Design Manual for Roads and Bridges BA 74/06
- Manual on scour at bridges and other hydraulic structures (CIRIA C551)
- Evaluating scour at bridges (HEC-18) (United States Federal Highway Administration)
- Bridge scour (Melville and Coleman, 2000)

Presenters

Dr Amanda Kitchen MEng CEng MICE

Amanda is a chartered engineer with 15 years' experience of hydraulic engineering and flood risk management. Her post-graduate studies examined the mechanism of local scour at bridge piers.

Delivery

The course will be delivered through presentations and exercises, some of which are numerical.

Related courses

[Bridge and Weir Design](#)

[Culvert Design and Operation](#)

Course dates

5 March 2013 - Skipton

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Introduction to Hydromorphology and Fluvial Geomorphology



Overview

Knowledge of river hydromorphology and geomorphological dynamics is essential for sustainable river design and management. It facilitates the assessment of risk, increases understanding within the Environmental Impact Assessment process, helps alleviate flooding impacts and informs in-stream flow requirements system restoration and ecology.

The course has three main objectives:

- To introduce a geomorphological approach to sustainable river management
- To present the methods used in a geomorphological assessment and fluvial audit
- To discuss the situations where river geomorphology can be usefully applied and to indicate where further guidance/information can be found

Who should attend

The course is aimed at practitioners requiring a basic understanding of geomorphology and hydromorphology and value to those who are seeking a more catchment-wide perspective for flood relief planning, Water Framework Directive related compliance and strategic restoration studies. The course is also an opportunity to discuss with the course presenters and other attendees, the best practice approaches to (and experiences in) applying methods in river geomorphology/hydromorphology.

Topics covered

- Introduction to river geomorphology/hydromorphology and applications appraisal
- The geomorphological approach to river management
- UK river types and their significance
- Best practice field assessment methods
- Introduction to geomorphological design guidance
- Introduction to monitoring and post-project
- Discussion sessions

Bespoke course option

This course can be combined with the Practical River Functioning and Restoration Guidance field visit to make a two day course which can be tailored to specific requirements. For further details and costs contact Felicity Clarke, Training Co-ordinator.

Presenter

Dr George Heritage BSc

George is Head of Hydromorphology with JBA. He is one of the country's foremost experts on fluvial systems with 25 years of experience linked to hydromorphic assessment; process based natural channel design and WFD compliant practical design implementation. He specialises in understanding the sediment transport system and its effect on channel form and river response.

Delivery

The structure of the course comprises a series of presentations and discussions. The presentations will focus primarily on the geomorphological approach to river management and field assessment methods. Computer programs form part of the exercises.

Course dates

11 April 2013 - Skipton

18 July 2013 - Atherstone

22 October 2013 - Warrington

Summary

- Introductory one day course
- £275 +VAT per person
- Counts as 6 CPD/CET points

Training Course

Practical River Functioning and Restoration Guidance - Field Visit



Overview

River managers, riparian land owners, river users and river guardians are faced with local river instability issues on a day to day basis. Often these issues are difficult to solve or manage due to their inherent complexity with cause and effect difficult to establish. Increased awareness and understanding of river form and function would help in this regard and this is best achieved practically through on-site training. This one day field based course offers participants the opportunity to build this understanding whilst receiving advice on a local issue or problem.

A site visit can be organised to a site of the participants choosing linked to a specific river related issue and an experienced geomorphologist will take the group through the evaluation progress to define cause and effect and suggest sustainable solutions. The day will introduce simple readily usable tools to determine appropriate hydromorphology for a given river, working with current processes to predict and work with probable river response.

This field day will incorporate full consideration of the Water Framework Directive (WFD) as one of the most significant pieces of legislation that steers planning and permitting authorities, providing an overview of what biological, hydromorphological and physio-chemical elements define the status of a waterbody.

