SMDYPSS's

Dr.D.Y.Patil Center for Management and Research Chikhali, Pune.

Implementation of Exam Reforms

INDEX

SHIKSHAN MAHARSHI DR. D. Y. PATIL SHIKSHAN SANTHA'S

Dr. D. Y. Patil

Centre For Management & Research

Approved by AICTE, Affiliated to Savitribai Phule Pune University • DTE Code : MB6168

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UNDERTAKING

Implementation of Examination Reforms

Dr.D.Y.Patil Centre for Management and Research Chikhali, Pune. is an affiliated Institute of Savitribai Phule Pune University (SPPU), Pune. The Institute strictly implements the curriculum and syllabus framed by the affiliating university. All examinations are conducted by Savitribai Phule Pune University in accordance with its prescribed rules and regulations.

The university examination rules and regulations for postgraduate programs are strictly followed by the institution. Internal assessment is carried out as per the guidelines issued by the affiliating university from time to time.

The institution hereby undertakes that internal assessments, Continuous-concurrent evaluation, and examination-related activities are conducted in accordance with the AICTE Examination Reforms. Necessary training is provided to the faculty members to effectively implement these reforms and ensure transparency, fairness, and quality in the evaluation process.

We hereby undertake that all activities of Teaching learning & Evaluation will be carried out by following AICTE Exam reforms and SPPU norms and all the existing faculty will be trained for the same .

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Savitribai Phule Pune University, Pune

Faculty of Commerce and Management

Curriculum 2024 Pattern
Master of Business Administration (MBA)

Revised 2-year, 4 Semester Full time Programme

Choice Based Credit System (CBCS) and Grading System

Outcome Based Education Pattern

Aligned with National Education Policy (NEP) 2020

MBA 1st year effective from AY 2024 - 25

MBA 2nd year effective from AY 2025 - 26

SPPU MBA 2024 NEP Syllabus

Master of Business Administration (MBA) - Revised Curriculum
2024 Pattern
2-year, 4 Semester Full time Programme
Choice Based Credit System (CBCS) and Grading System
Outcome Based Education Pattern
Aligned with NEP
MBA I effective from AY 2024 - 25
MBA II effective from AY 2025 - 26

1.0 Preamble: The revised MBA Curriculum 2024 integrates the National Education Policy, 2020 ethos with the Choice Based Credit System (CBCS) and Grading System and Outcomes Based Education (OBE)

2.0 Credit: *In terms of credits, for a period of one semester of 15 weeks:*
- *a) every ONE-hour session per week of L amounts to 1 credit per semester*
- *b) a minimum of TWO hours per week of T amounts to 1 credit per semester,*
- *c) a minimum of TWO hours per week of P amounts to 1 credit per semester,*

Each credit is a combination of 3 components viz. Lecture (L) + Tutorials (T) + Practice (Practical / Project Work / Self Study) (P) i.e. LTP Pattern. Indicative LTP, for each course, is documented in the syllabus.

The course teacher may, with the consent of the Director / Head of the Department / Designated academic authority of the Institute, modify the LTP of the course in view of the course requirements, nature of the course, the level of learners and the type of pedagogy and assessment tools proposed.

2.1 Session: Each teaching-learning, evaluation session shall be of 60 minutes. However, institutes shall have the flexibility to define their time slots in a manner as to use their faculty and infrastructure resources in the best possible way and ensure effective learning & comply with the credit structure of the respective courses

2.2 Course Announcement: The institute shall announce the elective courses and specializations it proposes to offer the students out of the wider course basket. It is not mandatory to offer all the specializations and all the electives. However, in the spirit of Choice Based Credit System, institutes should offer choices to the students for the elective courses and not offer only the minimum number of electives.

2.3 Course Registration: It is mandatory for every student, to register every semester, for the courses opted for that semester. Each student, on admission shall be assigned to a Faculty Advisor who shall advise her/him about the academic programs and counsel on the choice of courses considering the student's profile, career goals and courses taken in the earlier semesters. With the advice and consent of the Faculty Advisor, the student shall register for a set of courses he/she plans to take up for the Semester. Students shall have to register for the courses for the semester within first week of Semester I and immediately after conclusion of the preceding term for subsequent Semesters II, III and IV.

