Course Name:	**Project Management**		
Course Code:	BBA-MJ-601	**Category:**	Management Science
Semester:	6th SEM	**Credit:**	4
L-T-P:	3-1-0	**Pre-Requisites:**	NIL
Full Marks:	100		
Examination Scheme:	Semester Examination:70	Continuous Assessment:25	Attendance:05

Course Objectives:	
1	Develop a comprehensive understanding of the core principles, terminology, and life cycle of project management.
2	Acquire the skills necessary to identify, evaluate, and select viable projects.
3	Gain proficiency in utilizing key project management methodologies, including and prepare them with project tools like PERT, CPM, and other techniques, PERT and CPM, and relevant planning and scheduling techniques.

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	**Meaning and Definition:** Characteristics and importance, selection and feasibility, Project life Cycle; Check list of feasibility report, Technical and Financial Analysis (NPV, ROI, IRR, PI).	10L
2	**Project Planning and Scheduling**: (Network Analysis, CPM, PERT, Crashing and Resource Optimization; Project Work Breakdown and structure, functions, activities, and tasks); Project cost estimation.	10L
3	**Project financing:** Project appraisal process by banks and financial institutions, Project Roles, Team Types, and Team Building. Organization structure for effective project implementation.	10L
4	**Project risk Management and Mitigation Strategies:** Social cost benefit analysis. Project Control. Project Management: measuring, monitoring and tracking techniques; Resource allocation and scheduling, and purchasing.	10L
Total		**40L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Explain the concepts of project management from planning to the execution of projects.
2	Interpret various steps as well as aspects involved in project management.
3	Apply the tools and techniques of project management along with their application in practice.

Learning Resources:	
1	Sitangshu Khatua: Project Management and Appraisal: Oxford.
2	Horold Kerzner: Project Management: A System Approach to Planning, Scheduling and Controlling: Wiley.
3	Project Management: Essential Managers, DK.
4	Dr. Raj Kumar Yadvendra Gullybaba.com Panel: MS-52 Project Management, Gullybaba, Publishing House Pvt. Ltd

Course Name:	**Business Research Methods-II**		
Course Code:	BBA-MJ-602 BBA-MJ-692	**Category:**	Management Science
Semester:	6th SEM	**Credit:**	4
L-T-P:	2-1-2	**Pre-Requisites:**	The concept of BRM
Full Marks:	100		
Examination Scheme:	Semester Examination:70	Continuous Assessment:25	Attendance:05

Course Objectives:	
1	Comprehend the fundamentals of business research including types of research. Understanding research problem and hypotheses, research process and design.
2	Master the principles of questionnaire design and survey methodology. Formulate different types of questions appropriate for various research objectives. Evaluate the advantages and disadvantages of using a questionnaire as a data collection instrument.
3	Develop a comprehensive understanding of sampling concepts and techniques. Explain and apply various probability and non-probability sampling methods.
4	Formulate research hypotheses and apply Statistical hypothesis testing.

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	**Introduction of Research:** Meaning, Types of Research, Importance, Research Process, Management Decision Problem vs Management Problem Identification Process, Defining the Research Problem, Components of the Research Problem, Nature and Classification of Research, Designs; Exploratory Research Designs: Secondary Resource analysis.	(3L+4P)=5
2	**Data collection and measurement**: Classification of Data; Secondary Data: Uses, Advantages, Disadvantages, Types and sources; Primary Data Collection: Observation Method, Focus Group Discussion, Personal Interview method. Attitude Measurement and Scaling: Types of Measurement Scales; Attitude; Classification of Scales: Single-item vs Multiple Item scale, Comparative vs Non-Comparative scales, Measurement Error, Criteria for Good Measurement.	(6L+8P)=10