The field visit has four main objectives:

- To ensure that we make the most of the opportunities contained within the WFD, linked to improving the status of our rivers
- To introduce simple methods to read our rivers and apply the knowledge to dynamic channel restoration
- To present practical techniques for identifying river issues and probable river response
- To review potential solutions to specific river issues

Who should attend

The course is aimed at anybody with specific or more general river related management issues and who seek a sustainable environmentally acceptable solution for their problems.

Topics covered

The field visit will be centred around a bespoke issue/set of issues defined by the participants.

Presenters

Dr George Heritage BSc

George is Head of Hydromorphology at JBA. He is one of the country's foremost experts on fluvial systems, with 25 years experience linked to hydromorphic assessment; process based natural channel design and WFD compliant practical design implementation. He specialises in understanding the sediment transport system and its effect on channel form and river response.

Sebastian Bentley BSc FRGS MCIWEM C.WEM

Seb is a geomorphologist who specialises in river restoration. He has developed numerous river restoration schemes for a variety of clients. He has successfully designed restoration schemes that work with natural processes to fulfil multiple local and WFD targets.

Delivery

The structure of the course comprises a field site visit for no more than eight persons, practical activities and group discussions.

Summary

- One day course comprising field site visit
- For further information contact:
- E: felicity.clarke@jbaconsulting.com
- T: 01756 799919

Training Course

Coastal Flood Modelling and Extremes



Overview

This one day course provides delegates with an introduction to the processes that influence sea level, including tides, storm surges and waves. The course also provides an introduction to the methods available for estimating extreme sea levels and wave heights and producing design tidal-graphs for flood inundation modelling. Finally, the course introduces the approaches available for estimating wave overtopping discharges.

Who should attend

The course is intended for those who will be involved in estimating extreme sea levels and wave heights for applications such as flood mapping, flood warning and Flood Risk Assessments. It will also be of interest to professionals and managers who are reviewing coastal studies, or to those who wish to update their knowledge of extreme sea level science.

Course outcomes

At the end of this course, delegates will:

- Have a fuller appreciation of the processes that lead to coastal flood risk and the manner in which these processes interact
- Understand the complexities involved in estimating extreme sea level and wave heights and be able to carry out basic calculations
- Gain the necessary background required to review extreme sea level and wave height estimates

Topics covered

Coastal processes

- Astronomical tides
- Storm surges
- Wave generation, propagation and transformation
- Interaction of tides, surges and waves
- Sources of data available

Wave overtopping discharges

- Wave run-up and overtopping of flood defences
- Introduction to the European Overtopping Manual (Eurotop) techniques

Extreme sea level analysis

- Analysis of gauge data
- Statistical estimation of extreme sea levels (including GEV and joint probability approaches)
- Estimation of wave characteristics
- Dependence of extreme storm surge and wave events
- Climate change guidance

Presenter

Dr Mark Lawless BSc MSc CSci CEnv MCIWEM C.WEM

Mark leads JBA's Coastal Flood Risk Management Team, and has developed and applied expertise related oceanography, extreme sea level science, coastal flood modelling and coastal sea defences.

Delivery

The course will be a combination of presentations and hands-on exercises. The exercises will involve the analysis of sea level and wave data, the calculation of extreme sea levels and the estimation of wave overtopping discharges.

Course dates

16 April 2013 - Skipton

4 September 2013 - Haywards Heath

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Understanding and Assessing Hydrological Drought



Overview

This one-day training course deals with low flow occurrence in rivers in the UK and Ireland. The course has three main objectives:

- To provide an understanding of the flow processes for low flows
- To provide an overview of the standard methods of analysing low flows
- To provide some understanding and guidance of when and where these methods should provide useful results

Who should attend

This course is intended for non-specialists who require an overview of the hydrology of low flows and an introduction to the standard techniques of low flow analysis. It is particularly relevant to those involved in water resource management, the ecological management of rivers, licensing of abstractions or discharges to rivers of chemicals or other potential pollutants.

Course outcomes

After the course delegates will understand:

- Hydrological processes and their link to low flows
- Flow measurement during low flow conditions
- Techniques for analysing low flows
- Impacts of low flow

Topics covered

Hydrological and anthropogenic controls on low flows:

- Controls on low flow development and how these vary for different UK rivers
- Discussion of impacts of river abstractions and reservoir releases on flow regimes

How low is the flow?

