SINHGAD TECHNICAL EDUCATION SOCIETY'S
**SINHGAD INSTITUTE OF
MANAGEMENT & COMPUTER APPLICATION**
(Affiliated to Savitribai Phule Pune University & Approved by AICTE)
'NAAC' Accredited with 'A' Grade

Sinhgad Institutes

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2.6.1

Programme and course outcomes for all Programmes offered by the institution are stated and displayed on website and communicated to teachers and students.

MBA

2.6.1 Program outcomes, program specific outcomes and course outcomes for all programs offered by the Institution are stated and displayed on website and communicated to teachers and students

Response:

The Program Outcomes (POs), Program Specific Outcomes (PSOs) and Course Outcomes (COs) are defined by the IQAC in line with the University syllabus.

Institute takes due care for informing POs and COs to all the faculty members & students. The same is available on the website.

• POs and COs are discussed with the students on first day of induction program.

• Faculty members adhere to POs & COs.

• Faculty members includes COs of their respective course in the teaching plan.

• Even faculty members discuss COs of respective subjects with students during in class room sessions.
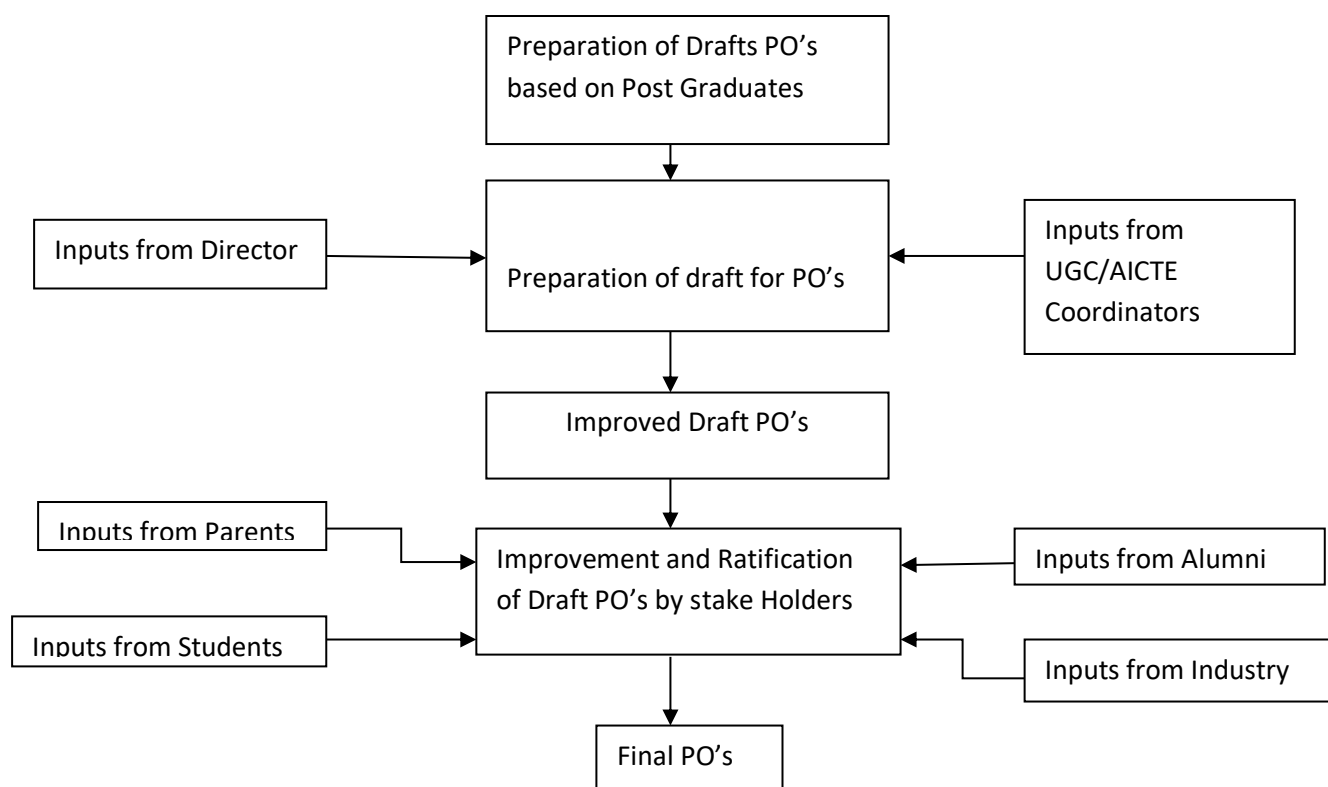
Program specific outcome (PO's)

The Institute has well defined learning outcomes. The vision and mission of the institution emphasizes on promoting value education through motivated trained faculty to prepare the students to accept the challenges of globalization.

The program/learning outcomes are:
a. Post Graduates will exhibit knowledge of basic Computing and management.
b. Post Graduates will exhibit ability to identify, formulate, solve and implement solutions for computers and managerial problems.
c. Post Graduates will exhibit to design and conduct programing's, analyze and interpret programs through simulated industrial environment.
d. Post Graduates will exhibit ability to comprehend and solve multidisciplinary project related problems through systematic approach.
e. Post Graduates will familiarize with modern computer applications and analysis using software and state of art equipment to analyze problems.
f. Post Graduates will demonstrate knowledge of values and professional ethics in their activities.
g. Post Graduates will be effective in verbal and non-verbal communication. **h.** Post Graduates will develop an attitude of continuous learning.

k. Post Graduates will develop confidence to face challenges in their career. Graduates will develop ability to do research.

The process of defining the Program outcomes is as given in Figure -

Students and staff are made aware about the learning outcomes by following ways:

1. The vision and mission statements are displayed on the college website and at various key positions in the college building.

2. Programme Educational Objectives (PEO), Programme outcomes (PO) and course outcomes (CO) have been defined by every department.

Programme Educational Objectives (PEO) and Programme outcomes (PO) are printed in journals and course outcomes (CO) are discussed by faculty in the classrooms.

3. Programme Educational Objectives (PEO), Programme Outcomes (PO) are published on the college website.

MBA Programme Outcomes (POs): At the end of the MBA programme the learner will possess the following Program Outcome:

1. Generic and Domain Knowledge - Ability to articulate, illustrate, analyze, synthesize and apply the knowledge of principles and frameworks of management and allied domains to the solutions of real-world complex business issues.

2. Problem Solving & Innovation - Ability to Identify, formulate and provide innovative solution frameworks to real world complex business and social problems by systematically applying modern quantitative and qualitative problem solving tools and techniques. SPPU - MBA Revised Curriculum 2019 CBCGS & OBE Pattern

3. Critical Thinking - Ability to conduct investigation of multidimensional business problems using research based knowledge and research methods to arrive at data driven decisions

4. Effective Communication - Ability to effectively communicate in cross-cultural settings, in technology mediated environments, especially in the business context and with society at large

5. Leadership and Team Work - Ability to collaborate in an organizational context and across organizational boundaries and lead themselves and others in the achievement of organizational goals and optimize outcomes for all stakeholders.

6. Global Orientation and Cross-Cultural Appreciation: Ability to approach any relevant business issues from a global perspective and exhibit an appreciation of Cross Cultural aspects of business and management.

7. Entrepreneurship - Ability to identify entrepreneurial opportunities and leverage managerial & leadership skills for founding, leading & managing startups as well as professionalizing and growing family businesses.

8. Environment and Sustainability - Ability to demonstrate knowledge of and need for sustainable development and assess the impact of managerial decisions and business priorities on the societal, economic and environmental aspects.

9. Social Responsiveness and Ethics - Ability to exhibit a broad appreciation of the ethical and value underpinnings of managerial choices in a political, cross-cultural, globalized, digitized, socio-economic environment and distinguish between ethical and unethical behaviors & act with integrity.

10. Life Long Learning – Ability to operate independently in new environment, acquire new knowledge and skills and assimilate them into the internalized knowledge and skills.

MCA Programme Outcomes (POs): At the end of the MCA programme the learner will possess the following Program Outcome:

PO1: Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

PO2: Identify, formulate, research literature, and solve complex Computing problems reaching substantiated conclusions using fundamental principles of Mathematics, Computing sciences, and relevant domain disciplines.

PO3: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

PO5: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO6: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice. PO7: Recognize the need, and have the ability, to engage in independent learning for continual development as a Computing professional.

PO8: Demonstrate knowledge and understanding of computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO9: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PO10: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.

PO11: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO12: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

2.6.2 Attainment of program outcomes, program specific outcomes and course outcomes are evaluated by the institution

Program Outcomes:
MBA & MCA are the Programs run by Institute, these are two years programme's & the curriculum for these programs provided by the university along with PO's and CO's.
The PO's are evaluated based on student's placement, students Startup's and student's performance in various competitive examinations.
Attainment of this PO's and CO's are based on continuous evaluations, mentoring of students, making MOU's with corporate's, creating indigenous environments for innovation, incubation, incubation & research.
Institute has MENTOR MENTEE club where students are personally assigned to their Guardian faculty for their career guidelines. STP Sessions & even Commutations labs helps in skills achievement. Sinhgad Institutes has various Organized sessions for all institutes on STP Training and various additional advanced training for their students.

Course Outcomes:
Institute is planned for different Exams structure, Internal concurrent evaluation structure and MIDTERMS, Competitions, Entrepreneurship Incubation Cells, Mentor Mentee Club for personal Counselling sessions for their students. Institute methodologies help students to gain Exams. Generic & Domain Knowledge, Problem Solving & Innovation, Critical Thinking, Effective Communication, Leadership and Team Work, Global Orientation and Cross, Entrepreneurship, Environment and Sustainability, Social Responsiveness and Ethics, Life Long Learning.

PROGRAMME OUTCOME (PO)

PO-1	Apply knowledge of management theories & practises to solve business problems
PO-2	Nature Analytical &critical thinking cababilities for data based decision making
PO-3	Ability to develop value based leadership Ability
PO-4	Ability to understand ,analyse and communicate global economic ,legal, and ethical aspects of Business.
Po-5	Ability to lead themselves and other in the achievementof organisational goal,contributing
Po-6	create ,select and apply appropriate techniques ,resources and modern tools including prediction and modelling to complex activitities with an understanding of the limitations
PO-7	Demonstrate knowledge and understanding of management principles and apply these to one s own work ,as a member and leader in a team. Manage project in multidisciplinary Environment to meet financial environmental,social and ethical constrains .
PO-8	Recognize the need for & develop an Ability to engage in independent and life long learning in the broaddest context of technological change

PROGRAMME SPECIFIC OUTCOMES

PSO-1	MBA Graduates shall obtain professionl apttitude for an integrative business assignment as an employee through the multidiciplinary knowledge and Skills which includes Accounting , Finance ,IT,Laws economics,Information systems ,Operations& SCM,Marketing and HR.
PSO-2	MBA Graduates shall obtain ability to employ modern technique of management environment and performs in creating innovative career paths to be an entrepreneur and create employability for nation building and a zest for higher studies .
PSO-3	MBA graduate can be employed for can start their own venture for research and consultancy or any from where in the usage of knowledge and skill sets of financial decision models firm growth strategies like acquisition and mergers new venture development can be done by them.