3.0 MBA Programme Focus:

3.1 Programme Educational Objectives (PEOs):

1. **PEO1:** Graduates of the MBA program will *successfully integrate core, cross-functional and inter-disciplinary* aspects of management *theories, models and frameworks* with the *real-world practices* and the *sector specific nuances* to *provide solutions to real world business, policy and social issues* in a *dynamic and complex world*.
2. **PEO2:** Graduates of the MBA program will possess excellent *communication skills*, excel in *cross-functional, multi-disciplinary, multi-cultural teams,* and have an appreciation for *local, domestic and global contexts* so as to manage *continuity, change, risk, ambiguity and complexity*.
3. **PEO3:** Graduates of the MBA program will be appreciative of the significance of *Indian ethos and values in managerial decision making* and *exhibit value centered leadership*.
4. **PEO4:** Graduates of the MBA program will be ready to *engage in successful career pursuits* covering a broad spectrum of areas in *corporate, non-profit organizations, public policy, entrepreneurial ventures* and engage in *life-long learning*.

5. **PEO5:** Graduates of the MBA program will be recognized in their chosen fields for their *managerial competence*, *creativity & innovation, integrity & sensitivity* to local and global issues of social relevance and earn the *trust & respect* of others as *inspiring, effective and ethical leaders, managers, entrepreneurs, intrapreneurs* and change agents.

3.2 Programme Outcomes (POs): At the end of the MBA programme the learner will possess the

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

3.3 Programme Specific Outcomes (PSOs):

A] MARKETING MANAGEMENT

PSO MKT1: Strategic Marketing Analysis and Decision Making: *Graduates specializing in Marketing Management for the MBA programme will be able to* Analyze market opportunities and challenges using advanced marketing research tools and techniques. They will develop strategic marketing plans that align with organizational objectives and respond effectively to dynamic market conditions.

PSO MKT2: Digital and Social Media Marketing Proficiency: *Graduates specializing in Marketing Management for the MBA programme will be able to demonstrate* proficiency in leveraging digital and social media platforms to enhance brand visibility and customer engagement. They will design and execute integrated digital marketing campaigns that drive business growth.

PSO MKT3: Customer Relationship Management and Service Excellence: *Graduates specializing in Marketing Management for the MBA programme will be able to* excel in building and maintaining strong customer relationships through effective communication, personalized marketing, and superior customer service. They will implement CRM systems to enhance customer loyalty and satisfaction.

PSO MKT4: Innovative Product and Brand Management: *Graduates specializing in Marketing Management for the MBA programme will be able to* develop innovative product and brand management strategies that address

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consumer needs and preferences. They will manage product lifecycles, brand portfolios, and execute branding initiatives that strengthen brand equity.

B] FINANCIAL MANAGEMENT

PSO FIN1: Financial Analysis and Reporting: *Graduates specializing in Financial Management for the MBA programme will be able to* demonstrate the ability to analyze and interpret financial statements, conduct financial ratio analysis, and prepare comprehensive financial reports to support decision-making processes.

PSO FIN2: Investment and Portfolio Management: *Graduates specializing in Financial Management for the MBA programme will be able to* Apply knowledge of investment theories, financial instruments, and portfolio management techniques to construct and manage investment portfolios aimed at achieving specific financial goals.

PSO FIN3: Corporate Finance and Risk Management: *Graduates specializing in Financial Management for the MBA programme will be able to* Develop expertise in corporate finance principles, including capital structure, cost of capital, and capital budgeting, while effectively managing financial risks using various risk management tools and techniques.

PSO FIN4: Financial Technology and Innovation: *Graduates specializing in Financial Management for the MBA programme will be able to* Leverage emerging financial technologies (FinTech) and innovative financial solutions to improve financial services delivery, enhance operational efficiency, and support strategic financial planning.

