

You can buy the bundle from www.baipatra.ws



Baipatra.ws Hydroinformatics Bundle (CM1–CM20)

The Hydroinformatics Bundle offers tutorials on the following concepts and techniques, structured across 20 distinct course modules.

TECHNIQUE / CONCEPT	COURSE CODE(S)
Outlier detection (Chauvenet, Dixon–Thompson, Rosner’s methods)	CM1
Trend detection and runs test	CM1
Auto- and cross-correlation	CM1
Risk, vulnerability and Weibull plotting positions	CM1
Numerical and uncertainty analysis	CM1
Linear and non-linear regression	CM1
Nature-inspired optimization overview	CM2
Genetic Algorithm (GA)	CM2
Glowworm Optimization, mine burst, water cycle, cuckoo search	CM2
Dolphin echolocation and fish swarm optimization	CM2
Artificial Neural Networks (ANN)	CM4

fundamentals	
Polynomial Neural Networks (PNN)	CM4
GMDH and model performance metrics	CM4
ANN applications in water resource development	CM4
No-code ANN tools	CM4
Genetic Algorithm in multi-attribute decision problems	CM5
Multi-Attribute Utility Theory (MAUT)	CM6
Fundamentals and classification of optimization techniques	CM7
Constraints in optimization	CM7
Linear and non-linear programming	CM7
Dynamic programming and KKT conditions	CM7
Metaheuristics: GWO, mine burst, water cycle, cuckoo search	CM7
Contour mapping in Surfer for water-resources surfaces	CM8
Remote sensing and GIS terminology	CM9
Coordinate systems	CM9
Digitization workflows (maps and features)	CM9
GIS-based leak detection and penstock digitization	CM9
Classification of linear PDEs	CM10
Taylor series expansion	CM10
Convergence and stability conditions	CM10
Discretization of parabolic and elliptic PDEs	CM10
Gauss–Seidel iteration, Crank–Nicolson, finite differences	CM10
Richardson extrapolation	CM10
ELECTRE I and ELECTRE II	CM11

outranking methods	
Analytical Network Process (ANP)	CM12
Flood peak estimation methods	CM13
Rational method	CM13
Empirical flood formulae (Dickens, Ryves, Inglis, Fuller, Baird–McIllwraith)	CM13
Flood frequency and hydrologic frequency analysis	CM13
Urbanization adjustment factors	CM13
PMP-related flood studies	CM13
Basic flood-routing equations	CM14
Reservoir/level-pool routing	CM14
Modified Puls and Goodrich methods	CM14
Runge–Kutta routing (SRK)	CM14
Attenuation and lag concepts	CM14
Probability, PMP and IDF analysis	CM15
Rational equation numericals and peak flow formulae	CM15
Hydrologic risk, vulnerability, uncertainty, hydrographs, baseflow, unit/flood hydrographs	CM15
Bio-inspired optimization algorithms (GA, PSO, firefly, invasive weed, albatross, cat swarm, moth flame, ant colony, galactic swarm, hummingbird, grey wolf, etc.)	CM16
Artificial and polynomial neural networks	CM16
Neural training algorithms (quasi-Newton, Levenberg–Marquardt, conjugate gradient, Newton’s method)	CM16
Climate risk assessment in the tea industry	CM17
Risk analysis methods	CM17
Reliability analysis methods	CM17

You can buy the bundle from www.baipatra.ws

Numerical problems on risk and vulnerability	CM17
Circular economy and systems thinking in water industry	CM18
Case studies of circular water loops	CM18
MCDM frameworks, AHP and PROMETHEE for circular strategies	CM18
Hands-on MCDM project design for smart cities or industrial clusters	CM18
Probability analysis and plotting positions	CM19
PMP and IDF relationships	CM19
Peak flow empirical formulae	CM19
Optimal raingauge network design	CM19
Risk, vulnerability, uncertainty, hydrographs and baseflow separation	CM19
Unit and flood hydrographs	CM19
Definition and working principle of MCDM	CM20
WSM and WPM aggregation methods	CM20
Applications of MCDM in water resources	CM20