		MBA graduate students acquire required skills, attitude, knowledge, techniques in respect of various specialisations and utilise it for the development of business units activities and their startups
	PSO-4	

COURSE OUTCOME

Sr. No.	Subject Name	Objectives
1	ACCOUNTING FOR BUSINESS DECISIONS 101	**At the end of this course, each student should be able to:** To understand the basic concepts of financial accounting, cost accounting and management accounting. 2. To know various tools from accounting and cost accounting this would facilitate the decision making. 3. To develop analytical abilities to face the business situations.
2	Economic Analysis for business Decision 102	**At the end of this course, each student should be able to:** equip the students of management with time tested tools and techniques of managerial economics to enable them to appreciate its relevance in decision making. To explore the economics of information and network industries and to equip students with an understanding of how economics affect the business strategy of companies in these industries. To develop economic way of thinking in dealing with practical business problems and challenges
3	Legal Aspect of Business 103	**At the end of this course, each student should be able to:** CO1 To acquaint students with general business law issues to help become more informed, sensitive and effective business leaders. CO2

		To provide the students with an understanding of fundamental legal issues pertaining to the business world to enhance their ability to manage businesses effectively.
4	Business Research Method 104	**At the end of this course, each student should be able to** CO1.To understand the concept and process of business research in business environment. CO2.To know the use of tools and techniques for exploratory, conclusive and causal research. CO3To understand the concept of measurement in empirical systems.
5	Organisational Behavoiur(105)	**At the end of this course, each student should be able to** CO1.To gain a solid understanding of human behavior in the workplace from an individual, group, and organizational perspective CO2.To obtain frameworks and tools to effectively analyze and approach various Organization situations CO3 .To reflect upon your own beliefs, assumptions, and behaviors with respect to how individuals, groups, and organizations act in order to expand your options of approaches and increase your own effectiveness.
6	Basics of Marketing (106)	**At the end of this course, each student should be able to:** CO1.To introduce marketing as a business function and a philosophy problem. CO2. To emphasize importance of understanding external environment in marketing decision making CO3.To expose students to a systematic frame work of marketing &implementations and to highlight need for different marketing approaches for services, goods, and for household consumers, organizationalbuyers

7	Management Fundamentals (107)	**At the end of this course, each student should be able to** CO1.To explain the various concepts of management CO2.To make the students understand the contemporary management practices CO3To highlight professional challenges that managers face in various organization CO4. To enable the students to appreciate the emerging ideas and practices in the field of management
8	Business Communication Lab (108)	**At the end of this course, each student should be able to**: CO1. To acquaint the students with fundamentals of communication and help them to transform their communication abilities. CO2.To help the students to acquire some of the necessary skills to handle day-to-day managerial responsibilities, such as - making speeches, controlling one-to-one communication, enriching group activities and processes, giving effective presentations, writing letters, memos, minutes, reports and advertising, and maintaining one's poise in private and in public. CO3To build the students' confidence and to enhance competitiveness by projecting a positive image of themselves and of their future.
	MS Excel & Advanced Excel Lab(109)	**At the end of this course, each student should be able to:** CO1. To familiarize Students with basic to intermediate skills for using Excel in the classroom vis-à-vis Business Applications CO2. To provide students hands on experience on MS Excel Utilities CO3. To gain proficiency in creating solutions for Data Management and Reporting

10	Selling & Negotiating Skills Lab (110)	**At the end of this course, each student should be able to:** CO1. To imbibe in the students, critical sales competencies that drives buying decisions CO2. To give insights into how to boost individual and organizational productivity through effective sales lead management. CO3. To introduce basic theoretical principles and practical steps in the negotiating process
11	Leadership Lab(112)	**At the end of this course, each student should be able to:** CO1To give students understanding of good Leadership Behaviours and gaining insight into their Patterns, Beliefs and Attitude CO2.To give students hands on experience in Empowering, Motivating and Inspiring Others and Leading by Example
12	Personality Development Lab (113)	**At the end of this course, each student should be able to:** CO1. To develop an orientation towards business etiquettes and the proper etiquette practices for different business scenarios CO2. To learn the etiquette requirements for meetings, entertaining, telephone, and Internet business interractions scenarios CO3. To minimize nervousness while in social situations.
13	Foreign Language-1Lab(114)	**At the end of this course, each student should be able to:** CO1. To provide the student with a Foreign Language Skill to manage basic oral and written communication CO2.To build a basic vocabulary in the selected Foreign Language
		At the end of this course, each student should be able to:

14	Enterprise Analysis - Desk Research(115)	CO1. To acquaint students with basic aspects of an Enterprise. CO2.To guide the students in analyzing an Enterprise w.r.t a set of basic parameters CO3.To help the students assimilate basic jargon and its meaning w.r.t. Enterprise Analysis.

Semester II

15	MARKETING MANAGEMENT (201)	**At the end of this course, each student should be able to:** CO1. To introduce the concept of Marketing Mix as a framework for Marketing Decision making. CO2. To emphasize the need, importance and process of Marketing Planning and Control. CO3. To sensitize the students to the dynamic nature of Marketing Function.
16	Financial Management (202)	**At the end of this course, each student should be able to:** CO1. To understand various concepts related to financial management. CO2. To study in detail, various tools and techniques in the area of finance. CO3.To develop the analytical skills this would facilitate the decision making in Business situations.
17	Human Resource Management (203)	**At the end of this course, each student should be able to:** CO1. To understand the role of HRM in an organization CO2. To learn to gain competitive advantage through people CO3. To learn to study and design HRM system
18	Decision Science (204)	**At the end of this course, each student should be able to:** CO1.To understand role of quantitative techniques in managerial decision making. CO2. To understand process of decision problem formulation.

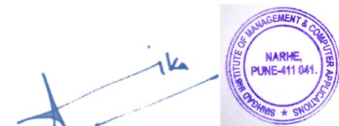|		
	(204)	CO3. To understand applications of various quantitative techniques in managerial settings.
19	Operations and Supply Chain Management (205)	**At the end of this course, each student should be able to** CO1.To develop an understanding of the strategic importance of Operations & SCM and how it can provide a competitive advantage in the marketplace CO2. To understand the relationship between Operations & SCM and other business functions, such as Marketing, Finance, Accounting, and Human Resources. CO3.To develop knowledge of the issues related to designing and managing Operations & SCM and the techniques to do so.
20	Management Information Systems (206)	**At the end of this course, each student should be able to** CO1. To develop conceptual understanding about latest developments in the field of Information Technology and the impact of I.T. in managing a business CO2. To learn to use Information Technology to gain competitive advantage in business CO3. To learn from, with a view to emulate, entrepreneurial ventures in e-Commerce and m-Commerce
21	Emotional Intelligence and Managerial Effectiveness Lab (207)	**At the end of this course, each student should be able to:** CO1. To equip students with individual and group learning methods CO2. To understand intelligence and develop emotional competence CO3.o develop understanding and competence for personal and managerial effectiveness.
22	Statistical Software Lab (208)	**At the end of this course, each student should be able to:** CO1. To give an overview of the capabilities of popular statistical software packages. CO2. To train students in handling data files and carry out basics statistical analysis. CO3. To give hands on experience about basic hypothesis testing using t tests, Chi Square tests and ANOVA. CO4. To train students in using advanced tools such as regressions, MDS, Factor Analysis etc.
		At the end of this course, each student should be able to:

23	MS Project Lab (209)	CO1. To understand basics of project management and learn how to use MS Project 2007 to: Create a New Project Build Tasks CO2. To understand use of MS Project 2007 to track Project Progress
24	Life Skills(210)	**At the end of this course, each student should be able to:** CO1.To encourage students to develop and use balanced self-determined Behavior. CO2. To help students in enhancing self, increasing life satisfaction and Improving relationships with others. CO3.To develop new ability to practice new problem solving skills in group and use these skills in personal life.

Semester III

25	Strategic Management (301)	**At the end of this course, each student should be able to:** CO1. To expose participants to various perspectives and concepts in the field of Strategic Management CO2. To help participants develop skills for applying these concepts to the solution of business problems CO3.To help students master the analytical tools of strategic management.
25	Enterprise Performance Management 302	**At the end of this course, each student should be able to:** CO1. To acquaint the students with a perspective of different facets of management of an enterprise CO2. To provide inputs with reference to the Investment Decisions along with the techniques for those decisions CO3.To inculcate the evaluation parameters of enterprise in terms of expenses, control systems and pricing
25	Startup and New Venture Management 303	**At the end of this course, each student should be able to:** CO1. To instill a spirit of entrepreneurship among the student participants. CO2. To provide an overview of the competences needed to become an entrepreneur CO3.To give insights into the Management of Small Family Business

25	Summer Internship Project 304	**At the end of this course, each student should be able to:** CO1. To offer the opportunity for the young students to acquire on job the skills, knowledge, attitudes, and perceptions along with the experience needed to constitute a professional identity. CO2. To provide means to immerse students in actual supervised professional experiences. CO3.To give an insight into the working of the real organizations. CO4. To gain deeper understanding in specific functional areas.
25	Contemporary Marketing Research 305	**At the end of this course, each student should be able to:** CO1. To highlight the importance of understanding consumer behavior in Marketing. CO2. To design and produce, evaluate a research proposal & understand the quality of research studies. CO3.To learn the basic skills to conduct professional marketing research.
25	Consumer Behaviour 306	**At the end of this course, each student should be able to:** CO1. To instill a spirit of entrepreneurship among the student participants. CO2. To study the environmental and individual influences on consumers CO3.To understand consumer behavior in Indian context.
25	Integrated Marketing Communications(307)	**At the end of this course, each student should be able to:** CO1. To provide an overview of the range of tools available for Marketing Communications CO2. To provide an understanding of the basic principles of planning and execution in Marketing Communications. CO3To acquaint the students with concepts and techniques in the application for developing and designing an effective advertising and sales promotion program. CO4To sensitize students to the various facets of advertising, public relation and promotion management.
25	Technology	**At the end of this course, each student should be able to:** CO1. To highlight the role of technology and innovation as drivers of value and competitive advantage.

25	Management	CO2. To provide conceptual foundations in managing innovation and technology.
25	Six Sigma 312OPE	**At the end of this course, each student should be able to:** CO1. To provide a comprehensive understanding of six sigma CO2. introduce the six sigma methodology and philosophy CO3.To learn how to manage change and sustain benefits CO4. To learn how to listen and map customer requirements
25	Designing Operations Systems 313OPE	**At the end of this course, each student should be able to:** CO1. To give an overview of the various process options in Manufacturing and Services. CO2. To give insights into factors that influence process choice. CO3.To impart fundamental concepts in Job Design and Work Measurement.
25	Project Management 315OPE	**At the end of this course, each student should be able to:** CO1. To make the students understand rationale behind labour laws CO2. To equip students with important provisions of various labour laws CO3. To sensitize the students to complexities of project management.
25	Labour & Social Security Laws 305HR	**At the end of this course, each student should be able to:** CO1. To provide a comprehensive understanding of six sigma CO2. introduce the six sigma methodology and philosophy CO3.To give students insight into the implementation of labour laws.
25	Human Resource Accounting & Compensation Management	**At the end of this course, each student should be able to:** CO1. To orient the students with the concepts related to human resource accounting & compensation management. CO2. To facilitate learning related to human resource accounting & compensation management for employees.
		At the end of this course, each student should be able to: CO1. Apply general ethical principles to particular cases or practices in business.

25	Managing for Sustainability (401)	CO2. Think independently and rationally about contemporary moral problems. CO3. Recognize the complexity of problems in practical ethics. CO4. Demonstrate how general concepts of governance apply in a given situation or given circumstances.
26	Dissertation (402)	**At the end of this course, each student should be able to:** CO1. To offer the opportunity for the young students to acquire on job the skills, knowledge, attitudes, and perceptions along with the experience needed to constitute a professional identity. CO2. To provide means to immerse students in actual supervised professional experiences CO3.To gain deeper understanding in specific areas.
27	Services Marketing (403)	**At the end of this course, each student should be able to:** CO1. To emphasize the significance of services marketing in the global economy. CO2. To make the students understand the deeper aspects of successful services marketing. CO3. To provide insights to the challenges and opportunities in services marketing.
28	Sales & Distribution Management (404)	**At the end of this course, each student should be able to:** CO1.To provide foundations in components of sales and distribution management. CO2. To introduce various facets of the job of a sales manager. CO3.To focus on decision making aspects and implementation of decisions in sales and distribution management.
29	Retail Marketing (405)	**At the end of this course, each student should be able to** CO1.To provide insights into all functional areas of retailing. CO2. To give an account of essential principles of retailing. CO3.To give a perspective of the Indian retailing scenario.
		At the end of this course, each student should be able to