C] HUMAN RESOURCE MANAGEMENT

PSO HRM1: Strategic HR Planning and Implementation: *Graduates specializing in Human Resource Management for the MBA programme will be able to* Demonstrate the ability to develop and implement strategic human resource plans that align with organizational goals, ensuring optimal utilization of human capital.

PSO HRM2: Talent Acquisition and Development: *Graduates specializing in Human Resource Management for the MBA programme will be able to* Apply advanced techniques and methodologies for effective talent acquisition, development, and retention, fostering a culture of continuous learning and professional growth.

PSO HRM3: Employee Relations and Legal Compliances: *Graduates specializing in Human Resource Management for the MBA programme will be able to* Ensure compliance with labor laws and ethical standards while managing employee relations, promoting a positive and legally compliant work environment.

PSO HRM4: HR Analytics and Performance Management: *Graduates specializing in Human Resource Management for the MBA programme will be able to* Utilize HR analytics and performance management systems to drive data-driven decisions, enhance employee performance, and achieve organizational excellence.

D] OPERATIONS & SUPPLY CHAIN MANAGEMENT

PSO OSCM1: Operations Strategy and Process Improvement: *Graduates specializing in Operations and Supply Chain Management for the MBA programme will be able to* Develop and implement effective operations strategies to enhance process efficiency, reduce waste, and improve overall productivity within organizations.

PSO OSCM2: Supply Chain Design and Management: *Graduates specializing in Operations and Supply Chain Management for the MBA programme will be able to* Design, analyze, and manage end-to-end supply chains to ensure the seamless flow of goods, services, and information, while minimizing costs and meeting customer demands.

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PSO OSCM3: Data-Driven Decision Making in Operations: *Graduates specializing in Operations and Supply Chain Management for the MBA programme will be able to* Utilize quantitative and qualitative data analysis techniques to make informed decisions in operations and supply chain management, ensuring alignment with business goals and customer requirements.

PSO OSCM4: Sustainable and Ethical Supply Chain Practices: *Graduates specializing in Operations and Supply Chain Management for the MBA programme will be able to* Promote and implement sustainable and ethical practices within operations and supply chain management to support environmental sustainability, social responsibility, and ethical governance.

E] BUSINESS ANALYTICS

PSO BA1: Data-Driven Decision Making: *Graduates specializing in Business Analytics for the MBA programme will be able to* apply advanced analytical techniques and tools to collect, process, and interpret large datasets, enabling data-driven decision making in various business functions such as marketing, finance, operations, and human resources.

PSO BA2: Business Intelligence and Reporting: *Graduates specializing in Business Analytics for the MBA programme will be able to* Demonstrate proficiency in using business intelligence tools and software to create comprehensive reports and dashboards that effectively communicate insights and support business strategies.

PSO BA3: Application of Business Analytics: *Graduates specializing in Business Analytics for the MBA programme will be able to* Apply business analytics methodologies to various functional areas such as marketing, finance, operations, and human resources.

PSO BA4: Integration of Analytics in Business Strategy: *Graduates specializing in Business Analytics for the MBA programme will be able to* Integrate business analytics methodologies with strategic management practices to drive organizational growth and competitive advantage.

F] AGRI-BUSINESS MANAGEMENT

PSO ABM1: Agribusiness Management Expertise: *Graduates specializing in Agri-Business Management for the MBA programme will be able to* Demonstrate comprehensive knowledge and understanding of the principles, practices, and challenges in agribusiness management, including supply chain management, agricultural marketing, and financial management

PSO ABM2: Sustainable Agricultural Practices: *Graduates specializing in Agri-Business Management for the MBA programme will be able to* Apply sustainable agricultural practices and strategies to enhance productivity and profitability while ensuring environmental sustainability and social responsibility in agribusiness operations.

PSO ABM3: Innovative Solutions and Technology Integration: *Graduates specializing in Agri-Business Management for the MBA programme will be able to* Utilize modern technologies and innovative solutions to optimize agribusiness processes, data analytics, and digital marketing, to improve efficiency and competitiveness.