- Issues associated with measuring river flows during periods of low flow. We will also look at flow naturalisation and basic data processing

Low flow analysis and characterisation:

- Application of key techniques for analysing low flows, including flow duration curves, flow accretion and depletion relationships, baseflow separation, low flow severity indices and low flow event frequency estimation. Methodologies for low flow estimation in ungauged catchments are also briefly covered
- Ecological impacts, water resource and water quality management and navigation

Presenter

Dr Maxine Zaidman BSc CEnv MCIWEM C.WEM

Maxine is a hydrologist with over 17 years' experience in the water industry. Her specific areas of expertise include quantification of hydrological extremes, hydraulics, hydrometrics and groundwater-surface water interactions

Delivery

The course will be presented in four sessions with case studies and hands-on exercises for each of the sessions. The hands-on exercises will assume a working knowledge of Microsoft Excel. Help will be provided for the exercises.

Related course

Urban Hydrology

Introduction to Management of Sensitive Water Environments

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Flood Hydrology for Non-Specialists



Overview

This two day course will consider the hydrological processes involved when river flows are high, especially when in flood conditions. The course is an introduction to the issues. It assumes little previous knowledge of hydrology beyond what most have received during, possibly long forgotten, lessons in school or early university courses. The purpose is to introduce some of the standard techniques used when carrying out flood design studies but in the context of the flow processes involved so that some understanding of the limitations, as well as the strengths, of these techniques will be developed. The course covers all the main methods within the FEH but excludes more specialised topics such as application to small, urban or permeable catchments. These topics, together with more exercises and case studies, are covered in JBA's two day Flood Estimation Handbook course.

Who should attend

Design engineers, modellers from consultancies involved in flood risk management, highway and urban drainage designers, development control and consenting officers.

Course objectives

- To consider the hydrological processes involved when river flows are high, especially when in flood conditions
- To introduce some of the standard techniques for flood design studies
- To apply techniques to real problems
- To develop understanding of the limitations, as well as the strengths, of these techniques

Topics covered

Day 1

- Flow processes within the catchment during high flow conditions
- Measurement of river flows and rainfall and some standard processing methods for these data
- Statistical analysis of high river flow records
- Flood estimation in small catchments
- What to look for when reviewing flood estimates

Day 2

- Introduces the Flood Estimation Handbook, which is widely used across the UK for estimating

Presenter/s

Dr Maxine Zaidman BSc CEnv MCIWEM C.WEM

Maxine is a hydrologist with over 17 years' experience in the water industry. Her specific areas of expertise include quantification of hydrological extremes, hydraulics, hydrometrics and groundwater-surface water interactions

Duncan Faulkner MSc DIC MA FCIWEM C.WEM CSci

Duncan is a specialist in flood hydrology and has extensive experience both in research projects and a large number of consultancy studies. He has developed JBA's and the Environment Agency training courses on flood estimation methods. He is a former member of the Flood Estimation Handbook research team and author of the Environment Agency's Flood Estimation Guidelines.

Delivery

This course will be a combination of presentations, hands-on exercises and case studies.

Related courses

Flood Estimation Handbook (FEH)

Urban Hydrology

Sustainable Drainage Systems (SuDS)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Two day course
- £500 + VAT per person
- Counts as 12 CPD/CET hours

Training Course

Flood Estimation Handbook



Overview

This course provides hands-on use of the Flood Estimation Handbook (FEH) methods. It includes all the latest guidance and findings from research, and uses version 3 of WINFAP-FEH released in September 2009.

Who should attend

The course is aimed at those who will be using the FEH methods to estimate design flows. Basic knowledge of flood hydrology is expected.

