MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
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Second Semester Detailed Syllabus

Course Name:	**Marketing and Consumer Behaviour**		
Course Code:	PGBA201	**Category:**	Management Science and Humanities Courses
Semester:	Second	**Credit:**	3
L-T-P:	3-0-0	**Pre-Requisites:**	Nil
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
1	To understand the basics of marketing management
2	Understand consumer behavior in an informed and systematic way
3	Analyze personal, socio-cultural, and environmental dimensions that influence consumer decision- making
4	Enable students in designing and evaluating the marketing strategies based on fundamentals of consumer buying behavior
5	Give the students a perspective to understand the application of market research in framing effective marketing strategies.

Course Contents:		
Module No.	**Description of Topic**	**Contact Hrs.**

1	**Marketing Concepts**: Approaches to Marketing; Marketing Mix; Functions of Marketing; Marketing Environment, The changing marketing environment, Analyzing needs and trends in Macro Environment and Micro Environment; The Marketing Process, Market Targeting and Positioning strategies; B2B and B2C marketing; New Product Development; Product Life Cycle	7L

2	**Consumer behavior**: Concept and Implications; Integration of consumer behavior in the marketing concept; Consumer Decision Making Process; Levels of consumer decision making; Types of Consumer Decision Making. Consumer Modeling:- Theeconomic model – Learning model- psychoanalytic model – The sociological model-The Howard Sheath model of buying behavior –The Nicosia model- The Engel – Kollat-Blackwell Model.	6L

3	**Key Determinants of Consumer Behavior and Marketing Strategy**: Providing Customer Value and Retention; Market segmentation: Concept, Bases and Significance; How market segmentation operates; Criteria for effective targeting of market segments; Target Marketing strategies	4L
4	**Consumer Motivation:** Dynamics of Motivation, type and systems of needs; Personality and theories of personality (relevant to marketing); Consumer diversity; Self and self-image; Consumer Perception; Dynamics of perception and consumer imagery; Consumer Learning; Behavioral and cognitive learning theories; Consumer Attitude; Attitude formation and behavior; Communication and consumer behavior .	7L
5	**Family**: Concept, Roles and influences; Reference groups and their influence; Social class and consumer behavior; Influence of culture on consumer behavior; Culture and core values; Influence of sub culture & cross culture on consumer behavior	4L
6	**Consumer Influence and the Diffusion of Innovations**: Opinion Leadership, WOM, e-WOM. New times, new consumers; Managing Consumer Dynamics; Consumer decision making and beyond; Consumer Satisfaction and Dissatisfaction: Mechanism; Managing Post-purchase behavior.	4L
7	A Brief Analysis of Consumer Research Paradigms and barriers to market research.	2L

Total		**34L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Demonstrate how knowledge of consumer behavior can be applied to marketing
2	Identify and explain factors which influence consumer behavior
3	Relate internal dynamics such as personality, perception, learning motivation and attitude to the choices consumers make
4	Use appropriate research approaches including sampling, data collection and questionnaire design for specific marketing situations
5	In a team, work effectively to prepare a research report on consumer behavior issues within a specific context.

Learning Resources:	
1	*Assael, H. Consumer Behaviour and marketing Action, Ohio, South Western, 1995*
2	*Engle, J F etc. Consumer Behaviour, Chicago, Dryden Press, 1993 Electives (Mktg*
3	*Howard, John A etc. Consumer Behaviour in marketing Englewood Cliffs, New Jersey, Prentice Hall Inc.1989*
4	*Hawkins, D I etc. Consumer Behaviour Implications for Marketing Strategy. Texas, Business, 1995*
5	*Mowen, John C. Consumer Behaviour , New York, MacMillan, 1993*
6	*Schiffman, L G and Kanuk, L L Consumer Behaviour New Delhi, Prentice Hall of India, 1994.*
7	*Batra, S.K. and Kazmi, S.H.H. (2009) Consumer Behavior Text and Cases 2nd Eds, Excel Books. ISBN: 978-8174466440 3.*

8	*Majumdar, Ramanuj. (2011) Consumer Behavior. Prentice Hall India. ISBN: 978-8120339637*

Course Name:	**Operations and Supply Chain Management**		
Course Code:	PGBA202	**Category:**	Management Science and Humanities Courses
Semester:	Second	**Credit:**	03
L-T-P:	3-0-0	**Pre-Requisites:**	Nil
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
1	Understand the important role of supply chains in today's business and economy
2	Understand and apply conceptual decision-support to operations and supply chain related decision problems
3	Develop and cultivate students' interests in SCM and critical thinking, to bridge the gap between classroom learning and real world application
4	An understanding of the primary differences between and supply chain management

5	An understanding of the **individual processes of operations and supply chain management** and theirinterrelationships within individual companies and across the supply chain

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	**Introduction to Production and Operations Management:** Functions of production management, relationship between production and other functions, types of production systems, product vs. services, product life cycle, production function, responsibilities of production manager. Production function and productivity. Productivity measurement: productivity indices; factors affecting productivity. Operations management objectives .	**4**
2	**Forecasting :** Types of Forecasting Methods - moving average, exponential smoothing, Regression analysis, Delphi, Market survey, Factors affecting forecasting, Use of forecasting in different functional areas of management, Demand patterns and selection of forecasting techniques, forecasting errors	**3**
3	**Operations Management:** Operations scheduling, Job shop, Batch shop and Service Systems. Management: Purchasing Procedure; Vendor Selection; Negotiation; Make	**6**

	or Buy decision, Inventory Management: Classification of inventory items – ABC, FSN, VED classification; Introduction to inventory models	
4	**Production Planning & Control :** Aggregate production planning strategies and methods, Master Production Schedule (MPS), Materials Requirement Planning (MRP) Concept, Product Structure and Bill of Material, Lot sizing in MRP Systems, Evolution from MRP to Manufacturing Resource Planning (MRP II), Concepts of ERP.	**5**

