

**CHARTERED**   
INSTITUTE OF PROFESSIONAL CERTIFICATIONS



# ADVANCED DRAINAGE ENGINEERING, STORMWATER DESIGN AND FLOOD RISK MANAGEMENT

**Fully Accredited  
By:**

Chartered Institute of  
Professional Certifications

CPD  
Certification Service

# PROGRAM OVERVIEW

Did you know that a well-designed and comprehensive drainage system can help cities prevent massive flood risk? The Rotterdam Climate Proof program exemplifies the power of drainage engineering and design in mitigating flood risk and protecting communities from the impacts of climate change. **With innovative stormwater runoff and flood risk management techniques, the program has achieved a remarkable 20% reduction in flood risk for the city.** Additionally, **flood damage has been reduced by a staggering 75%**, resulting in an estimated **cost savings of €200 million in avoided damages.** These impressive results highlight the critical importance of a solid drainage engineering and design to build resilient and sustainable communities.

Led by Dr. Babak Bozorgy, internationally-recognized sustainable drainage design and stormwater management expert, this program will equip you with the essential knowledge of drainage engineering and develop sound engineering judgment to solve drainage design problems. You will gain insights into applying engineering and design concepts to your drainage design framework, including **hydrology, open and closed channel design, erosion control, and stormwater management.** This program will provide you with the skills and techniques to **increase urban areas' resilience to flooding and other climate-related hazards through better urban design, planning, and infrastructure.** You will also gain a holistic understanding of **stormwater management and flood control techniques**, with a focus on promoting the use of **Sustainable Urban Drainage Systems (SUDS).** Additionally, the program covers **flood risk management plan development, identifying appropriate flood risk mitigation measures, and utilizing state-of-the-art information and technologies to increase drainage system efficiency** under changing climate and urbanization.

Upon successful completion of the program, you will earn the coveted **Certification in Advanced Drainage Engineering, Stormwater Design and Flood Risk Management.** This certification will elevate your professional credentials and showcase your expertise of the **essential principles in drainage engineering and design, including knowledge of the latest industry practices, tools, and technologies.** This industry-recognized certification holds **lifelong validity**, offering a testament to your expertise and commitment to excellence in the construction and infrastructure industry. We look forward to welcoming you to this program.

## ACCREDITATIONS



4.8




4.6



# KEY SKILLS YOU WILL GAIN

## From This Program



**URBAN WATER MANAGEMENT  
STORMWATER MANAGEMENT  
FLOOD RISK MANAGEMENT  
DRAINAGE SYSTEM DESIGN**

**SUSTAINABLE URBAN DRAINAGE SYSTEMS  
LAND-USE PLANNING  
ENGINEERING DESIGN  
REDUCING STORMWATER RUNOFF**

**DRAINAGE NETWORK OPTIMIZATION  
HYDROLOGICAL ANALYSIS  
CATCHMENT DELINEATION  
CATCHMENT HYDROLOGY**

**HYDROLOGIC MODELING  
HYDRAULIC ANALYSIS  
RUNOFF ESTIMATION  
SURFACE WATER MANAGEMENT  
STORMWATER COLLECTION SYSTEMS**

**FLOOD MODELING AND MAPPING  
FLOOD HAZARD ASSESSMENT**

# YOUR FACULTY DIRECTOR



## Dr. Babak Bozorgy

### Sustainable Urban Drainage Systems And Urban Design Expert

Dr. Babak Bozorgy is a highly regarded expert in the field of **sustainable urban drainage systems and water-sensitive urban design**. With over 20 years of experience leading sustainable infrastructure design initiatives in a variety of countries, he has earned a reputation as a leading authority in this critical field.

Dr. Bozorgy holds a **Ph.D. in Civil Engineering–Water Resources**, where he developed innovative strategies for managing the risks associated with floods in urban areas. He has also served as a university lecturer in Civil Engineering undergraduate courses, covering a range of topics such as **Fluid Mechanics, Hydrology, Hydraulics, Design of Hydraulic Structures, Environmental Engineering, and Water & Wastewater Engineering**.