Course outcomes

- Understand the key principles of the FEH approach to flood estimation
- Understand the steps involved in the FEH statistical and ReFH methods
- Know how to use the FEH CD-ROM, WINFAP-FEH and the ReFH spreadsheet
- Know what to consider when selecting an appropriate FEH method
- Be aware of some of the options for dealing with unusual catchments

Topics covered

- Overview of the FEH
- Finding and checking flood data
- FEH Statistical Method
- FEH Rainfall-Runoff Method
- ReFH method
- Choice of method
- Applying FEH to urban catchments
- Applying FEH to permeable catchments
- Alternative methods for small catchments
- Reservoir routing
- Applying FEH and recording calculations
- Case study exercise

Delivery

Presentations, including a brand new interactive visual demonstration of the FEH Statistical method. Hands-on exercises using the FEH CD-ROM, WINFAP-FEH(v3) and the ReFH spreadsheet. Group discussions and use of spreadsheets for simple calculations

Presenter/s

Duncan Faulkner MSc DIC MA FCIWEM C.WEM CSci

Duncan is a specialist in flood hydrology and has developed JBA's and the Environment Agency training courses on flood estimation methods. He is a former member of the Flood Estimation Handbook research team and author of the Environment Agency's Flood Estimation Guidelines.

Oliver Francis MEng MSc

Oliver has an MSc in Hydrology from Imperial College London and seven years' experience of research and consultancy in hydrological modelling and flood estimation.

Related courses

[The Revitalised Flood Hydrograph Method](#)

[Flood Estimation Handbook - Refresher Urban Hydrology](#)

[Flood Hydrology for Non-Specialists](#)

[The PDM Model - Theory & Application for Flood Forecasting](#)

[Flood Risk Assessment](#)

Course dates

20 and 21 March 2013 - Haywards Heath

6 and 7 June 2013 - Skipton

11 and 12 September 2013 - Warrington

Summary

- Two day course
- £550 + VAT per person
- Counts as 12 CPD/CET hours

Training Course

Flood Estimation Handbook Refresher



Overview

This is a one day update course intended to familiarise delegates with recent developments in UK flood estimation.

Who should attend

Hydrologists who are familiar with the Flood Estimation Handbook through attendance on a previous FEH Course and practical application.

Course objective

To enable delegates to use the latest FEH methods with confidence

Topics covered

- The revised FEH statistical method from EA Science Report SC050050 (2008)
- Guidance on implementing the revised statistical method, in particular finding and using donor sites
- Hands-on use of version 3 of WINFAP-FEH (released in September 2009)
- Implications for estimation of 1000-year return period floods
- Implications for permeable catchments
- Findings from recent research studies:
 - New urban adjustment procedure
 - Revised rainfall frequency statistics
 - Comparison of methods for flood estimation on small catchments

The following topics are optional and can be substituted by others if agreed in advance:

- Introduction to the ReFH Design Flood Modelling Software
- Overview of the 2012 changes to the Flood Estimation Guidelines [on courses run for Environment Agency delegates]
- Master class in flood estimation - delegates to provide questions or case studies in advance
- Advice on review and auditing; common pitfalls to look out for

Presenter

Duncan Faulkner MSc DIC MA FCIWEM C.WEM CSci

Duncan is a specialist in flood hydrology and has developed JBA's and the Environment Agency training courses on flood estimation methods. He is a former member of the Flood Estimation Handbook research team and author of the Environment Agency's Flood Estimation Guidelines.

Delivery

This course will be a combination of presentations, hands-on exercises and case studies.

Related courses

[Flood Estimation Handbook](#)

[The Revitalised Flood Hydrograph Method](#)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Advanced one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

The Revitalised Flood Hydrograph Method



Overview

The Revitalised Flood Hydrograph Method (ReFH) is a technique for estimating design hydrographs, designed to overcome many of the problems and limitations of the FEH rainfall-runoff method. It has superseded the FEH rainfall-runoff method for most applications in England, Wales and Northern Ireland. The course covers ReFH in detail.

Who should attend

The course is designed for those who already have some understanding of FEH methods (for example, through attending a Flood Estimation Handbook course) and would like to update their knowledge to the latest methods and guidance.