5	**Plant Layout and Location:** Need for a good plant location; factors influencing plant location, tangible and intangible factors; economic survey of site selection. Plant Layout: Need for a good plant layout; characteristics of a good layout; costs associated with plant layout; process layout vs. product layout; optimization in a process layout and product layout; assembly line balancing- concept and problems;	**4**
6	**Maintenance Management:** Types of Maintenance - Breakdown and Preventive Maintenance; Total Productive Maintenance (TPM)	2
7	**Work Study:** Definition and its Importance; Basic Procedure in Performing a Work Study; Method Study –Objectives and Procedure; Work Measurement–Objectives and Procedure; Concepts of Performance Rating, Basic Time, Allowances and Standard Time Supply Chain Basics and Matching Supply with Demand (e.g., supply chain strategic alignment, designing supply chain networks, managing multi-item inventory systems, managing currency risk).	**6**

8	**Managing Decentralized Supply Chains**: Supply chain coordination and contracting, supplier management, procurement auction, strategic sourcing, offshoring, supply disruptions managing production across the supply chain.	**4**
Total		**34L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Gain knowledge about the professional opportunities in operations and supply chain management
2	
	Leverage the students research interests and expertise to introduce the most recent advancement, and meet the evolving needs and challenges of today's supply chains

Learning Resources:	
1	Chary, S.N. – Production and Operations Management; TMH
2	Bedi, K. – Production and Operations Management; Oxford University Press
3	Essentials of Supply Chain Management, 4th Edition Michael H. Hugos, Wiley
4	ILO, Introduction to Work Study, Oxford and IBH Publishing,
5	Buffa, E. S. and Sarin, R.K. – Modern Production / Operations Management;
6	Panneerselvam, R. – Production and Operations Management, PHI

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Course Name:	**Human Resource Management**		
Course Code:	PGBA 203	**Category:**	Management Science and Humanities Courses
Semester:	Second	**Credit:**	02
L-T-P:	2-0-0	**Pre-Requisites:**	Nil
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:

	The main objective of the Human Resource Management are as follows: • To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. • To help the students focus on and analyse the issues and strategies required to select and develop manpower resources. • To develop relevant skills necessary for application in HR related issues. • To Enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions

Course Contents:		
Module No.	**Description of Topic**	**Contact Hrs.**
1	**Introduction to Human Resource Management:** Meaning, Function, Significance & Challenges of HRM, HR Policies **Strategic Human Resource Management (SHRM)** Meaning, Strategic HRM vs Traditional HRM, SHRM Process, barriers to SHRM. Nature of e-HRM, eRecruitment& Selection, e-Performance Management, e-Learning	**3L**
2	**Human Resource Planning:** Introduction to HRP, Various Methods of HRP Forecasting and HR Effectiveness **Recruitment and Selection :** Process, Sources, Methods of selection, Interviewing Methods, Skills and Errors. **Internal Mobility:** Introduction, Career Planning and Development, Culture Shock imaging (MRI). **Human Resource Development:**	**6L**

	Definition, objective, process of HRD, Assessment of HRD Needs, HRD Methods	
3	**Training & Developing Workforce and Organizational Development** Concept, need, method, importance & evaluation of training &development;Training and Non-Training, Training Process; Designing, Implementation and Evaluation of Training Programmes, Induction Training. Developing Managerial Skills for: team management, collaboration, interaction across business functions, presentation , Negotiation, and Networking principle of learning; Introduction to and Interventions in OD	**4L**
4	**Performance Management System :** Definition, importance, objectives, components and methods of performance management system. **Compensation Management :** Principal compensation issue, job evaluation, pay-structure, individual & group incentives. **Performance Appraisal Systems :** Purpose, Methods, Appraisal instruments, 360 degree Appraisal,HR Score Card, Errors in appraisal, Potential Appraisal, Appraisal Interview.	**5L**
5	**Global Human Resource Management** Introduction and Approaches to Global HRM, Expatriate Management: Training, Appraising and Planning, Components & Tools of Job Analysis **Contemporary Issues in Human Resource Management** Competency Mapping, HR Outsourcing, knowledge Management and Learning Organization	**3L**
6	**Social Security and Labour Welfare:** Concept of Social Security, Workers Participation in Management Significance and various social security legislations in India	**3L**
Total		**24L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	To develop the understanding of the concept of human resource management and to understand its relevance in organizations.
2	To develop necessary skill set for application of various HR issues.
3	To analyze the strategic issues and strategies required to select and develop manpower resources.
4	To integrate the knowledge of HR concepts to take correct business decisions.

Learning Resources:	
1	*George W Bohlander and Scott A Snell (2013), "Principles of Human Resource Management". Fifteenth Edition"; Thomson Publications.*
2	*VSP Rao, "Human Resource Management", (2010), Excel Books, 3rd Edition*
3	*K Aswathappa, "Human Resource and Personal Management" (2017) Tata McGraw Hill, 8th Edition*
4	*Stephen P. Robbins, "Human Resource Management", (2002), Pearson Education Asia.*
5	*Sarah Gilmore and Steve Williams (2014). "Human Resource Management". Oxford University Press.*
6	*Tayeb, M. (2005). International human resource management. Oxford University Press.*

7	*Agarwala T. - Strategic Human Resource Management,*
8	*Jyothi P. &Venkatesh, D.N. - Human Resource Management, OUP*
9	*Ramaswamy, E.A. - Managing Human Resources, OUP*
10	*Saiyadain, M.S - Human Resource Management : Tata McGraw Hill*
11	*MondalSabari&GoswamiAmal - Human Resource Management: Vrinda Publications*