PSO ABM4: Leadership and Entrepreneurial Skills: *Graduates specializing in Agri-Business Management for the MBA programme will be able to* Exhibit strong leadership and entrepreneurial skills to effectively lead teams, manage projects, and launch and grow agribusiness ventures, fostering innovation and driving economic development in the agricultural sector.

G] PHARMA & HEALTHCARE MANAGEMENTPSO PHCM1: Pharma & Healthcare Strategy Development: *Graduates specializing in Pharma & Health Care Management for the MBA programme will be able*

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to Develop and implement strategic plans for pharmaceutical and healthcare organizations that align with industry regulations, market trends, and organizational goals.

PSO PHCM2: Operational Excellence in Pharma & Healthcare: *Graduates specializing in Pharma & Health Care Management for the MBA programme will be able to* Apply best practices in operations management to optimize processes, enhance efficiency, and ensure quality in pharmaceutical manufacturing and healthcare delivery systems.

PSO PHCM3: Regulatory and Compliance Expertise: *Graduates specializing in Pharma & Health Care Management for the MBA programme will be able to* Understand and navigate the regulatory environment of the pharmaceutical and healthcare industries to ensure compliance with national and international standards.

PSO PHCM4: Healthcare Innovation and Technology Integration: *Graduates specializing in Pharma & Health Care Management for the MBA programme will be able to* Assess and leverage emerging technologies and innovations to drive advancements in healthcare delivery and pharmaceutical research, enhancing patient care and operational efficiency.

3.4 Graduate Attributes (GAs): At the end of the MBA programme the learner shall exhibit:
GA1: Managerial competence
GA2: Proficiency in Communication, Collaboration, Teamwork and Leadership
GA3: Competence in Creativity & Innovation
GA4: Research Aptitude, Scholarship & Enquiry
GA5: Global Orientation
GA6: Proficiency in ICT & Digital Literacy
GA7: Entrepreneurship & Intrapreneurship Orientation
GA8: Cross-functional & Inter-disciplinary Orientation
GA9: Results Orientation
GA10: Professionalism, Ethical, Values Oriented & Socially Responsible behaviour
GA11: Life-Long Learning Orientation

4.0 PG Diploma and PG Degree (MBA) Programme Structure as per NEP

Year	Level	Semester (2 Year)	Major		RM	OJT / FP	RP	Cumulative	Degree
			Mandatory	Electives					
I	6.0	Semester I	22 credits	4	-	-	-	26	
		Semester II	14 credits	4	4	4 FP	-	26	
Cumulativen Credits for PG Diploma			**36**	**8**	**4**	**4**	**-**	**52**	**PG Diploma (after 3 Year Degree)**
Exit option: PG Diploma 52 Credits after Three Year UG Degree (with additional 4 credits of OJT)									
II	6.5	Semester III	6	12	-	8 OJT	-	26	
		Semester IV	8	12	-	-	6RP	26	
			14	**24**	**-**	**08**	**06**	**52**	**PG Degree (after 4-Years UG)**
Cum. Cr. for 2 Year PG Degree			**50**	**32**	**4**	**12**	**6**	**104**	**PG Degree (after 3-Years UG)**

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PG Diploma Programme Structure as per NEP								
Type	**Semester**	**Course Type**	**Number of Courses**	**Credits**	**Total Credits**	**FA**	**SA**	**Total**
Mandatory	I	Generic Core	6	3	18	300	300	600
Mandatory	I	Generic Core	2	2	4	0	100	100
Elective	I	Generic Elective	2	2	4	100	0	100
		TOTAL	**10**	**-**	**26**	**400**	**400**	**800**
Mandatory	II	Generic Core	4	3	12	200	200	400
Mandatory	II	Generic Core	1	2	2	0	50	50
Mandatory	II	Business Research Methods	1	2	2	-	50	50
Mandatory	II	Desk Research	1	2	2	50	0	50
Mandatory	II	Field Project	1	4	4	50	100	150
Elective	II	Generic Elective	2	2	4	100	0	100
		TOTAL	**10**	**-**	**26**	**400**	**400**	**800**
PG Diploma in Management after Three Year UG Degree (with additional 4 credits of OJT for Exit option)			**20**	**-**	**52**	**800**	**800**	**1600**