30	Rural Marketing (406)	CO1. To understand rural aspects of marketing CO2. To learn nuances of rural markets to design effective strategies CO3. To enhance deeper understanding of rural consumer behavior
31	Service Operations Management (407)	**At the end of this course, each student should be able to:** CO1. To acquaint the students with the service operations strategy aspects. CO2. To provide students with the concepts and tools necessary to effectively manage field service operations. CO3.To familiarize the students with the concepts of CRM and role of IT in managing service operations.
32	International Marketing (408)	**At the end of this course, each student should be able to:** CO1. To make the students understand the concept and techniques of international marketing. CO2. To train the students to develop plans and marketing strategies for entering into international markets and managing overseas operations.
33	Export Documentation and Procedures (409)	**At the end of this course, each student should be able to:** CO1. To familiarize students with policy, procedures and documentation relating to foreign trade operations. CO2. To provide a review of the main documents involved in export order processing.
34	Marketing Strategy (410)	**At the end of this course, each student should be able to:** CO1.To introduce a systematic understanding of marketing strategy and decision making in dynamic marketing environment. CO2. To understand and apply the STP of marketing (segmentation, targeting, positioning). CO3.To understand and appreciate the concept of marketing strategy formulation and implementation.
		At the end of this course, each student should be able to: CO1. To study scientific and data based developments that assist marketing professionals in arriving at cost effective marketing strategies

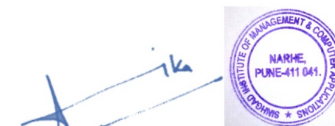|		
25	Marketing Decision Models (411MKT)	CO2. To analyze the important developments in marketing theory to understand and control markets effectively
26	Marketing of High Technology Products (412MKT)	**At the end of this course, each student should be able to:** CO1. TTo provide students with the concepts and tools necessary to effectively market a high technology product. CO2. To help the students learn the marketing mix aspect of marketing high technology products.
27	E Marketing and Analytics (413MKT)	**At the end of this course, each student should be able to:** CO1. To contextualize marketing concepts in electronic marketing and marketing analytics context. CO2. To give insights into various aspects of E Marketing and analytics from the perspective of creating Customer Value. CO3. To provide insights to the challenges and opportunities in services marketing.
28	Marketing to Emerging Markets & Bottom of the Pyramid (414MKT)	**At the end of this course, each student should be able to:** CO1.To understand difference between emerging & developed markets CO2. To understand opportunities & challenges in Emerging Markets in general & Bottom Of the Pyramid (BOP) segment in particular CO3.To provide a framework for marketing to BOP markets
29	Marketing of Financial Services – II (415MKT)	**At the end of this course, each student should be able to** CO1.To equip young managers with the knowledge of retail banking, corporate banking and investment banking practices in India. CO2. To familiarize the students to the requisite regulatory compliances in Wealth Management industry. CO3.To make the student understand the Risk-Return principle and its practical use in marketing of financial services.

30	Cross Cultural Relationship Marketing (416MKT)	**At the end of this course, each student should be able to** CO1. To help students understand the cultural aspects of relationships. CO2. To emphasize the need for cultural adaptation in relationship development and negotiations.
31	Indirect Taxation (403 FIN)	**At the end of this course, each student should be able to:** CO1. To understand the basic concepts in various Indirect Tax Acts. CO2. To understand procedural part of Indirect Taxes 3. To acquaint with online filling of various Forms & Returns. CO3. To acquaint with online filling of various Forms & Returns.
32	International Finance (404 FIN)	**At the end of this course, each student should be able to:** CO1. To make students familiar with the operations in foreign exchange markets. CO2. To sensitize students with complexities of managing finance of multinational firm.
33	Behavioral Finance 405 FIN	**At the end of this course, each student should be able to:** CO1. To provide an alternative framework for understanding financial market behavior. CO2.To highlight the basic theories and strategies that makes us aware of behavioral finance and investing.
34	Financial Modeling using Excel 406 FIN	**At the end of this course, each student should be able to:** CO1.To develop the ability to utilize the core functionality of excel in decision framework to solve managerial problems in the finance functions of the business. CO2. To master modeling techniques to eliminate the substantial risk of poor spreadsheet coding.
	Financial Risk	**At the end of this course, each student should be able to:** CO1. To understand what is risk and the basic concepts of modeling its application for measuring and managing financial risks

25	Management 407 FIN	CO2. To measure volatility in market prices, highlight Risk Management issues in investments.
26	Online Trading of Financial Assets 408 FIN	**At the end of this course, each student should be able to:** CO1. To understand how to do the trading of financial assets online. CO2. To know practically the prerequisites of trading. CO3.To analyze the securities using the MIS reports available online.
27	Banking Operations – II 409 FIN	**At the end of this course, each student should be able to:** CO1. To get acquainted with the changed role of Banking post 1991 Reforms. CO2. To know the lending and borrowing rates along with the various mandatory reserves. CO3. To know the procedural compliances by bank's functionality.
28	Wealth and Portfolio Management 410 FIN	**At the end of this course, each student should be able to:** CO1.To understand the concept of Wealth Management CO2. To understand the concept of Portfolio Management. CO3.To understand various tools and methods of evaluating the portfolio.
29	Fixed Income Securities & Technical Analysis 411 FIN	**At the end of this course, each student should be able to** CO1.To analyze the fixed income securities markets and its implications for investments. CO2. To explain the market characteristics, instruments, selling techniques, pricing and valuation issues with money market instruments. CO3.To explain the specific features of the Indian Fixed Income Securities Markets.
30	Commodity Markets 412 FIN	**At the end of this course, each student should be able to** CO1. To equip young managers with the knowledge of emerging commodities derivatives trading practices in India. CO2. To explain the regulatory framework of these markets and domestic and international historical developments in commodities market. CO3. To highlight the importance of Commodity indices as an investment class.

31	Financing Rural Development 413 FIN	**At the end of this course, each student should be able to:** CO1. To understand the need and importance of financing rural development. CO2. To know the schemes floated by the Government of India and its scope. CO3.To analyze the needs of rural businesses and its viability.
32	Principles of Insurance 414 FIN	**At the end of this course, each student should be able to:** CO1. To understand the various operations involved in managing insurance. CO2. To understand the pricing, financing and risk diversification strategies of insurance companies
33	Software Project Management 403IT	**At the end of this course, each student should be able to:** CO1. To understand different aspects of Software Project Management as an important field of practice under IT Management CO2. learn tools and techniques of Software Project Management CO3. To understand importance of, and learning techniques to ensure, software quality
34	Enterprise Resource Planning 404IT	**At the end of this course, each student should be able to:** CO1.To acquire in-depth knowledge of ERP as a prime Application Software product CO2. To learn operational aspects of ERP implementation and support CO3.To know features of important ERP modules
35	Web Designing & Multimedia Applications 405IT	**At the end of this course, each student should be able to:** CO1. To acquire technical competence in Web Designing and Multimedia Applications CO2. To learn to use HTML, VB Script and Java script CO3. To integrate Web and Multimedia with business objectives of the organization
		At the end of this course, each student should be able to:

36	Network Technologies& Security 406IT	CO1. To acquire an overview of (but not technical proficiency in) various computer networks, technologies behind networks and application protocols, e-mail and communication protocols CO2. To develop awareness of managing networks well so as to offer high quality service to the users
37	Database Administration 407IT	**At the end of this course, each student should be able to:** CO1. To know duties and responsibilities of a Data Base Administrator CO2. To learn DBA skills through select tasks
38	Software Testing Methods 408IT	**At the end of this course, each student should be able to:** CO1.To understand scope of Software Testing Activity CO2. To learn tools and techniques of Software Testing CO3.To develop skill to design suitable test procedure in a given software development environment
39	Information Security &Audit 409IT	**At the end of this course, each student should be able to** CO1.To understand perspectives of Information Security risks CO2. To appreciate security audit as a preventive system CO3.To know other techniques / approaches of risk prevention
40	Data Warehousing & Data Mining 410IT	**At the end of this course, each student should be able to** CO1. To learn operational aspects of Data Warehousing and Data Mining CO2. To know applications of Data Warehousing / Data Mining in business
41	Geographical Information System & its Applications 411IT	**At the end of this course, each student should be able to:** CO1. To explore and understand concept of Geographical Information Systems CO2. To know tools and techniques of G. I. S. CO3. To develop skills to implement G. I. S. in appropriate situations
		At the end of this course, each student should be able to:

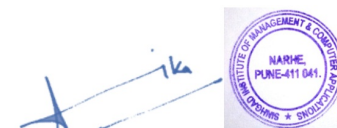|		
42	MS-Projects Lab 412IT	CO1. To learn operational aspects of MS-Projects CO2. To know tools and techniques of MS-Projects CO3. To acquire / develop skills of implementing MS-Projects in appropriate situations
43	Internet Marketing & Internet of Things (IOT) 413IT	**At the end of this course, each student should be able to:** CO1. To understand, various approaches to Internet Marketing CO2.To learn advantages and disadvantages of approaches to Internet Marketing
44	Microsoft Office 2010 Lab 414IT	**At the end of this course, each student should be able to:** CO1.To enable students working in Microsoft office 2010 organize work more efficiently & develop a fully unified office with Microsoft suite. CO2. To provide an opportunity to learn advanced and uncommon features of office – 2010 as on aid to career growth
45	Business Process Reengineering 407OPE	**At the end of this course, each student should be able to:** CO1. To emphasize the key role of operations in bringing about the growth and profitability of organizations. CO2. To impart ideas, concepts and principles in operations strategy. CO3. To understand use of quantitative tools in solving typical Operations Domain Problems
46	Total Quality Management 404OPE	**At the end of this course, each student should be able to:** CO1.To give various perspectives on Quality and various contributors to Quality. CO2. To provide an in-depth understanding of the various QC tools. CO3.To introduce the frameworks of Global Quality Awards.
47	Quality Management Standards 405OPE	**At the end of this course, each student should be able to:** CO1. To introduce various management system standards. CO2. To explain the implementation and role of MR for IMS. CO3. To help the students understand the implementation of IMS through cases in services and manufacturing .

48	World Class Manufacturing 406OPE	**At the end of this course, each student should be able to:** CO1. To bring out the relevance and basics of World Class Manufacturing. CO2. To highlight the current state of Indian Manufacturing
49	Business Process Reengineering 407OPE	**At the end of this course, each student should be able to:** CO1. To explain how organizational performance in terms of efficiency and effectiveness can be improved through BPR. CO2. To introduce BPR as a change management tool. CO3. To explore and master the fundamental principles of BPR.
50	Enterprise Resource Planning 408OPE	**At the end of this course, each student should be able to:** CO1.To understand how a business works and how information systems fit into business operations. CO2. To understand the cross functional integration aspects of a business. CO3.To understand better managerial decision making through real time data integration and sharing.
51	Financial Perspectives in Operations Management 409OPE	**At the end of this course, each student should be able to** CO1.To highlight the importance of cost management as a key to profitability and the key to successful Operations Management CO2. To underline the role of cost management from a strategic perspective. CO3.To teach the identification of key cost drivers and defined process of managing operational costs.
52	Service Operations Management 410OPE	**At the end of this course, each student should be able to** CO1. To provide students with the concepts and tools necessary to effectively manage a service operation. CO2. To discuss best practices of World-Class Service.
		At the end of this course, each student should be able to:

53	Business Process Management 411OPE	CO1. Students will be able to model processes for subsequent implementation in Business Process Management Systems. CO2. Students will be able to discern between technologies for human-centric process automation and system-centric process automation. CO3. Students will understand the difference between Business Processes and Business Rules, and be able to select an appropriate information system.
54	Challenges and Opportunities in Operations Management 412OPE	**At the end of this course, each student should be able to:** CO1. To make the student understand the ways of managing risk in Operations Management CO2. To introduce various Environmental , Ethical and Technological issues in Operations Management CO3. To introduce Global Reporting Initiatives, SA 8001, CSR, CDM, CT concept
55	Lean Manufacturing 413OPE	**At the end of this course, each student should be able to:** CO1. To provide the concepts of Lean Manufacturing. CO2.To give a hands on – How To – series of steps in Lean Manufacturing Implementation.
56		
57	Employment Relations 403HR	**At the end of this course, each student should be able to:** CO1. Give students insight into the IR scenario in India CO2. Make students understand important laws governing IR CO3. Create understanding about role of Govt., society and trade union in IR
58	Strategic Human Resource Management 404HR	**At the end of this course, each student should be able to:** CO1. To make students understand HR implications of organizational strategies CO2. Understand the various terms used to define strategy & its process CO3.Understand HR strategies in Indian & global perspective
		At the end of this course, each student should be able to:

59	Organizational Design & Development 405HR	CO1. To develop an understanding of the nature, functioning and design of organization CO2. Be able to understand the theory and practice relating to the processes of organization development and change CO3. Develop insight and competence in diagnostic and intervention processes and skills for initiating and facilitating organizational processes and change in organizations
602	Global HR 406HR	**At the end of this course, each student should be able to:** CO1. To give exposure to the students to international HR CO2. To make students understand various initiatives in global HR CO3. To make students understand various issues in global HR
61	Employee Reward Management 407HR	**At the end of this course, each student should be able to** CO1. To appraise students with reward management system practiced in organizations CO2. To make students understand the process of setting reward management system CO3. To give students exposure to the reward management practices followed various organizations
62	Change Management 408HR	**At the end of this course, each student should be able to** CO1. To make students understand meaning of change and need for organizational Change. CO2. To appraise students with the change management process CO3. To enable students to understand the influence of various environmental factors on international business operations..
63	Indian Economy and Trade Dependencies 404IB	**At the end of this course, each student should be able to:** CO1. To explore students to the diversity of issues prevalent in the Indian Economy. CO2. To provide insights to the students about the trade related issues of the Indian Economy. CO3. To make students realize the importance of trade in the present globalized era.

