The ICFAI University, Dehradun

Research and Development Cell (RDC)

IUDRET-2025 Syllabus

Category	Area/Subject	IUDRET-2025 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 and Distance, Ratio & Proportion) and percentage, profit and loss, Interest and Discount, Average), Sources, acquisition, and classification of Data, Quantitative and Qualitative Data, (Average, Dispersion Probability Distribution, Correlation, and Regression, Graphical representation (Bar-chart, Histogram, Pie-charts, Table-charts Line-charts), and mapping of Date, Data, and Governance.
Subject-Specific Topics (60% Weightage)	**Management**	Financial Management: an overview, Time Value of Money, Valuation of Bonds and Stocks, Capital Budgeting, Cost of Capital, Sources of Finance Capital Structure and Dividend Decision, Capital Market, Investment Avenues, Risk & Return Analysis, International Financial Management, 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 &; Macro Economics, Training, and Development, Recruitment & Selection, Performance Management, Concepts and Perspectives on Human Resource Management; employee Engagement TQM, Supply Chain Management, Excellence Models, Creativity, and 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, and Long run cost curves; Perfect Competition and Monopoly; National Income (GDP, GNP) and multiplier, inflation, and price index number.
	Law	Constitutional Law, Administrative Law, Criminal Law and Criminology, Intellectual Property Law, Cyber Law, Corporate Law, Environmental Law, Human Rights Law, Family Law, International Law, Research Methods and Legal Writing.
	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.
	Electronics and Communication Engineering (ECE)	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 (CE)	Environmental Engineering-Water and wastewater quality check and treatment processes. 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, Highway Geometric design, Traffic Engineering, Road Materials, Railway Engineering.
	Education	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, Curriculum studies: curriculum evaluation, development, models, curriculum reforms, Inclusive education: policies & practices Education for children with special needs. Vision of NEP 2020 for creating Inclusive Classrooms with special emphasis for including special needs students in mainstream classrooms, Inculcating Inclusive Education culture in School, Models for Including Special Needs students with disabilities into mainstream classrooms, NEP Short

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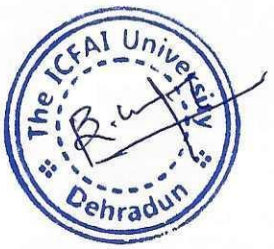
		Term Specialization Courses for teaching Children with Disabilities.
	Mathematics	Volterra and Fredholm Integral Equations, Linear Algebra, Real Analysis, Ordinary Differential Equations, Numerical Analysis, Discrete Mathematics, Partial Differential Equations, Topology, Calculus of Variations, Operations Research, Differential Geometry and Tensor, Functional Analysis
	Statistics	Probability Distribution: Binomial, Poisson and Normal, Test of significance: Large sample tests, small sample tests: t-test, F-test and Chi-square test (2), Correlation and Regression: Simple, rank, Partial, Multiple correlation and regression, Sampling and Design of Experiments: Random Sampling Stratified Sampling (4), RBD, CRD, LSD, Linear Programming: simplex method, Methods of Findings BFS for the transportation problems, Inference: Testing of hypothesis, simple against simple, properties of good estimators (4), Time Series: Methods of measuring: linear trend, seasonal variations, Vital Statistics: Measures of fertility and Mortality, Queues and Stochastic Processes: Basics of queues: Markov chain; Markov Process.