- The students can exit the Programme after one year of MBA, but he has to take additional 4 Credits of On- job Training. To get **PG Diploma after Three Year UG Degree, he should earn total 52+ 4= 56 Credits**
- Re-entry to complete the PG degree, after taking the exit option, will be permissible up to 05 years from the date of admission to the PG program
- The institute may conduct bridge courses for the respective students at the discretion of Director/ Head of the institutions

PG Degree Programme (MBA) Structure as per NEP								
Type	**Semester**	**Course Type**	**Number of Courses**	**Credits**	**Total Credits**	**FA**	**SA**	**Total**
Mandatory	III	Generic Core	1	3	3	50	50	100
Mandatory	III	Subject Core	1	3	3	50	50	100
Mandatory	III	OJT (SIP)	1	8	8	100	100	200
Elective	III	Subject Elective	4	3	12	200	200	400
		TOTAL	**7**	**-**	**26**	**400**	**400**	**800**
Mandatory	IV	Generic Core	1	3	3	50	50	100
Mandatory	IV	Generic Core	1	2	2	0	50	50
Mandatory	IV	Subject Core	1	3	3	50	50	100
Mandatory	IV	Research Project	1	6	6	100	50	150
Elective	IV	Subject Elective	4	3	12	200	200	400
		TOTAL	**8**		**26**	**400**	**400**	**800**
PG Degree (MBA) after Four-year UG Degree (Lateral Entry)			**15**		**52**	**800**	**800**	**1600**
PG Degree(MBA) after Three years UG Degree			**35**		**104**	**1600**	**1600**	**3200**

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4.1 Course Types

4.1.1 **Core courses** are the compulsory courses for all the students. Core courses are of two types: Generic Core & Subject Core.

4.1.2 **Generic Core:** This is the course which should compulsorily be studied by a candidate as a core requirement to complete the requirement of a degree in a said discipline of study. Therefore, Generic Core courses are mandatory and fundamental in nature. These courses cannot be substituted by any other courses. Such courses are also known as Hard Core Courses.

4.1.3 **Subject Core:** A Core course may be a Subject Core if there is a choice or an option for the candidate to choose from a broad category (grouping) of subjects (specializations).

4.1.4 **Elective Course:** Elective course is a course which can be chosen from a pool of courses. It may be:

a) Very Specialized or advanced course focusing on a specific aspect
b) Supportive to the discipline of study
c) Providing an extended scope
d) Enabling an exposure to some other discipline/domain
e) Nurturing candidate's proficiency/skills.

4.1.5 **Generic Elective:** An elective course which is common across disciplines / subjects is called a generic elective. 'Generic Elective' courses develop generic proficiencies amongst the students.

4.1.6 **Subject Elective:** A 'Discipline (specialization) centric' elective is called 'Subject Elective.' Subject Elective courses, in the Semester II, III and IV are focused on a specialization.

4.1.7 **Research Methodology Courses:** These courses are focused on various aspects of Research. They include – Business Research Methods, Desk Research (DR) and Field Project (FP) in Semester II, On The Job Training (OJT) in Semester III and Research Project (RP) in Semester IV. ***DR, FP, OJT and RP shall be specialization specific compulsory courses (subject core). BRM shall be a generic compulsory course.***

4.1.8 **Massive Open Online Courses (MOOCs)**[1]: Massive Open Online Courses (MOOCs) are such online courses which are developed as per the pedagogy stated in the AICTE regulation (2016) or equiavelent; following the four-quadrant approach and made available on the SWAYAM platform of Government of India. **Upto 40% credits are permitted through MOOCS. Any Course of 2 Credits can be taken in the form of SWAYAM / NPTEL MOOCS provided the student secures the certificate from SWAYAM / NPTEL. MOOCs from other platforms shall not be considered valid. MOOCS cannot be opted for in case of a 3-credit course.**