		At the end of this course, each student should be able to:
64	Marketing to Emerging Markets & Bottom of the Pyramid 406IB	**At the end of this course, each student should be able to:** CO1. To understand needs and aspirations at the Bottom Of the Pyramid (BOP) CO2. To learn about opportunities that exist at BOP
65	CrossCultural Relationship Marketing 407IB	**At the end of this course, each student should be able to:** CO1. To help students understand the cultural aspects of relationships. CO2. To emphasize the need for cultural adaptation in relationship development and negotiations.
66	Foreign Exchange Management 408IB	**At the end of this course, each student should be able to:** CO1.To introduce a systematic understanding of marketing strategy and decision making in dynamic marketing environment. CO2. To understand and apply the STP of marketing (segmentation, targeting, positioning). CO3.To understand and appreciate the concept of marketing strategy formulation and implementation.
67	International Business Environment 403IB	**At the end of this course, each student should be able to:** CO1.To make the student aware about importance, concept and tools of Foreign Exchange Management.
68	E Commerce 409IB	**At the end of this course, each student should be able to:** CO1. To introduce students to the concept of e -commerce CO2. To equip students to assess e-commerce requirements of a business and develop e - business plans
		At the end of this course, each student should be able to:

69	Enterprise Resource Planning 410IB	CO1. To help the student understand how a business works and how information systems fit into business operations. CO2.To emphasize the cross functional integration aspects of a business. CO3. To enable better managerial decision making through real time data integration and sharing.
70	Global HR 411IB	**At the end of this course, each student should be able to:** CO1.To give exposure to the students to international HR CO2. To make students understand various initiatives in global HR CO3.To make students understand various issues in global HR
71	WTO and Intellectual Property Rights 412IB	**At the end of this course, each student should be able to** CO1.To sensitize the students about the importance of WTO and Intellectual property in the global economy.
72	Global Competitiveness and Strategic Alliances 413IB	**At the end of this course, each student should be able to** CO1. To develop conceptual understanding of global competitiveness CO2. To emphasize the need for cultural adaptation in relationship development and negotiations.
73	International Diversity Management 414IB	**At the end of this course, each student should be able to:** CO1. To equip students with the knowledge and importance of culture and help them to manage International Diversity. CO2. To understand procedural part of Indirect Taxes 3. To acquaint with online filling of various Forms & Returns. CO3. To acquaint with online filling of various Forms & Returns.
	Strategic Supply	**At the end of this course, each student should be able to:** CO1. To understand the role and objectives of Strategic Supply Chain Management

74	Chain Management 403SCM	CO2. To recognize the role and importance of strategic partnerships and alliances in Supply Chain Management
75	Knowledge Management in Supply Chains 404SCM	**At the end of this course, each student should be able to:** CO1.To know Supply Chain Systems Classification CO2.To understand the role of IT as an enabler of Supply Chain Management for today's businesses
76	Enterprise Resource Planning 406SCM	**At the end of this course, each student should be able to:** CO1.To help the student understand how a business works and how information systems fit into business operations. CO2. To emphasize the cross functional integration aspects of a business.
77	Purchasing & Supplier Relationship Management - II 407SCM	**At the end of this course, each student should be able to:** CO1. To provide an in-depth understanding of the fundamentals surrounding purchasing in different contexts. CO2. To make the students aware of the different demands placed on the purchasing and supply chain managers by business stakeholders.
78	Supply Chain Risk Management 408SCM	**At the end of this course, each student should be able to:** CO1. To help the students understand the pressures on managing the supply chain and their impact on supply chain's vulnerability to disruptions.
79	Banking Operations – II 409 FIN	**At the end of this course, each student should be able to:** CO1. To get acquainted with the changed role of Banking post 1991 Reforms. CO2. To know the lending and borrowing rates along with the various mandatory reserves. CO3. To know the procedural compliances by bank's functionality.

80	Wealth and Portfolio Management 410 FIN	**At the end of this course, each student should be able to:** CO1.To understand the concept of Wealth Management CO2. To understand the concept of Portfolio Management. CO3.To understand various tools and methods of evaluating the portfolio.
81	Fixed Income Securities & Technical Analysis 411 FIN	**At the end of this course, each student should be able to** CO1.To analyze the fixed income securities markets and its implications for investments. CO2. To explain the market characteristics, instruments, selling techniques, pricing and valuation issues with money market instruments. CO3.To explain the specific features of the Indian Fixed Income Securities Markets.
82	Commodity Markets 412 FIN	**At the end of this course, each student should be able to** CO1. To equip young managers with the knowledge of emerging commodities derivatives trading practices in India. CO2. To explain the regulatory framework of these markets and domestic and international historical developments in commodities market. CO3. To highlight the importance of Commodity indices as an investment class.
83	Financing Rural Development 413 FIN	**At the end of this course, each student should be able to:** CO1. To understand the need and importance of financing rural development. CO2. To know the schemes floated by the Government of India and its scope. CO3.To analyze the needs of rural businesses and its viability.
84	Principles of Insurance 414 FIN	**At the end of this course, each student should be able to:** CO1. To understand the various operations involved in managing insurance. CO2. To understand the pricing, financing and risk diversification strategies of insurance companies
85	Software Project Management 403IT	**At the end of this course, each student should be able to:** CO1. To understand different aspects of Software Project Management as an important field of practice under IT Management CO2. learn tools and techniques of Software Project Management

	403IT	CO3. To understand importance of, and learning techniques to ensure, software quality
86	Enterprise Resource Planning 404IT	**At the end of this course, each student should be able to:** CO1.To acquire in-depth knowledge of ERP as a prime Application Software product CO2. To learn operational aspects of ERP implementation and support CO3.To know features of important ERP modules
87	Web Designing & Multimedia Applications 405IT	**At the end of this course, each student should be able to:** CO1. To acquire technical competence in Web Designing and Multimedia Applications CO2. To learn to use HTML, VB Script and Java script CO3. To integrate Web and Multimedia with business objectives of the organization
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	Methods 408IT	CO3.To develop skill to design suitable test procedure in a given software development environment
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97	Strategic Hospitality Management	**At the end of this course, each student should be able to:** CO1.To understand the concept and process of strategic management to be adopted in the hospitality and tourism industry CO2. Knowledge about the strategies that a firm has to possess to be competitive
98	Tourism Planning and Development 404THM	**At the end of this course, each student should be able to:** CO1.To understand the components and mechanism of tourism CO2. To acquire Knowledge in the planning and development of tourist attractions
99	Hotel Administration Management	**At the end of this course, each student should be able to:** CO1. To study the flow of activities and functions in today's lodging operation. To establish the importance of Front office and House Keeping and its role in the hospitality industry. CO2. Understand the best practice in Front Office and Housekeeping operations methodology by the practical application of theoretical knowledge. CO3. To help the students understand the implementation of IMS through cases in services and manufacturing .
100	Data Analysis Lab 406THM	**At the end of this course, each student should be able to:** CO1. To have hands- on experience on data analysis CO2. To develop problem-solving skills
101	Economic Analysis for Services 407THM	**At the end of this course, each student should be able to:** CO1. To introduce the concepts of scarcity and efficiency CO2. To explain principles of micro economics relevant to managing hospitality organization

102	Event Management 408THM	**At the end of this course, each student should be able to:** CO1.To acquaint students with fundamentals of event management CO2. To enhance professional skills related to event management
103	Logistics and Supply Chain Management 409	**At the end of this course, each student should be able to** CO1To understand the importance of Supply Chain Management.Management CO2. To know the various aspects of Supply Chain Management. CO3.To study the current trends in SCM.
104	Strategic Hospitality Management 403THM	**At the end of this course, each student should be able to** CO1. To understand the concept and process of strategic management to be adopted in the hospitality and tourism industry CO2. Knowledge about the strategies that a firm has to possess to be competitive
105	Tourism Planning and Development	**At the end of this course, each student should be able to:** CO1.To understand the components and mechanism of tourismSystems. CO2. To acquire Knowledge in the planning and development of tourist attractions.
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107	Data Analysis Lab 406THM	**At the end of this course, each student should be able to:** CO1. To have hands- on experience on data analysis CO2.To develop problem-solving skills

108	Economic Analysis for Services 407THM	**At the end of this course, each student should be able to:** CO1.To introduce the concepts of scarcity and efficiency CO2. To explain principles of micro economics relevant to managing hospitality organization
109	Event Management 408THM	**At the end of this course, each student should be able to** CO1. To acquaint students with fundamentals of event management CO2. To enhance professional skills related to event management
110	Logistics and Supply Chain Management 409	**At the end of this course, each student should be able to** CO1. To understand the importance of Supply Chain Management.industry CO2. To know the various aspects of Supply Chain Management.
111	Food and Beverage Management 410THM	**At the end of this course, each student should be able to:** CO1.To understand the nature and scope of Food and Beverage Management CO2. To study the empirical foundations and develop a professional orientation toward the practice of food and beverage management as it applies to business, culinary arts and hospitality
112	Professional Skills Development Lab 411THM	**At the end of this course, each student should be able to:** CO1. To enable learners to speak fluently and flawlessly in all kinds of communicative Contexts with speakers of all nationalities.
113	Statistics for Hospitality and	**At the end of this course, each student should be able to:** CO1. To learn the applications of statistics in business decision making in service sector.

Tourism 412THM	CO2.To develop problem-solving skills

**COURSE OUTCOME**
Sr. No.	**Subject Name**	**Objectives**
1	Fundamentals of Computer (IT11)	1. To give basic knowledge of computer system, it's components and their organization. 2. This will also introduce the basic data representation in the computer
2	C Programming with Data Structure (IT-12)	1. This is the first programming language subject student will learn. 2. This subject will teach them programming logic, use of programming instructions, syntax and program structure. 3. This subject will also create foundation for student to learn other complex programming languages like C++, Java etc. By the end of the course students will be able to write C and basic DS programs.
3	Software Engineering (IT13)	1. Students learn & understand the Requirement analysis and system Design. Students get acquainted with the agile software development methodology
4	Database Management System (IT14)	1. The concepts related to database, database models, SQL and database operations are covered in this subject. 2. This creates a strong foundation for application database design
5	Principles and Practices of Management and Organizational Behavior (BM11)	1. The basic management concepts and use of management principles in the organization will be introduced to student through this elaborative subject.
6	Business Process Domains (BM12)	1. To learn & understand the processes and practices in business and their applications 2. To introduce advance business applications like CRM and SCM. 3. To learn the financial aspect of business and management 4. To learn and analyze the financial statements of a business
7	C & DS LAB (IT-12L)	1. To give hands on practice for writing C & DS programs and to inculcate good programming skills
8	DBMS Lab (T14L)	1. To develop database handling, data manipulation and data processing skills through SQL & PL/SQL, which will help students to develop data centric computer applications.
9	Soft Skill – Word Power (SS11)	1. To improve the vocabulary of English and competency for business English. Use of language lab /

