Comprehensive Viva

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Category	:	M.S. – Ph.D. Dual Degree – HTRA
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Course Outline for Comprehensive Viva

Data Analysis for Research-MS6031

- Describing and Summarizing Data.
- Introduction to Probability: Discrete and Continuous Distribution
- Bivariate distributions
- Functions of Random Variables
- Statistical Inference: Survey, Sampling and Sampling Distribution; Hypothesis testing and Confidence Intervals.
- Regression: Ordinary least square, Multiple regression and alternate form of regression
- ANOVA
- Analysis of Categorical data
- Overview of Advanced technique in Statistical learning and modelling

Research Methodology in Business and Management-MS7080

- Scientific approach to research, Natural Science Vs Social Science, research paradigms, epistemology and ontology in management research, positivism vs. interpretivism, subjectivism vs. objectivism.
- Foundations of theory, Categories of theory, theory building vs. theory testing, conceptualization and hypothesis testing.
- Types of Research – Conceptual, Descriptive, Experimental.
- Unit of Analysis, data, schema, process, design and value in business research
- Qualitative research in management, hermeneutics, social constructionism, ethnography, case study methods, interpretive vs. positivistic approach in case study, content Analysis
- Quantitative research – concepts, constructs and measurement, survey-based research, role of statistics in qualitative research, sample, sample frame, population, generalization.

Six Sigma and Lean Work-MS6470

- Six Sigma: Six Sigma basics and business metrics, Plan of a project/portfolio, The DMAIC Method, Design for Six Sigma (DFSS), The DMADV model
- Lean Work: Principles, Concepts and Practices, Eight types of waste, Lean Practices - Examples and Case Studies
- Lean Six Sigma: Integration of Lean and Six Sigma, Lean Six Sigma tools, Deployment principles and Success stories

Systems Thinking & Applications-MS5060

- The need for Systems Thinking
- Counter-intuitive Phenomena
- Problems: Recognition and Description
- Problems: Conceptual Representation and Specification
- Systems Structure: Concepts and Modelling Tools
- Systems Behaviour: Concepts and Modelling Tools
- Systems Control: Simulation and Policy Analysis

Simulation Modeling and Analysis-MS5520

- Systems and Modelling: Systems, sub-systems, parameters, variables, measures of performance, and types of models.
- Introduction to simulation: Qualitative and quantitative simulation
- Introduction to sampling: Sampling from historical data, empirical distributions and statistical distributions
- Applications of simulation: Study of inventory system, project network, replacement model, production and operations scheduling, supply chain, and queuing system; development of business games.
- Design of simulation experiments: Analysis of transient and steady states and run length; variance reduction techniques; use of statistical tests for output data analysis.
- Use of simulation software.