



**Learn rainfall-runoff
and flood routing**

HEC-HMS

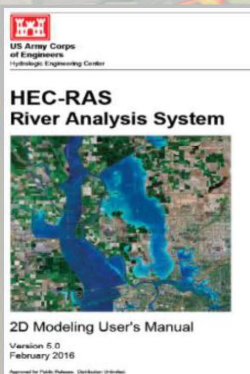
**Build, run, and animate
1D and 2D flood models**

HEC-RAS

Master free software in this intensive, interactive course

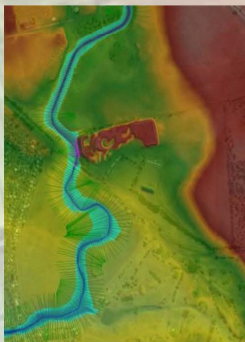
Auckland 23-27 March 2020

**Registration forms
below**



- Rainfall Runoff
- Risk Assessment
- Hydraulic Structures
- GIS Interfacing
- Flood Mapping
- Output Animations

- ★ Professional Membership Discounts
- ★ Academic and Group Rate Discounts
- ★ Professional Development Certification

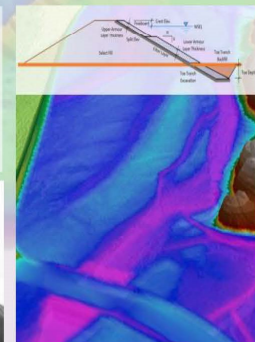


Day 1-2 Instructor: Dr. Steven Joynes, Golovin

Steven has over 30 years' experience in rainfall runoff modelling, hydraulic design, and flood mapping. He has conducted HEC-HMS and HEC-RAS training courses in New Zealand since 2011.

Day 3-4 Instructor: Krey Price, SWS

Krey is a civil engineer with a 20-year, international career focussed on river mechanics and hydraulic modelling. Krey has trained over 400 HEC-RAS 2D course attendees since the release of Version 5.0.



- Day 1 Monday 23 March: **HEC-HMS Rainfall-Runoff**
- Day 2 Tuesday 24 March: **HEC-RAS 1D Hydraulics**
- Day 3 Wednesday 25 March: **HEC-RAS 2D Model Setup**
- Day 4 Thursday 26 March: **HEC-RAS 2D Model Results**
- Day 5 Friday 27 March: **Special HEC-HMS and RAS Workshops**

