


The ICFAI University, Dehradun

Research and Development Cell

IUDRET-2022 Syllabus

Category	Area/Subject	IUDRET-2022 Topics
Common Topics (40% Weightage)	Research/Quantitative/ Analytical Aptitude	Meaning, Definition and Methods of Research, Steps of Research, Thesis and Article Writing, Application of ICT in Research, Research Ethics, Types of reasoning, Number series, Letter series, Codes and Relationships, Mathematical Aptitude (Fraction, Time & Distance, Ratio, Proportion and Percentage, Profit and Loss, Interest and Discounting, Averages etc.), Sources, acquisition and classification of Data, Quantitative and Qualitative Data, (Averages, Dispersion, Probability Distribution, Correlation and Regression, Graphical representation (Bar-chart, Histograms, Pie-chart, Table-chart and Line-chart) and mapping of Data, Data and Governance.
 Subject Specific Topics (60% Weightage)	Management	Capital Budgeting, Stock Market, Banking and Financial Institutions, Mutual funds, Security Analysis and Portfolio Management, Financial Services, Derivatives, Banking and Insurance, Accounting, Corporate Governance, Consumer Behaviour, Services Marketing, Advertising, Customer Relationship Management, Retail Management, Recent trends in Marketing, Digital marketing, Permission Marketing, Social Media Marketing, Marketing Research E- tailing, Micro and Macro Economics, Training and Development, Recruitment and selection, Performance management, Concepts and Perspectives on Human Resource Management; Employee Engagement TQM, Supply Chain Management, Excellence Models, Creativity & Innovation, Quantitative Techniques, Demand and Supply, Concept of Elasticity, Movement along the curve versus shift of the curve; Basic Utility Theory, Indifference Curves; Production Function, Average Cost, Marginal Cost, Short run, Long run cost curves; Perfect Competition and Monopoly; National Income (GDP, GNP) and multipliers, inflation, price index number.
	Law	Constitutional Law, Administrative Law, Criminal Law and Criminology, Intellectual Property Laws, Cyber Law, Corporate Law, Environmental Law, Human Rights Law, Family Law, International Law, Research Methods and Legal Writing.
	Mathematics	Volterra & Fredholm Integral equations, Linear Algebra, Real Analysis, Ordinary Differential equations, Numerical Analysis, Discrete Mathematics, Partial Differential Equations, Topology, Calculus of variations, Operations Research, Differential Geometry and Tensor.
	Computer Science & Engineering (CSE)	Fundamentals of Computer, C Programming, Object Oriented Programming; Computer architecture, Operating Systems, Data structures, Design Analysis and Algorithms, DBMS, Computer networks, Discrete Structures, Software Engineering, Computer networks, Fuzzy Logic, Basic of Machine Learning and AI.
	ECE (Electronics and Communication Engineering)	Wireless communications, Analog and Digital communication, Probability and Random processes, Computer networks, Power electronics, 8051 Microcontroller, Signal and systems, Digital Signal Processing, Image Processing, Biomedical Electronics, Digital Electronics Electron Devices and Circuits, VLSI Design & Technology



	Civil Engineering	<p>Environmental Engineering – Water and wastewater quality check and treatment processes.</p> <p>Water Resource - Hydrology, runoff and storm calculation, unit hydrograph, Strength of Materials- Simple stresses and strains, shearing forces and Bending Moments. Soil Mechanics and foundation - soil properties, effective stresses in soil, shallow and deep foundation.</p>
	Education	<p>Education: Meaning, nature Scope and Functions, Western Educational Philosophies: Idealism, Naturalism, Pragmatism, Realism, E-Existentialism, Great Educational Indian Thinkers: Rabindranath Tagore, Swami Vivekanand, Mahatma Gandhi, Sri Aurobindo Ghosh, Professionalism in Teacher Education: Human Rights and Global Changes facing Teacher Education, Emerging roles and responsibilities of teachers, NPE – Thrust area in Teacher Education, Education and Psychology: Learning Theories Intelligence- Its Theories and Measurement, Learning and Motivation, Meaning and scope of Educational Technology: Communication process, Concept and Nature of Special Education</p>