Course Name:	**Data Science Using R/Python**		
Course Code:	PGBA204	**Category:**	CSE/ IT/ MCA
Semester:	Second	**Credit:**	03
L-T-P:	3-0-0	**Pre-Requisites:**	Python & Statistics
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
	This course is designed for covering all aspects of what you need to know to start in the fields of data science with practice notebooks which summarize all the skills you've learned. This course covers a lot of useful and essential topics including: • Basic process of data science • Python and Jupyter notebooks/ Spyderin Anaconda Navigator • Data Science Most Used Packages

	• An applied understanding of how to manipulate and analyze uncurated datasets • Basic statistical analysis and machine learning methods • How to effectively visualize results • Model Development • Model Refinement • Model Evaluation Techniques and more... All you need to know is Basic Python and basic statistics to start this course.

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	**Introduction to the Data Science in Python** • What is Data Science? • Data For the Course • Introduction to the Python Data Science Tool • Introduction to the Python Data Science Environment • Some Miscellaneous Jupyter notebooks/ Spyderin Anaconda Navigator Usage Facts	**3L**
2	**Introduction to Python Pre-Requisites for Data Science** • Rationale Behind This Section • Different Types of Data Used in Statistical & ML Analysis • Different Types of Data Used Programatically • Python Data Science Packages To Be Used	**3L**

3	**Introduction to Numpy** • Numpy: Introduction • Create Numpy Arrays • Numpy Operations • Matrix Arithmetic and Linear Systems • Numpy for Basic Vector Arithmetric • Numpy for Basic Matrix Arithmetic • Broadcasting with Numpy • Solve Equations with Numpy • Numpy for Statistical Operation	**4L**
4	**Introduction to Pandas** • Data Structures in Python • Read in Data • Read in CSV Data Using Pandas • Read in Excel Data Using Pandas • Reading in JSON Data • Read in HTML Data	**4L**
5	**Data Pre-Processing/Wrangling** • Rationale behind this section • Removing NAs/No Values From Our Data • Basic Data Handling: Starting with Conditional Data Selection • Drop Column/Row • Subset and Index Data • Basic Data Grouping Based on Qualitative Attributes • Cross tabulation • Reshaping • Pivoting • Rank and Sort Data • Concatenate • Merging and Joining Data Frames • Case study on Data Pre-Prossing	**5L**

6	**Introduction to Data Visualizations** • What is Data Visualization? • Some Theoretical Principles Behind Data Visualization	**6L**

	• Histograms-Visualize the Distribution of Continuous Numerical Variables • Boxplots-Visualize the Distribution of Continuous Numerical Variables • Scatter Plot-Visualize the Relationship Between 2 Continuous Variables • Barplot • Pie Chart • Line Chart • Case study on Data Visualization	
7	**Statistical Data Analysis-Basic** • What is Statistical Data Analysis? • Some Pointers on Collecting Data for Statistical Studies • Some Pointers on Exploring Quantitative Data • Explore the Quantitative Data: Descriptive Statistics • Grouping & Summarizing Data by Categories • Visualize Descriptive Statistics-Boxplots • Common Terms Relating to Descriptive Statistics • Data Distribution- Normal Distribution • Check for Normal Distribution • Standard Normal Distribution and Z-scores • Confidence Interval-Theory • Confidence Interval-Calculation	**5L**

8	**Statistical Inference & Relationship Between Variables** • What is Hypothesis Testing? • Test the Difference Between Two Groups • Test the Difference Between More Than Two Groups • Explore the Relationship Between Two Quantitative Variables • Correlation Analysis • Linear Regression-Theory • Linear Regression-Implementation in Python • Conditions of Linear Regression • Conditions of Linear Regression-Check in Python • Differentiate between Machine Learning and Statistical Data Analysis? • Case study on Linear Regression	**7L**

Total	**37L**

Course Outcomes:	
After completion of the course, students will be able to:	
	Students will be able to analyze and manipulate data with python and will be expert on the following fields and hence be able to start their career in this field. • Python data analytics - Install Anaconda & Work Within The iPytjhon/Jupyter Environment, A Powerful Framework For Data Science Analysis • Python Data Science - Become Proficient In Using The Most Common Python Data Science Packages Including Numpy, Pandas, Scikit&Matplotlib • Data analysis techniques - Be Able To Read In Data From Different Sources (Including Webpage Data) & Clean The Data • Data analytics - Carry Out Data Exploratory & Pre-processing Tasks Such As Tabulation, Pivoting & Data Summarizing In Python • Become Proficient In Working With Real Life Data Collected From Different Sources • Carry Out Data Visualization & Understand Which Techniques To Apply When • Carry Out The Most Common Statistical Data Analysis Techniques In Python Including T-Tests & Linear Regression • Understand The Difference Between Machine Learning & Statistical Data Analysis • They can theoretically understand the Machine Learning Models, basic of Neural Networks & Deep Learning Algorithms

Learning Resources:	
1	Python Data Science Handbook By Jake Vander Plas; Publisher: oreilly

2	Python for Everybody By Dr Charles R. Severance
3	Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Editionby Wes McKinney; Publisher: oreilly
4	Automate the Boring Stuff with Python: Practical Programming for Total Beginners by Al Sweigart
5	Mastering python for data science, Samir Madhavan
6	Introduction to linear algebra - by Gilbert Strang
7	Applied statistics and probability for engineers – by Douglas Montgomery

Course Name:	**Introduction to Soft Computing**		
Course Code:	**PGBA 205**	**Category:**	MBA
Semester:	First	**Credit:**	2
L-T-P:	2-0-0	**Pre-Requisites:**	Basic concepts of Computer
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
1	To provide the students with the concepts of soft computing techniques such as neural networks, fuzzy systems, genetic algorithms
2	To develop the ability to apply knowledge of Soft Computing for solution of Business problems.