His extensive contributions to the field have been recognized through numerous publications in scientific journals and international conferences, including authoring a chapter titled "*Best Management Practices in Urban Water Cycle*" in the "*Urban Water Reuse Handbook*" published by Taylor & Francis. He has also served as a reviewer for the **Journal of Water Resources Planning & Management of the American Society of Civil Engineers (ASCE)** and the **International Journal of Disaster Risk Reduction** by Elsevier, as well as a member of scientific committees for various international conferences on topics related to urban drainage, hydrology, and hydraulics. Dr. Bozorgy's expertise has led him to be a highly sought-after keynote speaker at multiple regional conferences, where he has shared his valuable insights on urban drainage and stormwater management with infrastructure leaders.

# OUR PARTICIPANTS

Over 70% of FORTUNE 500 Companies Have Attended Our Accredited Programs Before



Goldman Sachs



SAMSUNG



ExxonMobil



BURBERRY



citi



IKEA



VOLVO



HYUNDAI



Pfizer

Life is our life's work



Nestlé



# PROGRAM AGENDA

## MODULE 1 - HYDROLOGIC CYCLE

- Precipitation
- Evaporation
- Infiltration
- Transpiration

## MODULE 2 - CATCHMENT HYDROLOGY

- Catchment Delineation
- Catchment Characteristics
- Rainfall-Runoff Process

## MODULE 3 - RUNOFF ESTIMATION

- Design Storms
- Runoff Estimation Methods

## MODULE 4 - STORMWATER MANAGEMENT

- Sustainable Drainage Systems (SuDS)
- Water Sensitive Urban Design
- Best Management Practices
- Low Impact Development

## MODULE 5 - URBAN STORMWATER COLLECTION SYSTEMS

- Urban Hydrology
- Stormwater Collection System Components
  - Inlets/Gullies
  - Pipes
  - Manholes
  - Detention/Retention Basins
  - SuDS Components
  - Outfalls

## MODULE 6 - ROADS & HIGHWAY DRAINAGE

- Longitudinal Drainage
  - Kerb & Gutter
  - Inlets
  - Pipes
  - Discharge
- Cross Drainage
  - Culverts
  - Bridges
  - Scour Protection



# PROGRAM AGENDA

## **MODULE 7 - FLOOD MODELING & MAPPING**

- Flood Modelling Principles
- Flood Modelling Software (1D, 2D)
- Model Build And Calibration
- Modelling Scenarios
- Flood Mapping

## **MODULE 8 - FLOOD HAZARD & FLOOD RISK**

- Definition And Principles Of Flood Hazard And Flood Risk
- Flood Hazard Assessment
- Flood Risk Assessment

## **MODULE 9 - FLOOD RISK MANAGEMENT**

- Flood Risk Management Principles
- Flood Risk Management Strategies
  - Flood Risk Prevention
  - Flood Defense
  - Flood Risk Mitigation
  - Flood Preparation And Response
  - Flood Recovery

## **MODULE 10 - FLOOD FORECASTING & WARNING**

- Flood Forecasting
- Flood Warning

# YOUR CHARTER DESIGNATION



Chartered Institute of Professional Certification's programs are unique as they provide you with professional charter designation and mark that can be used across your lifetime once you have completed our programs.

After successfully attending this program, you will be awarded with the certification in **Advanced Drainage Engineering, Stormwater Design and Flood Risk Management** that can be used in your resume, CV and other professional credentials. This certification is industry-recognized with lifelong validity. Globally demanded and recognized, this designation will help you distinguish your skillsets and you have attained expertise and critical knowledge in drainage engineering and stormwater design. This program is developed by **Chartered Institute of Professional Certifications** and the content of this program has been certified by CPD Certification Service as conforming to continuing professional principals.



# ABOUT US

49,525

Business Leaders Have  
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390

Certified and Fully  
Accredited Programs

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Chartered Leaders Have  
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and Enhancements

## Chartered Institute of Professional Certifications

All of Chartered Institute of Professional Certifications programs are fully accredited programs. The professional charters and designations are trademarked credentials that can only be used by professionals who have completed and passed our accredited program. It is also independently accredited by CPD as adhering to the highest standards of continuing professional principles.

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# OUR FACULTY DIRECTORS

We Collaborate With  
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# CONTACT US TODAY

We Thank You for Your Ongoing Support  
of Our Programs

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