GOLOVIN
INTELLIGENT MODELLING FRAMEWORK

Pricing: \$800 per day
Discounts available

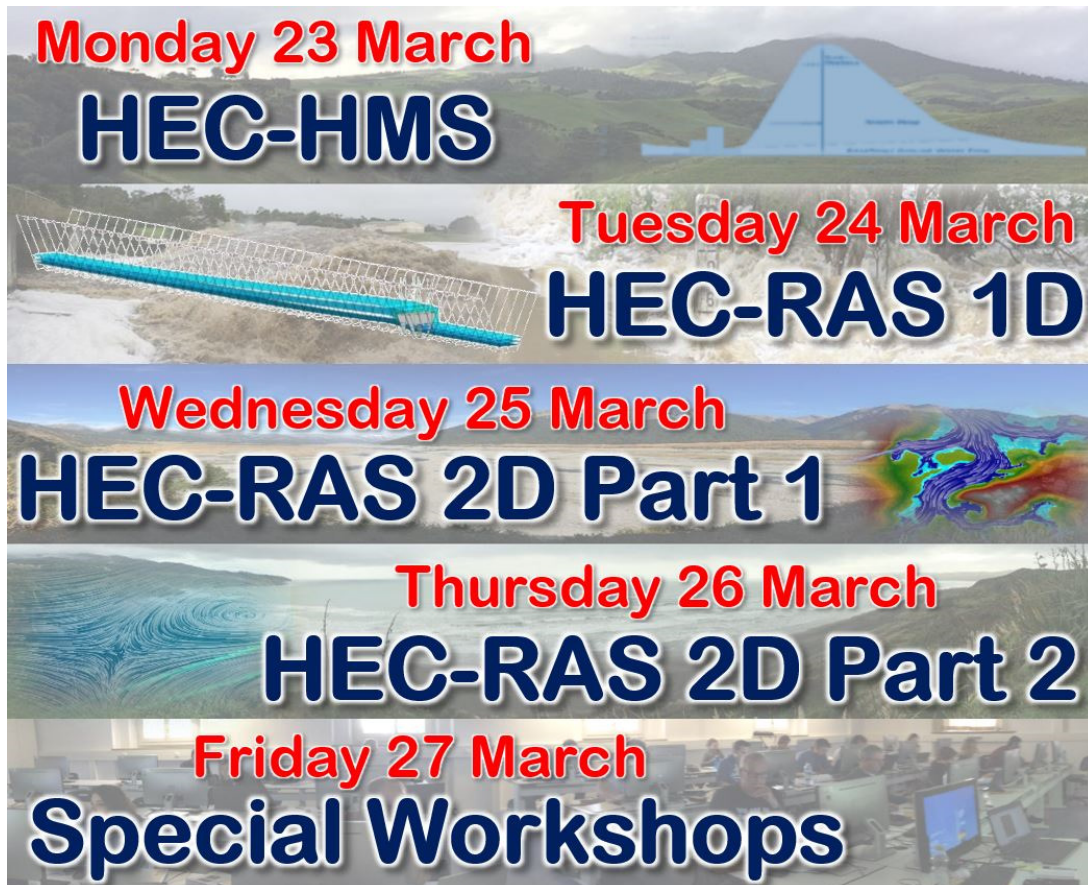
Queries: steven@golovin.co.nz



Surface Water
Solutions

www.surfacewater.biz

Attention water resources professionals, regulators, consultants, academics, and practitioners: Save the date for an intensive, interactive course covering the full range of hydrology and hydraulics.



Monday 23 March
HEC-HMS

Tuesday 24 March
HEC-RAS 1D

Wednesday 25 March
HEC-RAS 2D Part 1

Thursday 26 March
HEC-RAS 2D Part 2

Friday 27 March
Special Workshops

Schedule and pricing:

Day	Course	Instructor	Fee (excl GST)
1	HEC-HMS	Dr Steven Joynes	\$800
2	HEC-RAS 1D	Dr Steven Joynes	\$800
3	HEC-RAS 2D, part 1	Krey Price	\$1,600
4	HEC-RAS 2D, part 2	Krey Price	
5	Special workshop	Dr Steven Joynes and Krey Price	\$800 or \$400

Registration discounts are available for multiple courses, multiple registrants from a single organisation, and members of professional organisations (NZSOLD, NZHS, and Engineering NZ). Previous attendees can attend the workshop at the lower rate. Details must be provided when requesting a discount.

Please direct pricing enquiries to steven@golovin.co.nz.

Contents:

DAY 1 Monday 23 March 2020:

HEC-HMS Rainfall-Runoff

Instructor: Steve Joynes, Golovin

- Review of TP108
- Overview of Precipitation-Runoff Processes
- Basin Precipitation
- Rainfall Loss Rates Computation
- Channel Routing
- Multiple catchment and stream modelling
- Basin Model Manager
- Meteorological Model Manager
- Control specifications and time-series data
- Conducting simulation runs
- Data interpretation and calibration
- Exporting results for use in HEC-RAS

DAY 2 Tuesday 24 March 2020:

HEC-RAS 1D Hydraulics

Instructor: Steve Joynes, Golovin

- File management with HEC-RAS
- Setting up a network
- Entering reach data
- Entering cross sectional data
- Entering roughness data
- Junctions
- Bridges and culverts
- Steady and unsteady flow
- Executing plan files
- Floodplain analysis
- Interpreting and checking 1D results
- Exporting results for use in HEC-RAS

DAY 3 Wednesday 25 March 2020:

HEC-RAS 2D Hydraulics Part 1

Instructor: Krey Price, Surface Water Solutions

- RAS Mapper and GIS interfacing
- Importing terrain files
- Computational mesh generation
- Creating 2D areas
- Hydrologic boundary conditions
- Time step selection
- Entering unsteady flow data
- Computational options and tolerances

DAY 4 Thursday 26 March 2020:

HEC-RAS 2D Hydraulics Part 2

Instructor: Krey Price, Surface Water Solutions

- Setting up plan files
- Adding internal structures
- Breaching dams and lateral weirs
- Viewing and exporting in RAS Mapper
- Troubleshooting models
- Calibrating models
- Benchmarking HEC-RAS vs. other models
- Building your own model from scratch