Course outcomes

Delegates will have a more detailed understanding of the theory behind ReFH and the ReFH Design Flood Modelling Software.

Topics covered

- Reasons for the development of ReFH
- Theory of the ReFH model
- Application of ReFH for estimating design events
- Simulation of observed events
- Estimating model parameters from catchment descriptors and flood event data
- Cautionary notes and situations where ReFH performs poorly
- Using the ReFH software (both the spreadsheet and the full software package)
- Choice between ReFH and alternative methods
- Comparison of results from ReFH and other methods

Presenter

Duncan Faulkner MSc DIC MA FCIWEM C.WEM CSci

Duncan is a specialist in flood hydrology and has developed JBA's and the Environment Agency training courses on flood estimation methods. He is a former member of the Flood Estimation Handbook research team and author of the Environment Agency's Flood Estimation Guidelines.

Delivery

This course will be a combination of presentations and hands-on exercises which will use the ReFH spreadsheet and the full ReFH Flood Modelling software.

Related courses

[Urban Hydrology](#)

[Flood Estimation Handbook \(FEH\)](#)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- One day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

The PDM Model - Theory and Application for Flood Forecasting



Overview

This course, which covers the theory and application of the Probability Distributed Moisture rainfall-runoff model (PDM), concentrates on applications of the PDM in real time flood forecasting, and the principles of the PDM and how it can be applied effectively for flood forecasting. Lessons and exercises are based on the theory of the PDM as published by its original authors at the Centre for Ecology and Hydrology (CEH). The course includes hands-on use of a version of the PDM model developed by JBA. The course material is therefore applicable to the PDM as deployed within the Environment Agency's National Flood Forecasting System (NFFS).

Who should attend

Flood forecasting specialists, hydrologists or engineers with an interest in continuous rainfall-runoff modelling. The course is technically rigorous, although it is not necessary to have prior experience with the PDM.

Course outcomes

Delegates will gain expertise in calibration of the PDM with an emphasis on real time flow forecasting applications, backed up by theoretical understanding of the model structure and parameters.

Topics covered

PDM Theory

- Model structure
- How the 'original' PDM works
- What the PDM's parameters mean

Strategies for calibration

- Sensitivity to model parameters
- Assessing model performance
- Specific issues for forecasting

Practical application

- Data preparation
- Designing a forecasting network
- Implementation of PDM within ISIS, FloodWorks & NFFS/FEWS

Presenter

Paul Wass BA MSc MBCS MCIWEM C.WEM

Paul is a professional hydrologist with nine years' experience of real-time flood forecasting model development and the PDM model.

Delivery

The course will be a combination of presentations and hands-on exercises involving model calibration.

Related courses

Flood Estimation Handbook (FEH)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Urban Hydrology



Overview

This course provides an introduction to urban hydrology and is aimed at those involved with the design and study of urban drainage systems, especially those based on Sustainable Drainage principles.

Who should attend

The course is designed for engineers, modellers and hydrologists who undertake urban drainage designs and Flood Risk Assessments for urbanised catchments. No prior knowledge of hydrology is assumed. Some awareness of Flood Estimation Handbook/Flood Studies Report and Rational Method techniques would be useful, but is not essential.

Course outcomes

After the course delegates will have an appreciation of:

- Standard techniques for estimating design flows in urban drainage systems
- How to know which method to choose
- How to know what is good practice and which guidance documents to use

Topics covered

- Conceptual model of urban and rural runoff processes
- Estimating 'greenfield' runoff
- Critical storm duration
- Urban drainage runoff estimation techniques
- Limitations of the above methods
- Overview of Infoworks-CS, WinDes and **music** software

Presenter

**Dr Jenni Essex BSc MSc CEnv
MCIWEM C.WEM**

Jenni is a highly qualified hydrologist with over eight years' experience in the fields of flood risk management and strategic flood risk mapping, and expertise in hydrological analysis, catchment response mechanisms, and hydrometric network review.

Delivery

The course will be a combination of lectures and practical exercises.