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	**Introduction:** Introduction: Introduction to soft computing; introduction to fuzzy sets and fuzzy logic systems; introduction to biological and artificial neural network; introduction to Genetic Algorithm.	3

2	*Fuzzy sets and Fuzzy logic systems:* **Classical Sets and Fuzzy Sets and Fuzzy relations** : Operations on Classical sets, properties of classical sets, Fuzzy set operations, properties of fuzzy sets, cardinality, operations, and properties of fuzzy relations. **Membership functions** : Features of membership functions, standard forms and boundaries, different fuzzification methods. **Fuzzy to Crisp conversions**: Lambda Cuts for fuzzy sets, fuzzy Relations, Defuzzification methods. **Classical Logic and Fuzzy Logic**: Classical predicate logic, Fuzzy Logic, Approximate reasoning and Fuzzy Implication **Fuzzy Rule based Systems**: Linguistic Hedges, Fuzzy Rule based system – Aggregation of fuzzy Rules, Fuzzy Inference System- Mamdani Fuzzy Models – Sugeno Fuzzy Models. **Applications of Fuzzy Logic**: How Fuzzy Logic is applied in Home Appliances, General Fuzzy Logic controllers, Basic Medical Diagnostic systems and Weather forecasting	8
3	***Neural Network*** **Introduction to Neural Networks**: Advent of Modern Neuroscience, Classical AI and Neural Networks, Biological Neurons and Artificial neural network; model of artificial neuron. **Learning Methods** :Hebbian, competitive, Boltzman etc., **Neural Network models**: Perceptron, Adaline and Madaline networks; single layer network; Back-propagation and multilayer networks. **Applications of Neural Networks**: Pattern Recognition and classification	8
4	**Genetic Algorithms:** Simple GA, crossover and mutation, Basics of Multi-objective Genetic Algorithm (MOGA). **Solving Optimization problem using GA**	6
5	**Introduction to Rough Set Theory** **Indiscernibility Relations, Reducts, Rough Approximations and Applications**	~~3~~
Total		**28L**

Course Outcomes:	
After completion of the course, students will be able to get an idea on:	
1	Artificial Intelligence, Various types of production systems, characteristics of production systems.
2	Neural Networks, architecture, functions and various algorithms involved.

3	Fuzzy Logic, Various fuzzy systems and their functions.
4	Genetic algorithms, its applications and advances
5	The unified and exact mathematical basis to some extent as well as the general principles of various soft computing techniques.

Learning Resources:	
1	Fuzzy logic with engineering applications, Timothy J. Ross, John Wiley and Sons.
2	S. Rajasekaran and G.A.V.Pai, "Neural Networks, Fuzzy Logic and Genetic Algorithms", PHI
3	. Principles of Soft Computing , S N Sivanandam, S. Sumathi, John Wiley & Sons
4	Genetic Algorithms in search, Optimization & Machine Learning by David E. Goldberg
5	. Neuro-Fuzzy and Soft computing, Jang, Sun, Mizutani, PHI
6	. Neural Networks: A Classroom Approach,1/e by Kumar Satish, TMH,
7	Genetic Algorithms in search, Optimization & Machine Learning by David E. Goldberg, Pearson/PHI
8	A beginners approach to Soft Computing, Samir Roy &UditChakraborty, Pearson

Course Name:	Management Information System		
Course Code:	PGBA206	**Category:**	CSE/IT/MCA
Semester:	Second	**Credit:**	04
L-T-P:	4-0-0	**Pre-Requisites:**	Nil
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
1	Provide learners with comprehensive knowledge and technical skills needed to successfully participate in and support the increasingly applied role of information technology in corporate decision making
2	Enable graduates to conceptualize and manage the specification, design and implementation of applied information systems
3	Provide the knowledge of contemporary issues related to the field of managing information systems, develop knowledge and skills required to work effectively in a professional manner
4	Enhance self-confidence, effective communication and ability to make proper decisions

Course Contents:		
Module No.	**Description of Topic**	**Contact Hrs.**
1	**UNDERSTANDING MANAGEMENT INFORMATION SYSTEMS(MIS)** Introduction to Management Information Systems, History of MIS, Impact of MIS, Role and Importance, MIS Categories, Managers and Activities in IS, Types of Computers Used by Organizations in Setting up MIS, Hardware support for MIS [2L] **CONCEPTUAL FOUNDATIONS** The Decision Making Process, System Approach to Organizational Problem Solving, The Structure of Management Information System [2L] **KINDS OF INFORMATION SYSTEMS** Concepts of Management Organization, Types of Management Systems	**5L**

	[1L]	
2	**PLANNING AND CONTROL** Differences between planning and control information, Flow of business information, Systems Analysis, Systems Design. [2L] **MIS PLANNING AND DEVELOPMENT** Forming Policies, Planning, Continual development, Business Intelligence [2L] **MIS AND BPR** Business Process Re–Engineering, Improving a process in BPR, Object Oriented methodology, BPR – Current Focus [2L]	**6L**
3	**MIS ORGANIZATION STRUCTURE** MIS at Management levels, Strategic Level Planning, Operational Level Planning, Economic and Behavior Theories. [2L] **ENTERPRISE RESOURCE PLANNING** Basics of ERP, Evolution of ERP, Enterprise Systems in Large Organizations, Benefits and Challenges of Enterprise Systems, ERP to support decision making [4L] **E-ENTERPRISE SYSTEM** Managing the E-enterprise, Organization of Business in an E-enterprise, E-business, E-marketing, E-commerce, E-communication, E-collaboration, [3L]	**9L**
4	**TRENDS IN MIS** Decision Support Systems (DSS), Data Collection and analysis, Role of Artificial Intelligence(AI) & Machine learning(ML) for making prediction supporting DSS [5L]	**11L**