All course days run from 9.00 am to 4:30 pm

Certification of professional development hours available to all attendees

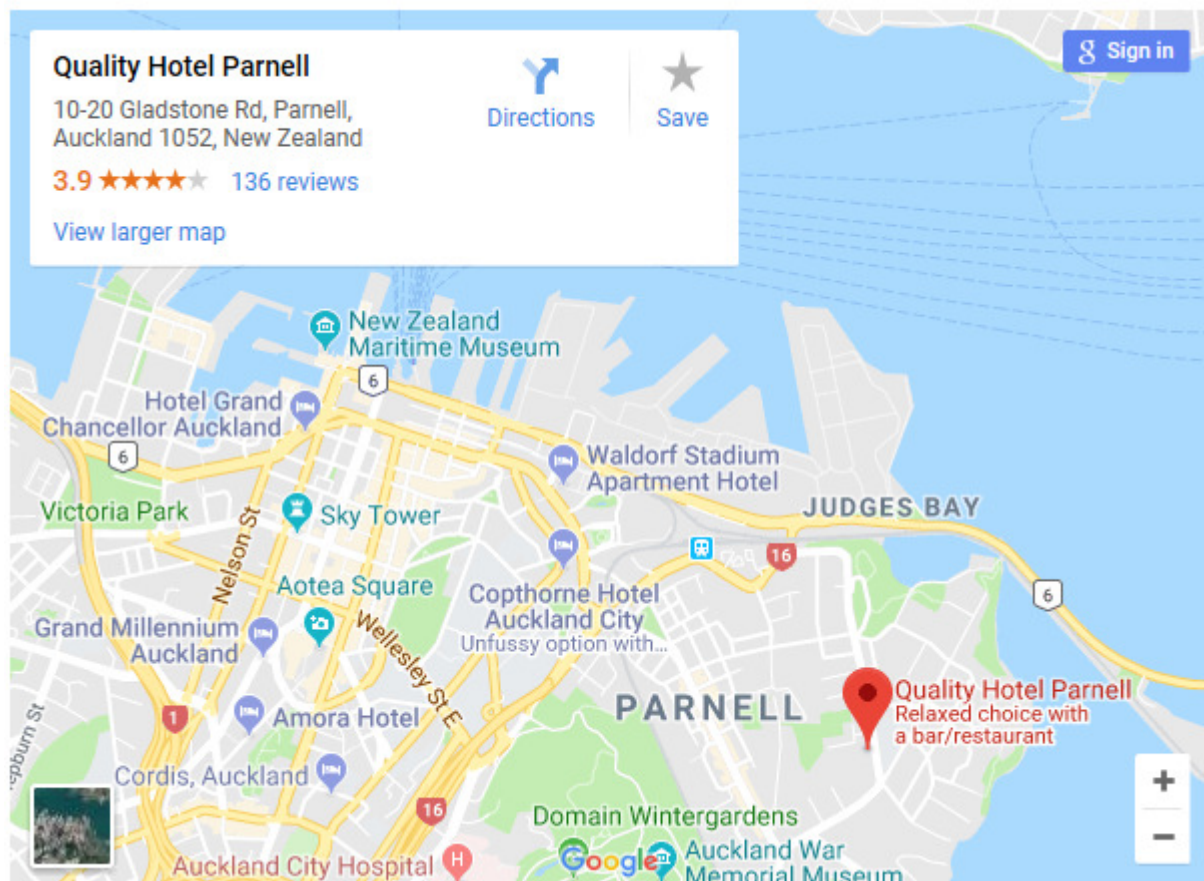
Day 5 - Special Problem Solving Workshop Friday 27 March 2020:

This workshop is designed for previous course attendees or those with prior HEC-HMS or RAS experience. Steven Joynes and Krey Price will work through examples and issues **you bring to the workshop**. The content is driven by you. Bring along your own terrain files and we can step through building, running, troubleshooting, and customising your models. Workshop topics **may include**:

- Storage pond testing
- Features you are curious about in RAS Mapper
- Set up and run dam break assessments
- Perform sensitivity analyses
- Do you want to export flood maps?
- Develop rainfall events
- Learn QGIS plug-ins to produce afflux maps and more
- Sediment transport modelling

Location:

Quality Hotel Parnell
10-20 Gladstone Road, Parnell
Auckland 1052 New Zealand



Registration Details

Organisation

Postal Address

Email contact

Dietary requirements

Course	Date	Attendees Name	Fee (\$)
Discounts			
Sub-total			
GST			
TOTAL TO PAY			

Method of Payment

☐ Invoice Me (purchase order or reference required)

Register by **email** to steven@golovin.co.nz or **post** to P O Box 5545, Hamilton 3242

Terms and Conditions

1. Registration is by 1st in - 1st paid basis.
2. If you cannot attend a course, a substitute participant is welcome.
3. If you withdraw from a course in writing or email more than 20 working days prior to the course, you will receive a full refund less a \$50 administration fee.
4. If you withdraw with 10 working days' notice, you will receive a 50% refund.
5. After this, if you do not attend the course there is no refund.
6. If a course is rescheduled or cancelled due to lack of numbers, or any other valid reason, you will be advised 10 working days before the course and your course fee will be refunded in full.
7. Participants are responsible for their own travel/accommodation bookings and no compensation will be made should the course be rescheduled or cancelled.
8. Participants must bring their own laptop. Install HEC-HMS and/or HEC-RAS and test the software prior to attending the course. Download links will be provided to all registrants.
9. To hire a laptop pre-loaded with all required software and tutorials for \$50 per day, please contact steven@golovin.co.nz.

Authorisation Signature

Name _____

Signature _____ Date _____