		English learning tools such as mobile apps like Sling etc. are also encouraged and lot of listening practice, reading and understanding exposure should be given to the students. Interested students may appear for Cambridge English exam after completion of 1st year.
10	Essentials of Operating system (IT21)	1. To Learn and understand the fundamentals of Operating systems
11	Web Technologies (IT22)	This course enables students to understand web page site planning, management and maintenance. The course explains the concepts of developing advanced HTML pages with the help of frames, scripting languages, and evolving technologies like DHTML.
12	Core Java (IT23)	To enable the students to understand the core principles of the Java Language and use visual tools to produce well designed, effective applications and applets
13	Essentials of Networking (IT24)	To learn and understand fundamentals of computer network , network architectures, protocols and applications
14	Discrete Mathematics (MT21)	This is the first mathematics subject which revises the knowledge acquired previously by the student. Logic, Relations and Functions, Algebraic Functions and Graph Theory will be introduced in this course.
15	Essentials of Marketing (BM 21)	1. To make students understand the essentiality of Marketing in business Environment. 2. To comprehend the functionalities of Marketing and IT enabled practices for organizations
16	Mini Project using Web Technology (IT22L)	Student should able to develop a small dynamic web application. A small dynamic web application will be developed by the students using knowledge of HTML, DHTML, JavaScript and ASP.
17	Core Java Lab (IT23L)	This lab work will provide hands on practice to student to enhance their Java Programming Skills. Assignments on Java concepts such as Interfaces, Packages, Exception Handling, Applet, multithreading, Abstract Windows Toolkit, Java Input Output & Java collection can be included.
18	Soft Skill - Oral Communication (SS21)	To enhance the verbal communication of students. To focus on conversation with colleagues, Dialogues with Higher authorities. To focus on Formal and Informal Conversation, etiquettes
19	Probability & Combinatorics (MTC31)	i. Count similar things in sophisticated ways. ii. Understand the mathematical underpinnings of probability.

		iii. Use probability theory to solve interesting problems.
20	Multimedia Tools for Presentation (ITC31)	To Learn and understand various multimedia tools and software to make the presentation effective The Institute can decide the Tools / Software to teach the subject. More assignments, case studies should be taken
21	Soft Skill – Presentation (SSC31)	Non verbal communication-Personal appearance-Posture- Gestures-Facial expressions- Eye contact-Space distancingBusiness Presentations: Preparing successful presentations, Planning for audience Making effective use of visual aid, Delivering presentation, using prompts, dealing with questions and interruptions, Mock presentations. Effective usage of Tools (MS PowerPoint)
22	Advanced Data Structure and C++ programming (T1-IT31)	By the end of the course students will be able to write **C++ as well as DS programs** **with CPP** using advanced language features, utilize OO techniques to design C++ programs, use the standard C++ library, exploit advanced C++ techniques.
23	Design And Analysis of Algorithm (T1-IT32)	To understand and learn advance algorithms and methods used in computer science to create strong logic and problem solving approach in student..
24	Object Oriented Analysis And Design (T1-IT33)	After completing this course students will be able to: Understand the issues involved in implementing an object-oriented design, Analyze requirements and produce an initial design. Develop the design to the point where it is ready for implementation. Design components to maximize their reuse. Learn to use the essential modeling elements in the most recent release of the Unified Modeling Language.
25	Advance Internet Technologies (T1-IT34)	To provide extension to web development skills acquired in 2nd semester. HTML 5, XML, jQuery, AJAX and PHP are introduced for student to enhance their skills
26	DS & C++ Lab (T1-IT31L)	This lab work provides hands-on for C++ & DS programs using C++ language learnt in theory session. C++ Programming assignments based on class, inheritance, abstraction, encapsulation, dynamic binding, polymorphism, I/O systems, exception handling should be covered DS using C++ assignments should be based on

		Stacks, Queue, Linked List and mainly it should cover Tree , Binary Threaded Tree & Graph programs
27	Enterprise Resource Planning (T3-IT31)	To learn ERP systems its structure, modules, benefits, implementation and post implementation issues through real-life cases
28	Data Communication and computer Networks (T3-IT32)	Various computer networks, technologies behind networks and application protocols, e-mail and communication protocols along with introduction to advance network technologies like LTE, Cloud computing, Grid computing will be introduced to the students through this subject.
29	Data Warehouse, Mining , BI Tools and Applications (T3-IT33)	At the end of the course students would be familiarized with the data-warehousing and datamining techniques and other advanced topics. You would also understand the importance of BI in emerging world.
30	Information Security and Audit (T3-IT34)	To create awareness about the values of Information and how the Information security practices are meticulously implemented in IT companies worldwide. .
31	DCCN Lab (T3-IT32L)	Different practical have to be covered including crimping, setting LAN,WLAN, dealing with network management tools like Pandora, wireshark etc. , Virtualization, configuring IP addresses, router configuration, firewall configuration.
32	BI Tools Lab (T3-IT33L)	To Introduce students with business intelligence techniques such as MOLAP, data mining, data warehousing etc. Demonstration on various tools is expected. 1. Data Mining Techniques to get practical overview of classification, clustering, apriori analysis. 2. Data Visualization 3. Cube Generation and Cube Operations 4. Demonstration of Business Intelligence Tool like Pentaho 5. Spreadsheet based data mining tool & BI tools such as XLMiner
33	Optimization Techniques (ITC41)	To introduce linear programming, dynamic programming and related optimization theories to solve real life / simulated problems
34	Research Methodology & Statistical Tools (ITC42)	Research is a tool which helps the manager to identify, understand and solve management problems. Research improves the decision making ability of the manager. The

		objective of the subject is to create scientific attitude towards solving a management problem and
		impart knowledge about tools available for carrying out research with the evidence of statistical
		techniques.
35	Soft Skill – Interview (SSC41)	Preparing resumes & CV-Covering letter (effective usage of MSWord) Self introduction during interviews Interviews – Types of Interviews, preparing for interviews (Opening, body-answer Q, close-ask Q), Types of questions, facing interviews, reviewing performance Participating in mock interviews
36	Advance Java (T1-IT41)	Students will be able to do socket programming, develop server side applications with database handling using servlets, JSP, JDBC and Hibernet and Springs framework.
37	Python Programming (T1-IT42)	To develop problem solving skills and their implementation through Python To understand and implement concepts of object oriented methodology using Python.
38	Advance DBMS (T1-IT43)	At the end of the course students should be able to: gain an awareness of the basic issues in objected oriented data models, applications, familiarize with the data-warehousing and data-mining techniques and other advanced topics.
39	Cloud Computing (T1-IT44)	This module gives students the skills and knowledge to understand how Cloud Computing Architecture can enable transformation, business development and agility in an organization
40	Advance Java Lab (T1-IT41L)	This lab work will provide hands on practice to student to enhance their Java Programming Skills. Assignments on Java concepts such as abstract Windows Toolkit, Java Input Output, Networking, JDBC, RMI ,Java Beans can be included
41	Python Programming Lab (T1-IT42L)	This lab work will provide hands on practice to student to enhance their Python Programming Skills. Assignments on python concepts functions, strings, Lists, directories, modules, input output, exception handling, object oriented concepts can be included.
42	E -Commerce & Knowledge Management (T3-IT41)	To understand the concepts & role of e-commerce and Knowledge Management in organizations. To get introduced to the key themes of techniques

		& technology to realize more value from knowledge assets
43	Cyber laws and Intellectual Property Rights (T3-IT42)	To understand the Cyber Crime, it's types and the IT Act and Cyber laws in India.
44	Customer Relationship Management & Supply Chain Management (T3-BM43)	To make students understand the role of IT or how IT is an enabler for SCM and CRM. To understand supply chain strategy framework and supply chain strategies To comprehend the functionalities of CRM in service sector
45	Software Quality Assurance and Control (T3-IT44)	To enable student to learn Software Quality Assurance and control, this course covers the principles of software development emphasizing processes and activities of quality assurance.
46	Mini Project based on CRM & SCM (T3-IT43L)	Students should develop mini project using the concepts of CRM and SCM
47	Software Quality Assurance & Control Lab (T3-IT44L)	Students must get the knowledge of various testing tools for software quality checking.
48	Software Project Management (ITC51)	To learn process of software project management, cost estimation, use of project Management tools, configuration management, user roles and software teams.
49	Project (ITC51P)	Student supposes to collect all requirements, do the analysis of the requirements of project. Student should prepare the SRS of the project. Student should complete the project up to design phase of SDLC.
50	Soft Skill – Group Discussion (SSC51)	Team building , Team briefing, Role of Team leader, Conflict resolution, Methodology of Group discussions, Role Functions in Group Discussion, Improving group performance, Mock group discussions
51	ASP .Net using C# (T1-IT51)	To teach student application development technology currently available **Guidelines for subject**: Prefer .NET Framework 4.0 and Visual Studio 2010
52	Service Oriented Architecture (T1-IT52)	• To gain understanding of the basic principles of service orientation • To learn service oriented analysis techniques • To learn technology underlying the service design • To learn advanced concepts such as service composition, orchestration and Choreography • To know about various WS specification standards
53	Big Data Analytics (T1-IT53)	1. To Understand the Big Data challenges & opportunities ,its applications 2. Gain conceptual understanding of NOSQL

		Database.
		3. Understanding of concepts of map and reduce and functional programming
		4. Gain conceptual understanding of Hadoop Distributed File System.
54	Mobile Application Development (T1-IT54)	Student should able to develop the mobile application using Android
55	Mini Project using ASP .Net (T1-IT51L)	In this mini project, student should design dynamic website using asp.net using c#. Visual Studio 2010 is strongly Preferred.
56	Mini Project Using Mobile Application Development (T1-IT54L)	This mini project work will provide hands on practice to student to enhance their Android Programming Skills. Android concepts such as Views and view groups, Layouts, Creating Menus Intents, Adapters, Dialogs, location based services, file handlings, CRUD operation on SQlite, Gtalk, Audio, Video can be included.
57	Software Testing & Tools (T3-IT51)	To enable student to learn Software Testing Tools good practices with the help of various software testing techniques and tools and case studies.
58	Entrepreneurship Development (T3-BM52)	Entrepreneurship is a mindset that can be developed by any professional who aspires to become a successful businessman . With proper education, this mindset can be inculcated into the minds of young professionals. The objective of this course is to provide students with the knowledge, skills and motivation required to encourage entrepreneurial success and lay down the conditions and solutions to the challenges that one might foresee in a venture.
59	Decision Support System (T3-IT53)	To learn DSS, DSS Tools, DSS implementation and impacts and Enterprise DSS.
60	Business Architecture (T3-IT54)	The primary objective of this course is to give students a broad framework that covers the range of architecture work that precedes and steers System development, and to focus attention on the areas where the architect is responsible for effective design and Risk Management
61	CASE Tools Lab (T3-IT51L)	To make student accustom with various automated tools used for Software Design and Development, Testing, Project Management etc.
62	Activities based on Entrepreneurship Development (T3-BM52L)	1. To get motivation to become an entrepreneur. 2. To get the knowledge of how the business can run. 3. To know the procedure of financers to raise finance

63	Project (ITC61P)	Student get actual implementation and testing experience and that become useful in industry work.
	Java Programming(IT11)	CO1 Understand Basic Concepts of OOPs, Java, Inheritance, Package. (Understand) CO2: Understand Exception handling, arrays and Strings and multi-threading in Java (Understand.) CO3: Understand collection framework (Understand) CO4: Develop GUI using Abstract Windows Toolkit (AWT) and event handling (Apply) CO5: Develop Web application using JSP and Servlet, JDBC (Apply)
	Data Structure and Algorithms(IT12)	CO1: demonstrate linear data structures linked list, stack and queue (apply) CO2: implement tree, graph, hash table and heap data structures (apply) CO3: apply brute force and backtracking techniques (apply) CO4: demonstrate greedy and divide-conquer approaches (apply) CO5: implement dynamic programming technique (apply)
	Object Oriented Software Engineering (IT13)	CO1: Distinguish different process model for a software development. (Understand) CO2: Design software requirements specification solution for a given problem definitions of a software system. (Analyze) CO3: Apply software engineering analysis/design knowledge to suggest solutions for simulated problems (Analyze) CO4: Design user interface layout for different types of applications (Apply) CO5: Recognize and describe current trends in software engineering (Understand)
	Operating System Concepts(IT14)	CO1: Understand structure of OS, process management and synchronization. (Understand) CO2: Understand multicore and multiprocessing OS. (Understand) CO3: explain Realtime and embedded OS (Understand) CO4: understand Windows and Linux OS fundamentals and administration. (Understand) CO5: solve shell scripting problems (Apply)
	Network Technologies(IT15)	CO1: Understand the basic concepts of Computer Network, and principle of layering (Understand) CO2: Apply the error detection and correction techniques used in data transmission (Apply) CO3: Apply IP addressing schemes and sub netting (Apply)