	SUPPORT MODELS AND KNOWLEDGE MANAGEMENT Philosophy of Modeling, DSS: Deterministic Systems, Market Research Methods, Ratio Analysis for Financial Assessment, Management Science Models, Procedural Models, Project Planning and Control Models, Cost Accounting Systems, Operations Research Models: Mathematical Programming Techniques, Knowledge Management. [6L]	
5	**ORGANIZATION AND COMPUTER NETWORKS** Basics of computer systems, Basic Network Terminologies, Definitions and Application, The Intranet and the Extranet, Role of network in decision making [4L] **DATABASE MANAGEMENT SYSTEM** Types of Database Users, DBMS, Designing of DBMS to support operations and decisions [4L]	**8L**
6	**STRATEGIC MANAGEMENT INFORMATION SYSTEMS** Introduction, Background, Performance, Product differentiation and Value Chain, How IT influences Organizations' goals, The five levels, Governance Modes in the use of IT.[3L] **SECURITY AND ETHICAL ISSUES** Introduction, Control Issues in Management Information Systems, Security Risks and Hazards, Ethical Issues, Technical solutions for Privacy Protection. [4L]	**6L**
Total		**45L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Understand the basic concepts, technologies and role of a management information system.

2	Understand the methodology of developing information systems(IS).
3	Develop cost-effective Information Systems (IS) that support operational, managerial, and strategic activities of organizations.
4	Coordinate confidently and competently with the user community in IS requirements analysis/design activities and provide guidance and technical support to end user computing activities,
5	Analyze the impact of computing on individuals, organizations and society, including ethical, religious, legal, security and global policy issues.

Learning Resources:	
1	Robert Schultheis and Mary Summer, Management Information Systems – The Managers View, Tata McGraw Hill, 2008.
2	Kenneth C. Laudon and Jane Price Laudon, Management Information Systems – Managing the digital firm, PHI Learning / Pearson Education, PHI, Asia, 2002.
3	Gordon Davis, Management Information System: Conceptual Foundations, Structure and Development, Tata McGraw Hill, 2000.
4	Haag, Cummings and McCubbrey, Management Information Systems for the Information Age, McGraw Hill, 2005.
5	Turban, McLean and Wetherbe, Information Technology for Management – Transforming Organisations in the Digital Economy, John Wiley, 2007.
6	Raymond McLeod and Jr. George P. Schell, Management Information Systems, Pearson Education, 2007.
7	James O Brien, Management Information Systems – Managing Information Technology in the E-business enterprise, Tata McGraw Hill, 2002.
8	Corey Schou and Dan Shoemaker, Information Assurance for the Enterprise – A Roadmap to Information Security, Tata McGraw Hill, 2007.

9	Frederick Gallegor, Sandra Senft, Daniel P. Manson and Carol Gonzales, Information Technology Control and Audit, Auerbach Publications, 2007.

Course Name:	**Operations Research**		
Course Code:	PGBA 207	**Category:**	Basic Science Courses
Semester:	First	**Credit:**	03
L-T-P:	3-0-0	**Pre-Requisites:**	High School Mathematics
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
1	To impart knowledge of LPP
2	To focus on more practical than theoretical.
3	To Learn application in Business decision process and Management.
4	To do proper analysis informs the judgment of the ultimate decision-maker

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	**Linear Programming:** ➢ Introduction to Operations Research ➢ Formulating maximization/minimization problems, Graphical solution ➢ Simplex method, Artificial Variables – Big M – Method, Special cases of LP ➢ Duality of LP and its interpretation ➢ Sensitivity Analysis, Applications of LP.	**8L**
2	**Transportation Problems:** ➢ Mathematical formulation of transportation problem ➢ North West Corner Method ➢ Vogel's Approximation method ➢ MODI method-loops in transportation table - Degeneracy	**8L**

3	**Assignment Problems:** ➢ Mathematical statement of the problem-Hungarian method of solution - Maximization case in assignment problem—unbalanced assignment problem - restrictions on assignment ➢ Travelling salesman problem	**6L**
4	**Networking:** ➢ CPM/PERT analysis ➢ Dijkstra's Algorithm ➢ Floyd's Algorithm	**10L**
5	**Theory of Games:** ➢ Two person zero sum games ➢ Pure strategies - games with saddle points - rules to determine saddle points ➢ Mixed strategies - Game without saddle points - the rules of dominance - Methods of solution for games without saddle points ➢ Algebraic methods, graphical methods	**8L**
Total		**40L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Facilitate Objective Solutions in Business Decision Making
2	Be able to understand the characteristics of different types of decision-making
3	Be able to build and solve Transportation Models and Assignment Models
4	Be able to design new simple models, like: CPM, MSPT to improve decision –making
5	Be able to control Inventory in Business Sectors
6	Draw Conclusions over pay-off matrix with the concepts of Game Theory
7	Extract the Optimum value in constrained and unconstrained situations

Learning Resources:	
1	*Hillier, and Lieberman, Introduction to Operations Research*. 10th Edition, McGraw-Hill Education private limited, 2017
2	Hamdy A. Taha, "Operations Research: An Introduction", 10th Edition,Pearson,2017
3	PanneerselvamR.,"Production& operations management", Prentice Hall India private limited, 2012
4	Mahapatra.,"Operations Management", Prentice Hall India private limited,2010
REFERENCE BOOKS:	
1.	SaxenaJ.P.,"Production and Operations Management",McGraw-Hill Education private limited, 2008
2.	Richard B Chase.,"Operations Management",McGraw-Hill Education private limited, 2010.
3.	Mukherjee P.N., "Operations Management and Productivity techniques" Prentice Hall India private limited, 2009