3	**Questionnaire Design:** Questionnaire method; Types of Questionnaires; Advantages and Disadvantages of Questionnaire Method. Sampling: Sampling concepts- Sample vs Census, sampling vs non-sampling error, Sampling Design- Probability and Non-Probability Determination of Sample size- Sample size for estimating population mean, Determination of sample size for estimating the population proportion.	(3L+4P)=5
4	**Testing of Hypotheses**: Concepts in Testing of Hypothesis – Steps in testing of hypothesis, Test Statistic for testing hypothesis about population mean; Tests concerning Means- the case of single population; Tests for Difference between two population means; Tests concerning population proportion- the case of single population; Tests for difference between two population proportions.	(3L+4P)=5
5	**Data analysis:** Introduction to ANOVA, Multivariate techniques including Regression, Principal Components analysis, and Factor Analysis, Application of statistical software for data analysis through SPSS.	(6L+8P)=10
6	**Research Report Writing:** Types of research reports – Brief reports and Detailed reports; Report writing: Structure of the research report- Preliminary section, Main report, Interpretations of Results and Suggested Recommendations; Report writing: Formulation rules for writing the report: Guidelines for presenting tabular data, Guidelines for visual Representations.	(3L+4P)=5
Total		**40**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Identify research problems and formulate hypotheses for an effective outcome.
2	Select the appropriate type of data and design a relevant data collection process. Use suitable scaling techniques for attitude measurement. Classify numerical and categorical variables for data analysis.
3	Design a fitting questionnaire for data collection purposes. Select appropriate sample units, sample size, and types of sampling methods. Design a proper sampling design.
4	Formulate and test hypotheses using an appropriate statistical technique.
5	Apply SPSS software for multivariate data analysis.
6	Write a research report maintaining all its structure to present the research output.

Learning Resources:	
1	Business Research Methods – Donald Cooper & Pamela Schindler, TMGH.
2	Business Research Methods – Alan Bryman & Emma Bell, Oxford University Press.
3	Research Methodology – C.R. Kothari, New age International Publishing House

4	Research Methodology—Giri and Biswas, Sage Publication
5	Multivariate Data Analysis- Joseph F. Hair, Barry J. Babin, Rolph E. Anderson, William C. Black, Cengage Learning, 8th Ed., 2018, ISBN-13: 9789353501358.
6	Research Methodology- Paneerselvan, PHI Learning,

Course Name:	**Fundamentals of IoT**		
Course Code:	BBA-MI-601 BBA-MI-691	**Category:**	Management Science
Semester:	6th SEM	**Credit:**	
L-T-P:	2-1-2	**Pre-Requisites:**	NIL
Full Marks:	100		
Examination Scheme:	Semester Examination:70	Continuous Assessment:25	Attendance:05

Course Objectives:	
1.	To study the fundamentals of IoT
2.	To study about IoT Access technologies
3.	To study the design methodology and different IoT hardware platforms.
4.	To study the basics of IoT Data Analytics and supporting services.
5.	To study about various IoT case studies and industrial applications.

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1.	**FUNDAMENTALS OF IoT:** Evolution of Internet of Things, Enabling, Technologies, M2M Communication, IoT World Forum (IoTWF) standardized architecture, Simplified IoT Architecture, Core IoT Functional Stack, Fog, Edge and Cloud in IoT, Functional blocks of an IoT ecosystem, Sensors, Actuators, Smart Objects and Connecting Smart Objects.	(6L+4P)8
2.	**IoT PROTOCOLS- IoT Access Technologies:** Physical and MAC layers, topology and Security of IEEE 802.15.4, 802.11ah and Lora WAN, Network Layer: IP versions, Constrained Nodes and Constrained networks,6LoWPAN, Application Transport Methods: SCADA, Application Layer Protocols: CoAP and MQTT.	(6L+4P)8
3.	**DESIGN AND DEVELOPMENT:** Design Methodology, Embedded computing, logic, Microcontroller, System on Chips, IoT system building blocks, IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board details	(6L+4P)8

4.	**DATA ANALYTICS AND SUPPORTING SERVICES:** Data Analytics: Introduction, Structured Versus Unstructured Data, Data in Motion versus Data at Rest, IoT Data Analytics Challenges, Data Acquiring, Organizing in IoT/M2M, Supporting Services: Computing Using a Cloud Platform for IoT/M2M, Applications/Services, Everything as a service and Cloud Service Models.	(6L+4P)8
5.	**CASE STUDIES/BUSINESS APPLICATIONS:** IoT applications in home, infrastructures, buildings, security, Industries, Home appliances, other IoT electronic equipment, Industry 4.0 concepts.	(6L+4P)8
Total		**40**

Course Outcomes:	
After completion of the course, students will be able to:	
1.	Describe the evolution and fundamental concepts of the Internet of Things. Identify and explain the significance of various enabling technologies for IoT.
2.	Identify and differentiate between various IoT access technologies. Explain the fundamental principles and characteristics of key IoT access technologies (e.g., Wi-Fi, Bluetooth, Cellular, LoRaWAN, NB-IoT).
3.	Explain the fundamental principles and steps involved in the IoT design methodology. Identify and differentiate between various IoT hardware platforms based on their architecture, features, and applications.
4.	Explain the fundamental concepts and principles of IoT data analytics. Identify and describe the various stages involved in the IoT data analytics pipeline.
5.	Identify and describe diverse real-world applications of the Internet of Things (IoT) across various domains. Analyze and categorize different IoT case studies based on their application areas, technologies used, and benefits achieved.