		CO4: Understand the concept of routing protocols, Application layer protocols and Network Security (Understand) CO5: Apply the socket programming basics to create a simple chat application (Apply)
	Open Course 1(OC11)	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.
	Open Course 2(OC12)	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.
	Practical(IT11L)	CO1: Demonstrate Collection framework (Apply) CO2: Develop GUI using awt and swing (Apply) CO3: Develop Web application using JSP and Servlet, JDBC (Apply) CO4: Apply Data Structure to solve problems using JavaScript (Apply)
	Mini Project(ITC11)	CO1: Create working project using tools and techniques learnt in this semester (Create)
	Soft Skills – I(SS11)	To improve the vocabulary of English and competency for business English. Use of language lab / English learning tools such as mobile apps like Sling etc. are also encouraged and lot of listening practice, reading and understanding exposure should be given to the students. Interested students may appear for Cambridge English exam after completion of 1st year.
	Python Programming(IT21)	CO1: Understand Demonstrate the concepts of python and modular programming. (Understand) CO2: Apply the concepts of concurrency control in python (Apply) CO3: Solve the real-life problems using object-oriented concepts and python libraries (Apply) CO4: Demonstrate the concept of IO, Exception Handling, database (Apply) CO5: Analyze the given dataset and apply the data analysis concepts and data visualization. (Analyze)
	Software Project Management(IT21)	CO1: Understand the process of Software Project Management Framework and Apply estimation techniques. (Apply) CO2: Learn the philosophy, principles and lifecycle of an agile project. (Understand) CO3: Demonstrate Agile Teams and Tools and Apply agile project constraints and trade-offs for estimating project size and schedule (Apply) CO4: Explain Project Tracking and Interpretation of Progress Report (Understand) CO5: Analyze Problem statement and evaluate

		User Stories (Analyze)
	Optimization Techniques(MT21)	CO1: Understand the role and principles of optimization techniques in business world (Understand) CO2: Demonstrate specific optimization technique for effective decision making (Apply) CO3: Apply the optimization techniques in business environments (Apply) CO4: Illustrate and infer for the business scenario (Analyze) CO5: Analyze the optimization techniques in strategic planning for optimal gain. (Analyze)
	Advanced Internet Technologies(IT23)	CO1: Outline the basic concepts of Advance Internet Technologies (Understand) CO2: Design appropriate user interfaces and implements webpage based on given problem Statement (Apply) CO3: Implement concepts and methods of NodeJS (Apply) CO4: Implement concepts and methods of Angular (Apply) CO5: Build Dynamic web pages using server-side PHP programming with Database Connectivity (Apply)
	Advanced DBMS(IT24)	CO1: Describe the core concepts of DBMS and various databases used in real applications (Understand) CO2: Design relational database using E-R model and normalization (Apply) CO3: Demonstrate XML database and nonprocedural structural query languages for data access (Apply) CO4: Explain concepts of Parallel, Distributed and Object-Oriented Databases and their applications (Understand) CO5: Apply transaction management, recovery management, backup and security – privacy concepts for database applications (Apply)
	Open Course 3(OC21)	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.
	Open Course 4(OC22)	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.
	Practical(IT21L)	CO1: implement python programming concepts for solving real life problems. (Apply) CO2: Implement Advanced Internet Technologies (Apply)
	Mini Project(ITC21)	CO1: Create working project using tools and techniques learnt in this semester
	Soft Skills – II(SS21)	Team building , Team briefing, Role of Team leader, Conflict resolution, Methodology of Group discussions, Role Functions in Group Discussion,

		Improving group performance, Mock group discussions
	Mobile Application Development(IT31)	CO1: Understand Various Mobile Application Architectures. (Understand) CO2: Apply different types of widgets and Layouts. (Apply) CO3: Describe Web Services and Web Views in mobile applications. (Understand) CO4: Implement data storing and retrieval methods in android. (Apply) CO5: Demonstrate Hybrid Mobile App Framework. (Apply)
	Data Warehousing and Data Mining(IT32)	CO1: Understand Various Mobile Application Architectures. (Understand) CO2: Apply different types of widgets and Layouts. (Apply) CO3: Describe Web Services and Web Views in mobile applications. (Understand) CO4: Implement data storing and retrieval methods in android. (Apply) CO5: Demonstrate Hybrid Mobile App Framework. (Apply)
	Software Testing and Quality Assurance(IT33)	CO1: Understand the role of software quality assurance in contributing to the efficient delivery of software solutions. (Understand) CO2: Demonstrate specific software tests with well-defined objectives and targets. (Apply) CO3: Apply the software testing techniques in commercial environments. (Apply) CO4: Construct test strategies and plans for software testing. (Analyze) CO5: Demonstrate the usage of software testing tools for test effectiveness, efficiency and coverage (Apply)
	Knowledge Representation & Artificial Intelligence - ML, DL(IT34)	CO1: Understand basic building block of Artificial Intelligence and Knowledge Representation. (Understand) CO2: Apply Propositional Logic for knowledge representation. (Apply) CO3: Design various models based on Machine Learning methodology (Apply) CO4: Design various models based on Deep Learning methodology (Apply) CO5: Understand various hardware and software aspect used for AI and its application. (Understand
	Cloud Computing(IT35)	CO1: Describe the concepts of Cloud Computing and its Service Models& Deployment Models. (Understand) CO2: Classify the types of Virtualization. (Understand) CO3: Describe the Cloud Management and relate Cloud to SOA. (Understand) CO4: Interpret Architecture and Pharrell Programing of Cloud Computing. (Apply) CO5: Demonstrate practical implementation of Cloud computing. (Apply)
	Open Course 5(OC31)	CO1: The motive behind keeping an open course is to make students aware of current/upcoming

		trends in Information Technology and other domains.
	Open Course 6(OC32)	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.
	Practical(IT31L)	CO1: Develop mobile application. (Apply) CO2: Develop ML, DL models using Python (Apply)
	Mini Project(ITC31)	CO1: Create working project using tools and techniques learnt in this semester (Create)
	Soft Skills – III(SS31)	Preparing resumes & CV-Covering letter (effective usage of MSWord) Self introduction during interviews Interviews – Types of Interviews, preparing for interviews (Opening, body-answer Q, close-ask Q), Types of questions, facing interviews, reviewing performance Participating in mock interviews

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PROGRAM OUTCOMES OF MCA

Program	MCA
Program Full Title	**Master of Computer Application**
Program Credit	**160 (2019 P)**
Semester	**4 Semester in 2 years (2020 P)**
	6 Semester in 3 years (2019 P)
Program Outcomes: At the end of the MCA programme the learner will possess the following Program Outcome	
PO1	Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
PO2	Identify, formulate, research literature, and solve complex Computing problems reaching substantiated conclusions using fundamental principles of Mathematics, Computing sciences, and relevant domain disciplines.
PO3	Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
PO4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
PO5	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
PO6	Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.
PO7	Recognize the need, and have the ability, to engage in independent learning for continual development as a Computing professional.
PO8	Demonstrate knowledge and understanding of computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO9	Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to

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	comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
PO10	Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
PO11	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.
PO12	Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

COURSE OUTCOMES MCA (2019 P) SEMESTER I

Program	MCA
Course Full Title	Problem Solving using C++
Course Code	IT11
Course Credit	4
Semester	I
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Use the algorithm paradigms for problem solving.
CO2	Develop programs with features of the C++ programming language.
CO3	Develop simple applications using C++
CO4	Develop programs in the UNIX/Linux programming environment.

Program	MCA
Course Full Title	Software Engineering using UML
Course Code	IT12
Course Credit	4
Semester	I
Internal	30
External	70
Specialization	NA
Core/Elective	Core

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Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Distinguish different process model for a software development.
CO2	Design software requirements specification solution for a given problem definitions of a software system.
CO3	Apply software engineering analysis/design knowledge to suggest solutions for simulated problems
CO4	Recognize and describe current trends in software engineering

Program	MCA
Course Full Title	Database Management System
Course Code	IT13
Course Credit	4
Semester	I
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe the basic concepts of DBMS and various databases used in real applications.
CO2	Design relational database using E-R model and normalization
CO3	Demonstrate nonprocedural structural query languages for various database applications
CO4	Apply concepts of Object Based Database, XML database and non-relational databases.
CO5	Explain transaction management and recovery management for real applications.

Program	MCA
Course Full Title	Essential of Operating System
Course Code	IT14
Course Credit	4
Semester	I
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand structure of OS, process management and synchronization.

CO2	Analyze and design Memory Management.
CO3	Interpret the mechanisms adopted for file sharing in distributed Applications
CO4	Conceptualize the components and can do Shell Programming.
CO5	Know Basic Linux System Administration and Kernel Administration.

Program	MCA
Course Full Title	Business Process Domain
Course Code	BM11
Course Credit	4
Semester	I
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe major bases for marketing mix in business
CO2	Describe various functionalities of human resource process
CO3	Identify existing e-commerce model and payment system
CO4	Apply knowledge to evaluate and manage an effective supply chain.
CO5	Understand how customer relations are related to business functions and its importance to success of Business entity.
	Use various banking and insurance process for business development.

Program	MCA
Course Full Title	Open Subject 1
Course Code	OS11
Course Credit	1
Semester	I
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

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Program	MCA
Course Full Title	Open Subject 2
Course Code	OS12
Course Credit	1
Semester	I
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Case Study on Requirement Gathering
Course Code	CS11
Course Credit	1
Semester	I
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive student to gather information regarding problem and then analyzing it to build efficient software.

Program	MCA
Course Full Title	**Practical based on IT11**
Course Code	IT11L
Course Credit	2
Semester	I
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understanding the problem

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CO2	Analyzing the problem
CO3	Developing the solution
CO4	Coding and implementation.

Program	MCA
Course Full Title	Practical based on OS11 and OS12
Course Code	OS11L
Course Credit	2
Semester	I
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understanding the problem
CO2	Analyzing the problem
CO3	Developing the solution
CO4	Coding and implementation.

Program	MCA
Course Full Title	Soft Skill-1
Course Code	SS11L
Course Credit	1
Semester	I
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	To improve the vocabulary of English and competency for business English.
CO2	Use of language lab
CO3	English learning tools such as mobile apps like Sling etc. are also encouraged and lot of listening practice, reading and understanding exposure should be given to the students.
CO4	Interested students may appear for Cambridge English exam after completion of 1st year.

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COURSE OUTCOMES MCA (2019 P) SEMESTER II

Program	MCA
Course Full Title	Data Structure and Algorithm
Course Code	IT21
Course Credit	4
Semester	II
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Apply design principles and concepts for Data structure and algorithm
CO2	Summarize searching and sorting techniques
CO3	Describe stack, queue and linked list operation
CO4	Demonstrate the concepts of tree and graphs

Program	MCA
Course Full Title	Web Technology
Course Code	IT22
Course Credit	4
Semester	II
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Implement interactive web page(s) using HTML, CSS and JavaScript.
CO2	Build Dynamic web site using server-side PHP Programming and Database connectivity.
CO3	Design a responsive web site.