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Course Name:	**Business Research Methods**		
Course Code:	PGBA 208	**Category:**	Basic Science Courses
Semester:	Second	**Credit:**	02
L-T-P:	2-0-0	**Pre-Requisites:**	High School Mathematics
Full Marks:	100		
Examination Scheme:	Semester Examination: 70	Continuous Assessment: 25	Attendance: 05

Course Objectives:	
1	Conceptualize business problems in statistical terms
2	Enhance the understanding and application of fact and evidence based decision making process
3	Learn the application of advanced statistical techniques
4	Appreciate the use of statistical thinking
5	Have a basic awareness of data analysis, including descriptive & inferential measures

Course Contents:

Module No.	**Description of Topic**	**Contact Hrs.**
1	Introduction to Research – Business & Management Research – Research Characteristics – Research Approaches – Types of Research - Significance – Research process – characteristics of good research– Types of Research – Problems in research – identifying research Problem- Theoretical-Framework/ 'Literature Survey- Exploratory Descriptive Studies – Cross Sectional & longitudinal studies.	**6L**
2	RESEARCH DESIGN AND MEASUREMENT|: Research design – Definition – types of research design – Exploratory, Descriptive, Causal, and Formulation of hypothesis – different types of experimental design-.	**4L**

	Scaling techniques meaning, types of scales–Hypothesis testing Statistical significance, statistical test procedure.	
3	SAMPLING AND DATA COLLECTION Sampling Techniques – Probability and Non–probability sampling methods- Data Collection – Types of data –Primary and Secondary data – Methods of primary data collection –Observation, Interview, Questionnaire and Schedule – Construction of questionnaire – pilot study – case study	**6L**
4	DATA PREPARATION AND ANALYSIS Data Preparation – editing – Coding –Data entry-Test of significance – Assumptions about Parametric and nonparametric tests. Parametric tests - Introduction ANOVA- Application of Statistical software for data analysis.	**6L**
5	REPORT DESIGN AND WRITING Introduction - Research Report - Research Proposal – Different types – Contents of report – Important Parts – Title, Table of Contents – Synopsis, bibliography - Introductory Section – Research Design - Result Section – Recommendation & Implementation Section	**6L**
Total		**28L**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Take up business decisions in terms of statistical terms
2	Enhance their understanding in decision making process
3	Able to use statistical techniques in advanced mode
4	Use Statistical thinking in taking effective decision
5.	Be able to write & develop independent thinking for critically analyzing research reports.

Learning Resources:	
1	Kothari, C.R., Research Methodology", Methods and Techniques, New Age International,6th Edition, 2010.
2.	Gupta, S L & Gupta, H (2012), Business Research Methods, TMHE Pvt. Ltd, ISBN: 978-1-25-900503-9.
3.	Gupta and Kapoor (2014), Fundamentals of Applied Statistics, Sultan Chand & Sons, ISBN: 978-8180547058.

4.	Krishnaswamy, K N, Siva Kumar, A I and Mathirajan,M(2011),Research Methodology, Pearson,ISBN: 978-81-7758-563-6.
5.	Gupta and Kapoor, (2002), Fundamentals of Mathematical Statistics, Sultan Chand & Sons, ISBN:81-7014-791-3.
6.	Chawala, Deepak &Sondhi, Neena (2016),Research Methodology- Concept &Cases, VikasPublication,ISBN:978-93259-8239-0.
7.	Easwaran, S &Singh,S J(2010), Marketing Research, OXFORD University Press,ISBN:978-0-19-567696-9.
REFERENCE BOOKS:	
1.	Panneerselvam, R., "Research Methodology", Prentice-Hall of India, New Delhi, 7Th Edition,2004.
2.	Donald R. Cooper, Pamela S. Schindler and J K Sharma, Business Research methods,11th Edition, Tata McGraw Hill, New Delhi, 20.
3.	Wilson,J(2013), Essential of Research Methods,SAGEPublication,ISBN: 9781446257333.
4.	Mark Saunders,Lewis,P. &Thornhill, A.(2015), Research Methods for Business Students, Pearson Education,ISBN: 978-1292016627

PGBA 281: BRM Projects: No credit

Students needs to write a research paper on any relevant topic pertaining to management domain and use software's such as Python, R or SPSS to obtain any financial derivation and conclusion. It must be mandatorily submitted by all students within a time frame. Regular classes would not be held for this course

Course Name:	**Personality Development Lab**		
Course Code:	PGBA291	**Category:**	Management Science and Humanities Courses
Semester:	Second	**Credit:**	2
L-T-P:	0-0-4	**Pre-Requisites:**	1.Students must have basic knowledge of English language
Full Marks:	100		
Examination Scheme:	Semester Examination: 60	Continuous Assessment: 35	Attendance: 05

Course Objectives:	
1	To develop a positive Personality which is more attuned to Corporate Life
2	Develop Employability quotient