Learning Resources:	
1.	IoT Fundamentals: Networking Technologies, Protocols and Use Cases for Internet of Things, David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton and Jerome Henry, Cisco Press, 2017
2.	Internet of Things – A hands-on approach, Arshdeep Bahga, Vijay Madisetti, Universities Press, 2015
3.	Internet of Things: Architecture, Design Principles And Applications, Rajkamal, McGraw Hill Higher Education

4.	The Internet of Things – Key applications and Protocols, Olivier Hersent, David Boswarthick, Omar Elloumi and Wiley, 2012 (for Unit2).
5.	"From Machine-to-Machine to the Internet of Things – Introduction to a New Age of Intelligence", Jan Ho¨ ller, Vlasios Tsiatsis, Catherine Mulligan, Stamatis, Karnouskos, Stefan Avesand. David Boyle and Elsevier, 2014.

Course Name:	**GenAI in Business**		
Course Code:	BBA-MI-602 BBA-MI-692	**Category:**	Management Science
Semester:	6th SEM	**Credit:**	
L-T-P:	2-1-2	**Pre-Requisites:**	NIL
Full Marks:	100		
Examination Scheme:	Semester Examination:70	Continuous Assessment:25	Attendance:05

Course Objectives:	
1.	Provide an overview of artificial intelligence, including its problems and techniques, introduce intelligent agents and their environments.
2.	Enable students to understand and apply various search techniques, including uniform search strategies (breadth-first search, depth-first search, depth-limited search, and bidirectional search).
3.	Cover knowledge representation issues, predicate logic, and probabilistic reasoning, including Bayesian networks, Dempster-Shafer theory, and fuzzy sets and logics.
4.	Provide an overview of natural language processing (including syntactic processing, semantic analysis, and discourse & pragmatic processing), learning (including various forms of learning, decision trees, explanation-based learning, neural networks, and genetic learning), and expert systems.

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1.	**Introduction:** Overview of Artificial intelligence- Problems of AI, AI technique, Tic- Tac - Toe problem. Intelligent Agents: Agents & environment, nature of environment, structure of agents, goal-based agents, utility-based agents, learning agents. Problem Solving: Problems, Problem Space & search: Defining the problem as state space search, production system, problem characteristics, issues in the design of search programs	(6L+ 4P)8
2.	**Search techniques:** Solving problems by searching: problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bidirectional search, comparing uniform search strategies. Heuristic search strategies: Greedy	(8L+ 10P) 13

	best-first search, A* search, memory bounded heuristic search: local search algorithms & optimization problems: Hill climbing search, simulated annealing search, local beam search, genetic algorithms; constraint satisfaction problems, local search for constraint satisfaction problems. Adversarial search: Games, optimal decisions & strategies in games, the minimax search procedure, alpha-beta pruning, additional refinements, iterative deepening.	
3.	**Knowledge & reasoning:** Knowledge representation issues, representation & mapping, approaches to knowledge representation, issues in knowledge representation.	(2L+ 4P)4
4.	**Using predicate logic:** Representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction. Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Fuzzy sets &fuzzy logics.	(4L+6 P)7
5.	**Natural Language processing:** Introduction, Syntactic processing, semantic analysis, discourse &pragmatic processing. Learning: Forms of learning, inductive learning, learning decision trees, explanation-based learning, learning using relevance information, neural net learning & genetic learning. Expert Systems: Representing and using domain knowledge, expert system shells, knowledge acquisition.	(6L+4 P)8
Total		**40**

Course Outcomes:	
After completion of the course, students will be able to:	
1.	understand the fundamental concepts and challenges in AI and the basics of intelligent agent design.
2.	understand and apply various search techniques, including uniform search strategies, to solve problems
3.	Understand and apply various methods for representing knowledge and reasoning in AI systems.
4.	understand the fundamental principles and applications of natural language processing, machine learning, and expert systems in AI.

Learning Resources:	
1.	Artificial Intelligence, Ritch & Knight, TMH
2.	Artificial Intelligence A Modern Approach, Stuart Russel Peter Norvig Pearson
3.	Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
4.	Poole, Computational Intelligence, OUP
5.	Expert Systems, Giarranto, VIKAS