Related courses

[Flood Estimation Handbook](#)

[Flood Risk Assessment](#)

[The Revitalised Flood Hydrograph Method](#)

[Flood Hydrology for Non-Specialists](#)

[Sustainable Drainage Systems](#)

[Stormwater Quality Modelling with 'music'](#)

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Training Course

Introduction to ArcGIS v10

Software
Training

Overview

This one day introductory course will provide a comprehensive overview of the display and analysis capabilities of the ArcGIS™ Geographical Information System (GIS) version 10.

Who should attend

This course is designed for managers, engineers and technicians with little or no experience of GIS systems who are required to gain an understanding of the ArcGIS™ environment.

Topics covered

- Displaying data in ArcMap™
- Querying data and selecting features
- Spatial data types and ArcCatalog™
- Working with tables
- Creating and editing data
- Spatial analysis
- Layouts
- Background maps and registering
- Images

Presenter

Peter Rogers BSc MSc MBCS

Peter has over 10 years' experience in Geographical Information Systems and software development for a variety of clients, including the Environment Agency, Network Rail and Norwich Union.

Delivery

This course will be a combination of presentations and practical exercises.

Related courses

Survey for River Models

Course dates

Please contact us for details

T: +44 (0)1756 799919

E: felicity.clarke@jbaconsulting.com

Summary

- Introductory one day course
- £275 + VAT per person
- Counts as 6 CPD/CET hours

Supporting Materials

HEC-RAS Software

Overview

HEC-RAS was developed by the US Army Corps of Engineers at the Hydrological Engineering Center. It is an integrated system of hydraulic modelling software designed for the 1D hydraulic analysis of open channels, bridges and culverts. The software allows the simulation of flow in a variety of standard or user-defined channels. The program will resolve both subcritical, supercritical and mixed flow regimes and models both branched (dendritic) and looped channel networks. The system comprises a Graphical User Interface (GUI) steady and unsteady hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. HEC-RAS replaces the widely used programs HEC-2 and UNET. Version 4.1 includes both steady and unsteady flow modules.

Capabilities

The general data formats of the two computational modules are identical and it is possible to use the same system geometry for a steady or unsteady simulation. The software is capable of modelling the following hydraulic features:

- Weirs and bridges
- Culverts, sluices and gates
- Levees/flood banks
- Branched/looped channels
- Inflows/outflows
- Floodplains
- Channel encroachments
- Ineffective/static flow areas
- Blockages to the channel
- Channel improvement
- Ice formation
- Manning's and Colebrook-White roughness equations

New features (version 4.1)

Several new simulation features have been added to the program since the 4.0 release. Version 4.1 of HEC-RAS includes the following new features:

- New RAS Mapper Floodplain Delineation Capabilities
- Hydrologic Routing Reaches within an unsteady flow model run
- New Flow Data and Boundary Conditions Editor for unsteady flow
- Contraction/expansion losses for unsteady flow
- Minor losses for unsteady flow
- New junction hydraulics option for unsteady flow
- Groundwater leakage for storage areas
- Water Quality Modelling enhancements
- Sediment Transport Modelling enhancements
- New User's Manuals and Help System

Specification

Maintenance

Prices include 12 months' maintenance.

12 months' technical support is also available for £250 per licence.

CD-ROM includes

HEC-RAS Software (v4.1)

GeoRAS (for ArcView™, ArcInfo™ and ArcGIS™)

Installation instructions

User manual

Hydraulic reference manual

Applications guide

Example application data files

GeoRAS user guide

System Requirements

32Mb RAM (128Mb for GeoRAS)

12Mb hard disk space

Windows™ 95/98/NT.2000

Relevant JBA Training Courses

Introduction to HEC-RAS

Intermediate HEC-RAS

Advanced HEC-RAS

HEC-RAS Master Class

Costs

- Single user licence: £100 +VAT CD-ROM and Adobe Acrobat manuals
- Multi-user licence: £250 + VAT CD-ROM and Adobe Acrobat manuals
- Full payment in advance is required for all software

Publications

Floodplain Modelling

Publisher Haestad Methods Inc.