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Course Contents:		
Module No.	**Description of Topic**	**Contact Hrs.**
1	**INTRODUCTION TO PERSONALITY DEVELOPMENT** *The concept of PERSONALITY* - significance of personality development. *The concept of SUCCESS and FAILURE* - What is success? - Hurdles in achieving success - Overcoming hurdles - Factors responsible for success – What is failure - Causes of failure. *ATTITUDE* - Concept - Significance - Factors affecting attitudes - Positive attitude and its Advantages – Negative attitude and its Disadvantages - Ways to develop positive attitude - Differences between people / personalities with positive and negative attitude. Concept of motivation and Significance. *SELF-ESTEEM* - Esteem, Self-esteem – Significance and importance. *INTERPERSONAL RELATIONSHIPS* - Interpersonal Relationships – Defining the difference between aggressive, submissive and assertive behaviours - Lateral thinking	4
2	*Non-verbal communication* - Personality Grooming, Executive Corporate Attire, Good manners and etiquettes, Work Place Etiquettes, Body Language, Building Self Confidence, Positive Attitude, Self-Motivation, Creative Thinking.	2
3	Honing *Listening Skills* and its sub skills through Language Lab Audio device	2
4	Honing *Speaking Skills* and its sub skills: Pronunciation, Phonetics, Voice modulation, Stress, Intonation, Pitch and Accent of connected speech - Developing Speaking habits, Story narrations, Verb Patterns, Time management, Public speaking – significance	4
5	Honing *Conversational Skills* using Language Lab Audio –Visual input - Conversational Practice Sessions (Debate / Role Play / Reporting), Listening and Feedback	4
6	Introducing *Group Discussion* through audio –Visual input and acquainting them with key strategies for success. Group etiquettes, GD Practice Sessions to understand the basic Principles (turn-taking, creative intervention, courtesies & other soft skills) of GD.	6
7	Honing *Reading Skills* and its sub skills. Reading Skills for Effective Business Communication: Introduction - What is reading - Types of reading, SQ3R Technique of Reading	2
8	Mind Maps – visualization of thought – radial vs sequential way of visualization – mind map as a tool for organizing thought and improving clarity - hierarchy in mind maps – software tools for mind maps viz. FreeMind, MindMeister, XMind, MindJet, MS Visio, LucidChart etc.	2

9	*Presentation Skills* – Planning, Preparation, Using Visual tools (e.g. MS Powerpoint) and Delivery	6
10	*Negotiations Skills*: What is negotiation? – nature and need for negotiation – factors affecting negotiation –stages of negotiation process – negotiation strategies.	2
11	*Meetings* – Planning meetings – objectives – participants – timing – venue of meetings – minutes of meeting - leading meetings.	2
12	Communication: face to face communication - telephonic conversation. Media management – the press release- press conference – media interviews Seminars – workshop – conferences.	
13	Mock Interview sessions	4
14	Conflict and Stress Management - Decision-making skills -Qualities of a successful leader - Character-building -Team-work - Time management - Work ethics, Psychometric Analysis	8
Total		**48**

Course Outcomes:	
After completion of the course, students will be able to:	
1	**Develop** and exhibit a positive personality and nurture a deep understanding of **personal** motivation
2	**Develop** an understanding of and practice **personal** and professional responsibility
3	Demonstrate knowledge of **personal** beliefs and values and a commitment to continuing **personal** reflection and reassessment
4	Acquire the skills to manage stress and conflict.
5	Demonstrate strong verbal and non- verbal communication skills and become employable

Learning Resources:	
1	How to Win Friends and Influence People. Dale Carnegie
2	Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011
3	Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press
4	Lateral Thinking – Creativity Step by Step. Edward de Bono
5	Mind Map Mastery: The Complete Guide to Learning and Using the Most Powerful Thinking Tool in the Universe. Tony Buzan.
6	Kulbhushan Kumar, R S Salaria, Effective Communication Skills, Khanna Publishing House, Delhi.
7	Failing Forward: Turning Mistakes into Stepping Stones for Success, John C Maxwell
8	Gajendra Singh Chauhan, Smita Kashiramka and L. Thimmesha. Functional English. Cengage , 2019

9	Getting things Done - The Art of Stress-free productivity by David Allen
10	Soft Skills: Key to success in Workplace and Life, Meenakshi Raman and Shalini Upadhyay
11	50 Mantra's of Personality Development, Arti Gurav.
12	Six Thinking Hats. Edward de Bono
13	The 10X Rule: The Only Difference between Success and Failure. Grant Cardone
14	Make The Most of Your Mind. Tony Buzan.

Course Name:	**Data Mining Techniques Lab using R/Python**		
Course Code:	PGBA 292	**Category:**	CSE/ IT/ MCA
Semester:	Second	**Credit:**	2
L-T-P:	0-0-4	**Pre-Requisites:**	Python & Statistics
Full Marks:	100		
Examination Scheme:	Semester Examination: 60	Continuous Assessment: 35	Attendance: 05

Course Objectives:	
	This course is designed in a practical way to teach Students the Advance Python and Data Science. A complete course packed with step-by-step instructions, working examples, and helpful advice. This course is clearly divided into small parts that will help you understand each part individually and help you learn at your own pace. To develop the ability to apply the programming skills and Analyze the real life Data

Course Contents:

Module No.	Description of Topic	Contact Hrs.
1	Lab1: Installation Python/ Jupyter Environment and Revision of basic Python functionality	4
2	Lab 2: Simple computational problems on "Numpy" Environment	8
3	Lab 3: Simple computational problems on "Pandas" Environment	8
4	Lab 4: Program on Data Pre-Processing; Implementation of different preprocessing algorithms as mentioned in PGBA206 Module No. 5.	8
5	Lab 5: Implementation of Different Data Visualizations Techniques as mentioned in PGBA206 Module No. 6.	8
6	Lab 6: Implementation of Basics Statistical functions including different distributions and its testing (Hypothesis Testing in Python)	4
7	Lab 7: Implementation of • Linear Regression	8
8	Lab 8: Implementation of Box Plot on a suitable data set(Case Study)	4
Total		**52P**

Course Outcomes:	
After completion of the course, students will be able to:	
	Do several hands-on assignments and built a portfolio of data science projects so that they have enough confidence to plunge into an exciting profession in Data Science.