Program	MCA
Course Full Title	Business Statistics
Course Code	MT21
Course Credit	4
Semester	II

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Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Demonstrate concepts of business statistics (such as measures of central tendency, dispersion, correlation, regression analysis and time series analysis)
CO2	Students will be able to analyze and apply statistical tools to solve problems.
CO3	based on the acquired knowledge to interpret the meaning of the calculated statistical indicators
CO4	Demonstrate concept of index numbers for solving practical problems in business world

Program	MCA
Course Full Title	Essentials of Networking
Course Code	IT23
Course Credit	4
Semester	II
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the basic concepts of data communication including the key aspects of networking and their interrelationship
CO2	Understand various protocols such as HTTP, SMTP, POP3, IMAP, FTP, DNS, DHCP and the basic structure of IPv4, IPv6 Address and concept of sub netting with numerical
CO3	Understand routing concept and working of routing protocols such as RIP, OSPF and BGP
CO4	Understand various encryption techniques

Program	MCA
Course Full Title	Principles and Practices of Management and Organizational Behavior
Course Code	BM21
Course Credit	4

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Semester	II
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe and analyze the interactions between multiple aspects of management.
CO2	Analyze the role of planning and decision making in Organization
CO3	Justify the role of leadership qualities, Motivation Group dynamics and Team Building.
CO4	Compare the controlling process

Program	MCA
Course Full Title	Open Subject 3
Course Code	OS21
Course Credit	1
Semester	II
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Subject 4
Course Code	OS22
Course Credit	1
Semester	II
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	

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CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Case Study on Feasibility Study and Analysis
Course Code	CS21
Course Credit	1
Semester	II
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive student to perform feasibility study in terms of technical, economic etc. and perform data analysis

Program	MCA
Course Full Title	Practical based on IT21
Course Code	IT21L
Course Credit	2
Semester	II
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Write an algorithm.
CO2	Analyze algorithm based on time complexity.
CO3	Coding and implementation using C++
CO4	Analyze program based on time complexity.

Program	MCA
Course Full Title	Practical based on OS21 and OS22
Course Code	OS22L
Course Credit	2
Semester	II
Internal	50

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External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understanding the problem
CO2	Analyzing the problem
CO3	Developing the solution
CO4	Coding and implementation.

Program	MCA
Course Full Title	Soft Skill-II
Course Code	SS21
Course Credit	1
Semester	II
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Team building , Team briefing, Role of Team leader, Conflict resolution, Methodology of Group discussions, Role Functions in Group Discussion, Improving group performance, Mock group discussions

COURSE OUTCOMES MCA (2019 P) SEMESTER III

Program	MCA
Course Full Title	Java Programming
Course Code	IT31
Course Credit	4
Semester	III
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand Basic Concepts of Java and multi-threading.-Understand.
CO2	Demonstrate Collection framework -Apply

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CO3	Develop GUI using AWT and Swing -Apply
CO4	Develop Java Applications using Socket, RMI –Apply
CO5	Develop Web application using JSP and Servlet, JDBC with MVC -- Apply

Program	MCA
Course Full Title	Data Warehouse and Data Mining
Course Code	IT32
Course Credit	4
Semester	III
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Learn and understand techniques of preprocessing various kinds of data -Understand.
CO2	Understand Data warehouse concepts. - Understand
CO3	Apply association Mining Techniques on large Data Sets. - Apply
CO4	Apply classification and clustering Techniques on large Data Sets. - Analyze
CO5	Understand other approaches of Data mining techniques. - Understand

Program	MCA
Course Full Title	Software Testing and Quality Assurance
Course Code	IT33
Course Credit	4
Semester	III
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the role of software quality assurance in contributing to the efficient delivery of software solutions –Understand
CO2	Demonstrate specific software tests with well-defined objectives and targets –Apply

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CO3	Apply the software testing techniques in commercial environments – Apply
CO4	Construct test strategies and plans for software testing –Analyze
CO5	Understand the usage of software testing tools for test effectiveness, efficiency and coverage – Understand

Program	MCA
Course Full Title	Cloud Computing
Course Code	IT34
Course Credit	4
Semester	III
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe the concepts of Cloud Computing and its Service Models & Deployment Models – Understand.
CO2	Classify the types of Virtualization – Understand.
CO3	Describe the Cloud Management and relate Cloud to SOA – Understand.
CO4	Interpret Moving application s to of Cloud – Apply.
CO5	Demonstrate practical implementation of Cloud computing – Apply.

Program	MCA
Course Full Title	Probability and Combinatorics
Course Code	MT31
Course Credit	4
Semester	III
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Apply counting principles to solve the problems –Apply
CO2	Apply various mathematical tools to solve problems. –Apply.
CO3	Understand and apply basic probability principles. –Apply

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CO4	Demonstrate the concept of univariate and bivariate random variable – Apply
CO5	Understand and illustrate the probability distributions.-Analyze

Program	MCA
Course Full Title	Open Subject 5
Course Code	OS31
Course Credit	1
Semester	III
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Subject 6
Course Code	OS32
Course Credit	1
Semester	III
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Case Study on Design
Course Code	CS31
Course Credit	1
Semester	III
Internal	25

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External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive of this subject that student to perform design of problem statement towards software development

Program	MCA
Course Full Title	Practical Based on Java Programming
Course Code	IT31L
Course Credit	2
Semester	III
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Create Web application using JSP and Servlet, JDBC with MVC

Program	MCA
Course Full Title	Practical based on OS31 and OS32
Course Code	OS32L
Course Credit	2
Semester	III
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understanding the problem
CO2	Analyzing the problem
CO3	Developing the solution
CO4	Coding and implementation.

Program	MCA
Course Full Title	Soft Skill-III
Course Code	SS31
Course Credit	1

Semester	III
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Nonverbal communication-Personal appearance-Posture- Gestures-Facial expressions- Eye contact-Space distancing
CO2	Business Presentations: Preparing successful presentations, Planning for audience Making effective use of visual aid, Delivering presentation, using prompts, dealing with questions and interruptions, Mock presentations.
CO3	Effective usage of Tools (MS PowerPoint)

COURSE OUTCOMES MCA (2019 P) SEMESTER IV

Program	MCA
Course Full Title	Python Programming
Course Code	IT41
Course Credit	4
Semester	IV
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand concepts of python.-Understand.
CO2	Demonstrate the concepts modular programming -Apply
CO3	Apply the concepts of concurrency control in python -Apply
CO4	Solve the real life problems using object oriented concepts and python libraries –Apply
CO5	Demonstrate the concept of IO, Exception Handling, database --Apply

Program	MCA
Course Full Title	Information System and Security Audit
Course Code	BM41
Course Credit	4
Semester	IV
Internal	30

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External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Interpret the threats and vulnerabilities from IT system of business software applications. - Apply
CO2	Understand Information Security Management System (ISMS) for IT system of business -Understand
CO3	Apply information security policies and standards for business IT System-Apply
CO4	Discuss various IS controls for Business Continuity and Disaster Recovery of business IT system. -Understand
CO5	Describe information security audit and understand information security IT governance framework. – Understand

Program	MCA
Course Full Title	Optimization Techniques
Course Code	MT41
Course Credit	4
Semester	IV
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the role and principles of optimization techniques in business world -Understand
CO2	Demonstrate specific optimization technique for effective decision making -Apply
CO3	Apply the optimization techniques in business environments -Apply
CO4	Illustrate and infer for the business scenario- Analyze
CO5	Analyze the optimization techniques in strategic planning for optimal gain. - Analyze

Program	MCA
Course Full Title	Essential of Architectural Framework
Course Code	IT42
Course Credit	4

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Semester	IV
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand Basics Fundamentals of Architecture and Framework. (Understand)
CO2	Understand appropriate Architecture Framework design. (Understand)
CO3	Select appropriate technical and industry specific frameworks. (Understand)
CO4	Apply the software development process (Apply)
CO5	Apply the quality of Architecture (Apply)

Program	MCA
Course Full Title	Knowledge Representation and Artificial Intelligence
Course Code	IT43
Course Credit	4
Semester	IV
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Develop a basic understanding of AI building blocks presented in intelligent agents- Develop.
CO2	Choose an appropriate problem solving method and knowledge representation technique – Choose.
CO3	Apply the different Propositional Logic concepts for knowledge representation-Apply.
CO4	Analyze and understand the models for reasoning with uncertainty and different planning and learning approaches in the field of Artificial Intelligence – Analyze and understand.
CO5	Demonstrate awareness and a fundamental understanding of various applications of AI – Demonstrate.

Program	MCA
Course Full Title	Open Subject 7

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Course Code	OS41
Course Credit	1
Semester	IV
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Subject 8
Course Code	OS42
Course Credit	1
Semester	IV
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Case Study on Development
Course Code	CS41
Course Credit	1
Semester	IV
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind this subject is to guide the students to apply various technologies for software development.

Program	MCA
Course Full Title	Practical Based on Python Programming
Course Code	IT41L
Course Credit	2
Semester	IV
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Implement Python programs with conditionals and loops.(Apply)
CO2	Develop Python programs step-wise by defining functions and calling them. (Apply)
CO3	Apply Python lists, tuples, and dictionaries for representing compound data. (Apply)
CO4	Apply file handling function in Python. (Apply)
CO5	Apply NumPy, pandas, matplot modules. (Apply)

Program	MCA
Course Full Title	Practical based on OS31 and OS32
Course Code	OS42L
Course Credit	2
Semester	IV
Internal	50
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understanding the problem
CO2	Analyzing the problem
CO3	Developing the solution
CO4	Coding and implementation.

Program	MCA
Course Full Title	Soft Skill-IV
Course Code	SS41
Course Credit	1

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Semester	IV
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Preparing resumes & CV-Covering letter (effective usage of MSWord) Self introduction during interviews
CO2	Interviews – Types of Interviews, preparing for interviews (Opening, body-answer Q, close-ask
CO3	Types of questions, facing interviews, reviewing performance Participating in mock interviews

COURSE OUTCOMES MCA (2019 P) SEMESTER V

Program	MCA
Course Full Title	Social Media & Digital Marketing
Course Code	IT51
Course Credit	4
Semester	V
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Explain use of Social Media in Marketing (Understand)
CO2	Demonstrate Digital Marketing Strategy (Apply)
CO3	Summarize various tools of Social Media and Digital Marketing (Understand)
CO4	Make use of SEO techniques for websites (Apply)
CO5	Interpret SEM tools and techniques (Understand)

Program	MCA
Course Full Title	Mobile Application Development
Course Code	IT52
Course Credit	4
Semester	V
Internal	30
External	70

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Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand Various Mobile Application Architectures (Understand)
CO2	Use different types of widgets and Layouts. (Apply)
CO3	Describe Web Services and Web Views in mobile applications. (Understand)
CO4	Implement data storing and retrieval methods in android. (Apply)
CO5	Demonstrate Hybrid Mobile App Framework. (Apply)

Program	MCA
Course Full Title	Software Project Management
Course Code	IT53
Course Credit	4
Semester	V
Internal	30
External	70
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the process of Software Project Management Framework and Apply estimation techniques. (Understand)
CO2	Learn the philosophy, principles and lifecycle of an Agile project. (Understand)
CO3	Demonstrate Agile Teams and Tools. (Apply)
CO4	Apply Agile project constraints and trade-offs for estimating project size and schedule (Apply)
CO5	Explain Project Tracking and Interpretation of Progress Report. (Understand)

Program	MCA
Course Full Title	Mini Project
Course Code	ITC51
Course Credit	8
Semester	V
Internal	50
External	150
Specialization	NA

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Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the real-world problem. (Understand) (Apply)
CO2	Express the need of the project through feasibility analysis and literature review. (Understand)
CO3	Determine the project plan using appropriate methodology. (Apply)
CO4	Implement the project design pertaining to the problem. (Apply)
CO5	Demonstrate communication and team-work skills.
CO6	Build and test the solution. (Create)

Program	MCA
Course Full Title	Open Subject 9
Course Code	OS51
Course Credit	1
Semester	V
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Subject 10
Course Code	OS52
Course Credit	1
Semester	V
Internal	25
External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

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Program	MCA
Course Full Title	Case Study on Implementation and Testing
Course Code	CS51
Course Credit	1
Semester	V
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind this subject is to guide the students to apply various test cases and implement project.

