



# DRAINS Core E-Learning Program

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*Key Highlights:*

- *Covers 10 units delivered in 30 parts*
- *At your own time & pace, playback speed adjustable*
- *Suitable from new through to advanced users*
- *Includes advanced modelling techniques*
- *Over 12 hours of recorded material*
- *Up to 6 hours of additional exercises*
- *Certificate of completion with 18 hours CPD*
- *Access to DRAINS training license*
- *More material than live webinar & face to face workshops*

**2020**



## PROGRAM – E-Learning ARR Seminar

Duration	Details
Estimated 0.5 hours	<b>Getting Started</b>  Downloading resources  Installing DRAINS & Training License
2.5 hours in 4 parts	<b>ARR Seminar Booklet - Introduction to ARR 2019</b> Topics covered include: <ul style="list-style-type: none"><li>• Why do we have a new set of guidelines?</li><li>• Overview of past editions of ARR</li><li>• ARR 2019 Online &amp; overview of each Book</li><li>• Refresh on what is Hydrology, loss models and routing models</li><li>• ARR 2019 Temporal Pattern Regions and Rural Loss Model Zones</li><li>• New ARR Probability Terminology</li><li>• Ensembles of Storms</li><li>• Understanding the ARR 2019 catchment terminology (TIA, DCIA, ICIA, EIA, RA)</li><li>• Watercom DRAINS application of the ARR 2019 catchment terminology using:<ul style="list-style-type: none"><li>• Effective Impervious Areas (EIA)</li><li>• Remaining Impervious Areas (RIA)</li><li>• Pervious Areas (PA)</li></ul></li><li>• ARR Data Hub</li><li>• Initial Loss Continuing Loss Data</li><li>• Understanding Rural Initial Loss vs Urban Initial Loss</li><li>• NSW OEH Specific Requirements (Probability Neutral Burst Initial Loss)</li><li>• Median Preburst Depths</li><li>• Understanding Initial Loss Storm versus Initial Loss Burst</li><li>• Modelling Climate Change</li><li>• Bureau of Meteorology 2016 IFD Rainfall Data</li><li>• Comparing ARR 87 IFD to 2016 IFD at the location of the workshop</li><li>• Challenges with ARR 2019</li><li>• Demonstration of ARR 2019 Regional Flood Frequency Estimation (RFFE) Model</li><li>• Overview of Design Objectives<ul style="list-style-type: none"><li>• Safe Widths, Hazard Classifications, Freeboards</li></ul></li><li>• Overview of applying ARR 2019 procedures with the DRAINS software</li></ul>



## PROGRAM – DRAINS Core E-Learning

Exercise Duration (hrs)	Video Duration (hrs)	Parts	Details
0.5	0.5	1	<b>Chapter 1 – Introduction to DRAINS</b> Workshop Materials and The DRAINS Interface
3-4	2	7	<b>Chapter 2 – Assembling a DRAINS Model</b> Exercise 2 – Taree ARR 2019 Initial Loss - Continuing Loss (IL-CL) Q&A of setting up ARR 2019 Rainfall & Loss Models Importing DXF, Entering Pits, Pipes and Catchments DRAINS Overflow Routes DRAINS design, analysis and interpretation of results
0.5	0.5	3	<b>Chapter 3 – Large Drainage Networks with Open Channel Systems &amp; Horton ILSAX Hydrological Model</b> Large Drainage Networks with Open Channel Systems Storage Network Routing Module (SNRM) – RORB, RAFTS & WBNM Hydrological models in DRAINS The Horton ILSAX Hydrological Model
2.5	2.5	5	<b>Chapters 4, 5 &amp; 6 – Street Drainage System Design Procedures</b> <b>Premium Hydraulic Model (Caboolture 3a-c)</b> Discussing the full unsteady flow equations, spitting surface flows, spilling over road crowns & identifying flood affected floor levels <b>DRAINS Databases</b> Setting pipe design limits, importing new pipe & box culverts Creating on-grade & sag pits using the HEC-22 Wizard & Pits Spreadsheet Customisation & setting safe design limits of overflow routes <b>Design Considerations</b> Possible Overdesign and Model Optimisation (Caboolture 4) Automatic estimation of pit pressure change coefficients, Pre-and post-processing spreadsheets, Survey data defining surface levels and other services, Importing information from spreadsheets Flood Mapping with the DRAINS Premium Hydraulic Model Extras on Property Drainage & Large Models



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Exercise Duration (hrs)	Video Duration (hrs)	Parts	Details
1-3 depending on user experience	0.25	1	<b>Chapter 7 – Simple model at location of choice – OPTIONAL EXERCISE</b> Simple exercise providing participants with an excellent opportunity to practice and demonstrate their newly acquired skills suited for both first time users through to experienced DRAINS users.  The exercise requires participants to set up ARR 2019 hydrology data and configure database design parameters for a model location of their choosing, after which they will proceed through the design analysis and optimisation of their model.  On completion, participants can choose to send the model through for a summary review with recommendations for improvements.
1	1	2	<b>Chapter 8 – On-Site Detention Systems</b> Presentation on Detention Basins Example (Sydney OSD)
3-4	3	5	<b>Chapter 9 – Modelling Complex Detention Systems</b> Example - Medium-sized Basin System with Multi-Staged Outlets in Series Other Complex Detention Basin Examples with Multi-Staged Outlets in Parallel, Retention Chambers, High Early Discharge (HED) Modelling Pumps Modelling Diversion (Splitter) Pits & GPTs
0.75	0.75	1	<b>Chapter 10 – Other Aspects of DRAINS</b> Time steps DRAINS Pre-run checks & warnings Double Pipes & charged lines Water flowing backwards Sensitivity on catchment definitions Other optional exercises (A to Q)
0.10	0.10	1	<b>Data Exchange with Civil Site Design</b>