Learning Resources:	
1	Tan, Steinbach, Karpathe, Kumar, Introduction to data mining, 2nd edition, Pearson, 2019
2	Han, Kamber, Pei Data mining: concepts and techniques, 3rd edition, Morgan Kaufmann, 2011
3	Kent D. Lee , Python Programming Fundamentals, Springer, 2015
4	Jake VanderPlas, Python Data Science Handbook: Essential Tools for Working with Data, O'Reilly, 2016

Course Name:	Business Research Methods Lab including Excel and SPSS		
Course Code:	PGBA 293	**Category:**	Basic Science Courses
Semester:	Second	**Credit:**	02
L-T-P:	0-0-4	**Pre-Requisites:**	Computer Basics
Full Marks:	100		
Examination Scheme:	Semester Examination: 65	Continuous Assessment: 35	Attendance: 05

Course Objectives:	
1	Provide learners with comprehensive knowledge of MS Office Applications
2	Provide inputs of Business Research through Advanced Excel
3	Introduce the core concepts and applications of SPSS Software

Course Contents:		
Module No.	**Description of Topic**	**Contact Hrs.**
1	**MS word** Creating, editing, saving and printing text documents¬ Font and paragraph formatting¬ Simple character formatting¬ Inserting tables, smart art, page breaks¬ Using lists and styles¬ Working with images¬ Using Spelling and Grammar check¬ Understanding document properties¬ Mail Merge	**2**
2	**Ms. Excel** Spreadsheet basics¬ Creating, editing, saving and printing spreadsheets¬ Working with functions¬ & formulas Modifying worksheets with color¬ & auto formats Graphically representing data : Charts¬ & Graphs, Solving linear constraints problem graphically in Excel and using Excel solver. Speeding data entry : Using Data Forms¬ Analyzing data : Data Menu, Subtotal, Filtering Data¬ Formatting worksheets¬ Securing¬ & Protecting spreadsheets.	**5**
3	**Ms. Power Point** Opening, viewing, creating, and printing slides¬ Applying auto layouts¬ Adding custom animation¬ Using slide transitions¬ Graphically representing data : Charts¬ & Graphs Creating Professional Slide for Presentation.¬	**3**
4	**Advanced Excel** **Formulas & Macros Formulas:** • Use the Function Wizard, Common functions • (AVERAGE, MIN, MAX, COUNT, COUNTA, ROUND, INT) • Nested functions , Name cells /ranges /constants • Relative, Absolute, Mixed cell references : >,<,= operators • Logical functions using IF, AND, OR, NOT • The LOOKUP function , Date and time functions , Annotating formulas **DATA Analysis :** • Sub Total Reports, Auto Filter • Password Protecting Worksheets • Linking Multiple Sheets • Sheet Referencing • Linking Between Word/Excel/Ppt **Functions : LOOKUP, VLOOKUP, HLOOKUP, COUNTIF, SUMIF** • What-if-analysis • GOAL SEEK	**8**

	• NESTED IF • Reporting • Character Functions • Date Functions • Age Calculations • Consolidation of Data • Data Validation **Develop the Worksheet** • Plan a worksheet , Row and Column labels • Split worksheet /box /bar, Copy data and formulas • Display /move toolbars , Enhance worksheet Appearance **Special Operations** • Use multiple windows : Copy/ paste between Worksheets • Link worksheets , Consolidate worksheets • Import and link from other Applications • Use AutoFormat : Create, use and modify styles and templates • Print features : Create /edit an outline • Graphic Operations: • Create charts , Enhance charts, Drawing toolbar features	
5	**SPSS** 1. Getting to Know SPSS: Starting SPSS, Working with data file, SPSS windows, Menus, Dialogue boxes. Preparing the Data file: Creating data file and entering data, Defining the variables, Entering data, modifying data file, import file. Screening and cleaning data, Manipulation of data. 2. Preliminary Analysis Descriptive statistics: Categorical variables, continuous variables, checking normality, outliers checking. Choosing the right statistics: Overview of different statistical techniques, Decision making process. 3. Statistical techniques: Explore relationship among variables Correlation: Pearson product moment correlation, Spearman rank correlation, Partial correlation, Simple linear regression, Multiple Linear Regression: Assumptions, overall significance, multi-collinearity, Variable selection methods. 4. Statistical techniques: Specified Mean, Specified proportion, Compare means, One sample and two Independent sample t test, Paired	**28**

	sample t test, Test for variance, One way Analysis of variance, Two way ANOVA, Multivariate ANOVA, Analysis of Covariance, Repeated measures . 5.Non-Parametric statistics Independent Chi square Test, Mann-Whitney test , Wilcoxon signed rank test, Kruskal- Wallis test. 6 Advanced Models: Multivariate statistical techniques. Logistic Regression, Factor Analysis, Cluster Analysis. 7 Mediation Analysis 8 Moderation Analysis	
6	Internet Understanding how to search/Google, Bing, Duck Duck Go for good contents; bookmarking and Going to a specific website; Copy and paste Internet content into your word file and emails; Understanding social media & Digital platforms such as Facebook, Youtube, Instagram, Linkedin, Skype, Zoom, Webex, Twitter, etc and their usage for business application	**2**
Total		**48P**

Course Outcomes:	
After completion of the course, students will be able to:	
1	Understand the basic concepts of business research methods
2	Understand the methodology of developing worksheets as a managerial tool
3	Understand applications of SPSS for work activity

Learning Resources:	
1	A handbook of Statistical Analysis using SPSS by Sabine Landau and Brian. S.Everitt
2	Excel-Quickstart Guide from Beginner to Expert by William Fischer
3	MS Office Paperback by S.S.Shrivashtava

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