Program	MCA
Course Full Title	Soft Skill-V
Course Code	SS51
Course Credit	1
Semester	IV
Internal	25
External	NA
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Preparing resumes
CO2	CV-Covering letter (effective usage of MSWord)
CO3	Self-introduction during interviews
CO4	Interviews – Types of Interviews, preparing for Interviews (Opening, body-answer Q, close-ask Q), Types of questions, facing interviews, reviewing performance
CO5	Participating in mock interviews

COURSE OUTCOMES MCA (2019 P) SEMESTER VI

Program	MCA
Course Full Title	Open Subject 11
Course Code	OS61
Course Credit	4
Semester	VI
Internal	100

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External	NA
Specialization	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Mini Project
Course Code	ITC61
Course Credit	16
Semester	VI
Internal	150
External	250
Specialization	NA
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the real-world problem. (Understand) (Apply)
CO2	Express the need of the project through feasibility analysis and literature review. (Understand)
CO3	Determine the project plan using appropriate methodology. (Apply)
CO4	Implement the project design pertaining to the problem. (Apply)
CO5	Demonstrate communication and team-work skills.
CO6	Build and test the solution. (Create)

COURSE OUTCOMES MCA (2020 P) SEMESTER I

Program	MCA
Course Full Title	Java Programming
Course Code	IT11
Course Credit	3
Semester	I
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand Basic Concepts of OOPs, Java, Inheritance, Package. (Understand)

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CO2	Understand Exception handling, arrays and Strings and multi-threading in Java (Understand.)
CO3	Understand collection framework (Understand)
CO4	Develop GUI using Abstract Windows Toolkit (AWT) and event handling (Apply)
CO5	Develop Web application using JSP and Servlet, JDBC (Apply)

Program	MCA
Course Full Title	Data Structure and Algorithms
Course Code	IT12
Course Credit	3
Semester	I
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Demonstrate linear data structures linked list, stack and queue (apply)
CO2	Implement tree, graph, hash table and heap data structures (apply)
CO3	Apply brute force and backtracking techniques (apply)
CO4	Demonstrate greedy and divide-conquer approaches (apply)
CO5	implement dynamic programming technique (apply)

Program	MCA
Course Full Title	Object Oriented Software Engineering
Course Code	IT13
Course Credit	3
Semester	I
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Distinguish different process model for a software development. (Understand)
CO2	Design software requirements specification solution for a given problem definitions of a software system. (Analyze)
CO3	Apply software engineering analysis/design knowledge to suggest solutions for simulated problems (Analyze)
CO4	Design user interface layout for different types of applications (Apply)

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CO5	Recognize and describe current trends in software engineering (Understand)

Program	MCA
Course Full Title	Operating Systems Concepts
Course Code	IT14
Course Credit	3
Semester	I
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand structure of OS, process management and synchronization. (Understand)
CO2	Understand multicore and multiprocessing OS. (Understand)
CO3	explain Realtime and embedded OS (Understand)
CO4	understand Windows and Linux OS fundamentals and administration. (Understand)
CO5	solve shell scripting problems (Apply)

Program	MCA
Course Full Title	Network Technologies
Course Code	IT15
Course Credit	3
Semester	I
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the basic concepts of Computer Network, and principle of layering (Understand)
CO2	Apply the error detection and correction techniques used in data transmission (Apply)
CO3	Apply IP addressing schemes and sub netting (Apply)
CO4	Understand the concept of routing protocols, Application layer protocols and Network Security (Understand)
CO5	Apply the socket programming basics to create a simple chat application (Apply)

Program	MCA
Course Full Title	Practicals
Course Code	IT11L
Course Credit	5
Semester	I
Internal	75
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Demonstrate Collection framework (Apply)
CO2	Develop GUI using awt and swing (Apply)
CO3	Develop Web application using JSP and Servlet, JDBC (Apply)
CO4	Apply Data Structure to solve problems using JavaScript (Apply)

Program	MCA
Course Full Title	Mini Project
Course Code	ITC11
Course Credit	5
Semester	I
Internal	75
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Create working project using tools and techniques learnt in this semester (Create)

Program	MCA
Course Full Title	Open Course 1
Course Code	OC11
Course Credit	1
Semester	I
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	

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CO1	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Course 2
Course Code	OC12
Course Credit	1
Semester	I
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Soft Skill 1
Course Code	SS11
Course Credit	1
Semester	I
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	To improve the vocabulary of English and competency for business English.
CO2	Use of language lab / English learning tools such as mobile apps like Sling etc. are also encouraged and lot of listening practice, reading and understanding exposure should be given to the students.
CO3	Interested students may appear for Cambridge English exam after completion of 1st year.

COURSE OUTCOMES MCA (2020 P) SEMESTER II

Program	MCA
Course Full Title	Python Programming
Course Code	IT21
Course Credit	3
Semester	II
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand Demonstrate the concepts of python and modular programming. (Understand)
CO2	Apply the concepts of concurrency control in python (Apply)
CO3	Solve the real-life problems using object-oriented concepts and python libraries (Apply)
CO4	Demonstrate the concept of IO, Exception Handling, database (Apply)
CO5	Analyze the given dataset and apply the data analysis concepts and data visualization. (Analyze)

Program	MCA
Course Full Title	Software Project Management
Course Code	IT22
Course Credit	3
Semester	II
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the process of Software Project Management Framework and Apply estimation techniques. (Apply)
CO2	Learn the philosophy, principles and lifecycle of an agile project. (Understand)
CO3	Demonstrate Agile Teams and Tools and Apply agile project constraints and trade-offs for estimating project size and schedule (Apply)
CO4	Explain Project Tracking and Interpretation of Progress Report (Understand)
CO5	Analyze Problem statement and evaluate User Stories (Analyze)

Program	MCA
Course Full Title	Optimization Techniques
Course Code	MT 21
Course Credit	3
Semester	II
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the role and principles of optimization techniques in business world (Understand)
CO2	Demonstrate specific optimization technique for effective decision making (Apply)
CO3	Apply the optimization techniques in business environments (Apply)
CO4	Illustrate and infer for the business scenario (Analyze)
CO5	Analyze the optimization techniques in strategic planning for optimal gain. (Analyze)

Program	MCA
Course Full Title	Advanced Internet Technologies
Course Code	IT23
Course Credit	3
Semester	II
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Outline the basic concepts of Advance Internet Technologies (Understand)
CO2	Design appropriate user interfaces and implements webpage based on given problem Statement (Apply)
CO3	Implement concepts and methods of NodeJS (Apply)
CO4	Implement concepts and methods of Angular (Apply)
CO5	Build Dynamic web pages using server-side PHP programming with Database Connectivity (Apply)

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Program	MCA
Course Full Title	Advanced DBMS
Course Code	IT24
Course Credit	3
Semester	II
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe the core concepts of DBMS and various databases used in real applications (Understand)
CO2	Design relational database using E-R model and normalization (Apply)
CO3	Demonstrate XML database and nonprocedural structural query languages for data access (Apply)
CO4	Explain concepts of Parallel, Distributed and Object-Oriented Databases and their applications (Understand)
CO5	Apply transaction management, recovery management, backup and security – privacy concepts for database applications (Apply)

Program	MCA
Course Full Title	Practicals
Course Code	IT21L
Course Credit	5
Semester	II
Internal	75
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Implement python programming concepts for solving real life problems. (Apply)
CO2	Implement Advanced Internet Technologies (Apply)

Program	MCA
Course Full Title	Mini Project
Course Code	ITC21
Course Credit	5
Semester	II
Internal	75

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External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Create working project using tools and techniques learnt in this semester (Create)

Program	MCA
Course Full Title	Open Course 3
Course Code	OC21
Course Credit	1
Semester	II
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Course 4
Course Code	OC22
Course Credit	1
Semester	II
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Soft Skil
Course Code	SS21
Course Credit	1
Semester	II
Internal	25

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External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Team building , Team briefing, Role of Team leader, Conflict resolution, Methodology of Group discussions, Role Functions in Group Discussion, Improving group performance, Mock group discussions.

COURSE OUTCOMES MCA (2020 P) SEMESTER III

Program	MCA
Course Full Title	Mobile Application Development
Course Code	IT31
Course Credit	3
Semester	III
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand Various Mobile Application Architectures. (Understand)
CO2	Apply different types of widgets and Layouts. (Apply)
CO3	Describe Web Services and Web Views in mobile applications. (Understand)
CO4	Implement data storing and retrieval methods in android. (Apply)
CO5	Demonstrate Hybrid Mobile App Framework. (Apply)

Program	MCA
Course Full Title	Data Warehousing and Data Mining
Course Code	IT32
Course Credit	3
Semester	III
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the process of Software Project Management Framework and Apply estimation techniques. (Apply)
CO2	Learn and understand techniques of preprocessing on various kinds of data (Understand)

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CO3	Apply association Mining and Classification Techniques on Data Sets (Apply)
CO4	Apply Clustering Techniques and Web Mining on Data Sets (Apply)
CO5	Understand other approaches of Data mining (Understand)

Program	MCA
Course Full Title	Software Testing and Quality Assurance
Course Code	IT 33
Course Credit	3
Semester	III
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Understand the role of software quality assurance in contributing to the efficient delivery of software solutions. (Understand)
CO2	Demonstrate specific software tests with well-defined objectives and targets. (Apply)
CO3	Demonstrate specific software tests with well-defined objectives and targets. (Apply)
CO4	Construct test strategies and plans for software testing. (Analyze)
CO5	Demonstrate the usage of software testing tools for test effectiveness, efficiency and coverage (Apply)

Program	MCA
Course Full Title	Knowledge Representation and Artificial Intelligence: ML, DL
Course Code	IT34
Course Credit	3
Semester	III
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Apply Propositional Logic for knowledge representation. (Apply)
CO2	Understand basic building block of Artificial Intelligence and Knowledge Representation. (Understand)
CO3	Design various models based on Machine Learning methodology (Apply)

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CO4	Design various models based on Deep Learning methodology (Apply)
CO5	Understand various hardware and software aspect used for AI and its application. (Understand)

Program	MCA
Course Full Title	Cloud Computing
Course Code	IT35
Course Credit	3
Semester	III
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe the concepts of Cloud Computing and its Service Models& Deployment Models. (Understand)
CO2	Classify the types of Virtualization. (Understand)
CO3	Describe the Cloud Management and relate Cloud to SOA. (Understand)
CO4	Interpret Architecture and Pharrell Programing of Cloud Computing. (Apply)
CO5	Demonstrate practical implementation of Cloud computing. (Apply)

Program	MCA
Course Full Title	Practicals
Course Code	IT31L
Course Credit	5
Semester	III
Internal	75
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Implement python programming concepts for solving real life problems. (Apply)
CO2	Implement Advanced Internet Technologies (Apply)

Program	MCA
Course Full Title	Mini Project
Course Code	ITC31

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Course Credit	5
Semester	III
Internal	75
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Create working project using tools and techniques learnt in this semester (Create)

Program	MCA
Course Full Title	Open Course 5
Course Code	OC31
Course Credit	1
Semester	III
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Open Course 6
Course Code	OC32
Course Credit	1
Semester	III
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	CO1: The motive behind keeping an open course is to make students aware of current/upcoming trends in Information Technology and other domains.

Program	MCA
Course Full Title	Soft Skil
Course Code	SS31

Course Credit	1
Semester	III
Internal	25
External	NA
Core/Elective	Elective
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Preparing resumes & CV-Covering letter (effective usage of MSWord) Self introduction during interviews Interviews – Types of Interviews, preparing for interviews (Opening, body-answer Q, close-ask Q), Types of questions, facing interviews, reviewing performance Participating in mock interviews

COURSE OUTCOMES MCA (2020 P) SEMESTER IV

Program	MCA
Course Full Title	DevOps
Course Code	IT41
Course Credit	3
Semester	IV
Internal	25
External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe the evolution of technology & timeline (Understand)
CO2	Explain Introduction to various Devops platforms (Remember)
CO3	Demonstrate the building components / blocks of Devops and gain an insight of the Devops Architecture. (Understand)
CO4	Apply the knowledge gain about Devops approach across various domains (Apply)
CO5	Build DevOps application (Apply)

Program	MCA
Course Full Title	PPM and OB
Course Code	MB41
Course Credit	3
Semester	IV
Internal	25

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External	50
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Describe and analyze the interactions between multiple aspects of management. (Understand)
CO2	Analyze the role of planning and decision making in Organization (Analyze)
CO3	Justify the role of leadership qualities, Motivation and Team Building. (Analyze)
CO4	Analyze stress management and conflict management (Analyze)
CO5	Describe Personality and Individual Behavior (Understand)

Program	MCA
Course Full Title	Mini Project
Course Code	ITC41
Course Credit	5
Semester	III
Internal	250
External	300
Core/Elective	Core
Course Outcomes: On successful completion of this course, the learner will be able to	
CO1	Create working project using tools and techniques learnt in this semester (Create)

Dr. Anamika Sinhg

   Director