MONTE CARLO DESIGN FLOOD ESTIMATION USING RORB
Course Duration: Two-Days

Overview
The Australian Rainfall and Runoff (ARR) 2019 guidelines have been updated to account for the significant technological advances in flood estimation, as well as a suite of new data sets and software. ARR recommends the application of Ensemble and Monte Carlo techniques for design flood estimation.

This workshop provides practising flood hydrologists with the knowledge and tools to apply Ensemble and Monte Carlo techniques for design flood estimation with RORB software.

RORB is one of the most widely used flood estimation software packages in Australia and is the conceptual forebear to a range of other models. It is a generalised, event-based rainfall-runoff model typically used to estimate flood hydrographs from rainfall.

Participants have the option to attend the full workshop or a single day.

Learning outcomes
- Basic understanding of how to build and run a RORB model for historic flood events
- Basic understanding of how to run RORB to estimate design floods
- Implement RORB models consistent with Australian Rainfall and Runoff 2019 approaches and datasets
- Understand a range of techniques to estimate design floods in catchments with limited gauged streamflow data

Target audience
This course is suitable for professionals working in the water industry including hydrologists, civil and environmental engineers, scientists, policymakers, and urban planning/design practitioners.

Day One - suitably for those with limited or no experience in RORB and/or flood estimation and modelling.

Day Two - suitably for experienced practitioners looking to keep up-to-date with current best practice.

Course benefits
- Gain an overview of how to estimate historic and design floods using RORB
- The techniques explored may be useful both for those who develop and run models as well as those who commission and review modelling projects
- Gain a mixture of theoretical knowledge and practical experience
- Learn from industry leaders in an open, flexible environment

Full course outline
Day One – RORB fundamentals
- Introduction RORB
- Development of catchment files
- Storm files
- Model calibration and verification to gauged flood frequency data

Day Two – Design flood estimation in practice
- Design flood estimation process overview
- Recent changes to ARR
- Accessing new data sets
- Ensemble and Monte Carlo flood estimation techniques
- Estimation of rare and extreme flood events

Facilitators
Associate Professor Dr Rory Nathan FIEAust CPEng NER
Dr Nathan has over 35 years’ experience in engineering and environmental hydrology. He has made a substantial contribution to industry best practice in a range of engineering and environmental fields, and is a co-editor and contributing author of ARR.

David Stephens MIEAust CPEng NER
David is an associate of HARC and has over 15 years’ experience in design flood hydrology, hydraulic modelling and floodplain management. He has been involved in the ongoing development of RORB for over a decade.