Price: £125 plus postage and packing

Authoritative text book written by modellers for modellers (including JBA staff). Although concentrating on HEC-RAS and HEC-HMS, much of the advice is generic and applicable to other river models. Topics covered, with examples and exercises include:

- Modelling structures
- Model documentation
- Flood control measures

Design of Flood Storage Reservoirs

Publisher CIRIA

Price: £40 plus postage and packing

A comprehensive reference book for above ground flood storage reservoir feasibility, planning and design. Includes sections on water quality and maintenance aspects of storage facilities.

Roughness Characteristics of New Zealand Rivers

Dr Murray Hicks and Peter Mason

Price: £75 plus postage and packing

This book presents information on roughness coefficients and related hydraulic parameters for 78 reaches representing a broad range of rivers. The information given for each example reach includes photos, cross-section and plans, bed and bank descriptions, and bed surface material plus tables and plots showing how the Manning and Chezny roughness coefficients vary with flow.

Visual Hydrology

Peter Manz

Price: £40 plus postage and packing

This primer for hydrologists explains the structure of object-oriented programming. It provides the source code and worked examples for various flood estimation, hydraulic and water resource problems. Requiring only a basic knowledge of Microsoft Excel®, this primer is a valuable resource to students, research workers and consulting engineers in the water sector.

Culvert design and operation guide (C698)

Price: £130 available from <http://www.ciria.org>

The CIRIA C689 Culvert design and operation guide published in spring 2010 replaces the CIRIA R168 Culvert design manual. The new guide is a comprehensive reference document, reflecting the importance of operation, as well as design in effective flood risk management. The guidance covers the life cycle of a culvert, from the planning, design and construction of new culverts, the inspection, assessment and repair of existing culverts, and eventual demolition and replacement. Updated hydrological and hydraulic assessment techniques are given, together with worked examples, case studies, legal and environmental advice.

Summary

- These publications are available from JBA
- Contact Felicity Clarke, Training Co-ordinator
- T: +44 (0) 1756 799919 E: felicity.clarke@jbaconsulting.com
- Postage and packaging charge of £10 is applicable
- Full payment is required in advance for all publication

Booking Details

Booking Details

Course bookings

You can book a course online at www.jbaconsulting.com. We will then confirm your booking in writing and issue a formal invoice.

Provisional bookings can be made by contacting:

- Felicity Clarke
- T: + 44 (0)1756 799919
- E: felicity.clarke@jbaconsulting.com

Please remember that places on the courses are limited. We normally take no more than 12 delegates per course to allow maximum contact time.

Training course booking conditions

- Places will be held for 4 weeks, or until 2 weeks before the proposed course date (whichever comes sooner).
- An official purchase order or payment for the full fee is required to confirm a booking. Without either of these we are, unfortunately, unable to confirm a place on the course.
- A charge of 25% of the course booking fee will be made for any confirmed booking cancelled within 2 weeks of the course date. No refund will be available for any courses cancelled less than 2 weeks before the course date.
- A discount is available for multiple courses made in one booking for the same person. However in the event of cancellation of an individual course, the full course fee will be applicable and an invoice will be submitted for the difference.
- For bookings transferred to another course date at the delegate's request, a transfer fee of 10% of the course fee will apply.
- Payment can be by cheque, direct money transfer or by credit card. For credit card sales please contact us.

Publications and software sale conditions

Full payment is required in advance for all publications and software.

Disclaimer

Should a presenter advertised in the catalogue be unavailable for any reason, an alternative presenter of equal professional experience will be allocated.

Standard course fees

One day course

£275 + VAT per person

Two day course

£500 + VAT per person

The price for an individual delegate booking several one day JBA training courses would be as follows

Two courses £500 + VAT

Three courses £750 + VAT

Four courses £900 + VAT

These prices include lunch and morning/afternoon refreshments

A comprehensive set of course notes including spreadsheets and worked examples are provided.

www.jbaconsulting.com

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