5.0 Specializations offered: The following specializations shall be offered:

1. Marketing Management (MKT)
2. Financial Management (FIN)
3. Human Resources Management (HRM)
4. Operations & Supply Chain Management (OSCM)
5. Business Analytics (BA)
6. Agri -Business Management (ABM)
7. Pharma & Healthcare Management (PHM)

Note:

1. There is no provision for MAJOR and MINOR Specialization Combination.
2. Specialization shall be chosen at the BEGINNING of SEM III.
3. **Desk Research, Field Project, On-the Job Training & Research Project shall be in the area of specialization only. i.e. these courses are SUBJECT CORE COURSES.**
4. Institutes may offer ONLY SELECT specializations based on industry needs, faculty strength & competencies, student demands, employability potential, etc.
5. Institutes MAY NOT offer a specialization if a **minimum of 20% of students** are not registered for that specialization.
6. The Institute MAY NOT offer an elective course if a **minimum of 20% of students** are not registered for that elective course.

[1] AICTE (Credit Framework for online learning course through SWAYAM) Regulations, 2016

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6.0 Open Elective(s):

1. There is no provision for Open Electives. Students may pursue additional specializations as per the relevant provisions.

7.1 Formative Assesement (FA) / Comprehensive Concurrent Evaluation (CCE)

The course teacher shall prepare the scheme of Comprehensive Concurrent Evaluation (Formative Assessment) before commencement of the term.

1. The scheme of Comprehensive Concurrent Evaluation shall explicitly state the linkages of each FA/ CCE with the Course Outcomes and define the targeted attainment levels for each CO. Graduate Attributes may also be considered during the design of CCE scheme.
2. The Director / Head of the Department / designated academic authority shall approve the scheme of Formative Assseement (FA) Comprehensive Concurrent Evaluation with or without modifications.
3. The course teacher shall communicate to the students, the approved FA/ CCE scheme of the course and the same shall also be hosted on the Institute's website, not later than the first week of the term.
4. *Each FA/ CCE item shall be of minimum 25 marks.*
5. *For a 3 Credit Course there shall be a MINIMUM of three FA/CCE items. The final scores shall be converted to 50, using an average or best two out of three formula.*
6. *For 2 Credit Course there shall be a MINIMUM of two CCE items. The final scores shall be converted to 50.*
7. FA/ CCE shall be spread through the duration of course and shall be conceptualized, executed, assessed and documented by the course teacher along with student-wise and class-wise attainment levels of the COs and the attainment levels of the course.
8. The assessment outcome of each FA/CCE shall be duly signed by the course teacher, programme coordinator / academic head and the Director / Head of the Department / designated academic authority of the Institute.
9. A copy of the duly signed FA/CCE *outcome* shall be communicated to the students, within a week of the assessment and course teachers shall guide the students on a need basis.
10. Institute may conduct additional make up / remedial FA/CCE items at its discretion.
11. At the end of the term aggregate FA/CCE scores / grades shall be calculated and the CO attainment levels shall be calculated by the course teacher. The same shall be communicated to the students within a week.

7.1 Formative Assessment (FA) / Comprehensive Concurrent Evaluation Methods: Course teachers shall opt for a combination of one of more CCE methods listed below.

Group A (Individual Assessment) – Not more than 1 per course

1. Class Test
2. Open Book Test
3. Written Home Assignment
4. In-depth Viva-Voce

Group B (Individual Assessment) – Atleast 1 per course

5. Case Study
6. Caselet
7. Situation Analysis
8. Presentations

Group C (Group Assessment) – Not more than 1 per course

9. Field Visit / Study tour and report of the same
10. Small Group Project & Internal Viva-Voce
11. Model Development
12. Role Play
13. Story Telling
14. Fish Bowls

Group D (Creative - Individual Assessment) – Not more than 1 per course

15. Learning Diary

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16. Scrap Book / Story of the week / Story of the month
17. Creating a Quiz
18. Designing comic strips
19. Creating Brochures / Bumper Stickers / Fliers
20. Creating Crossword Puzzles
21. Creating and Presenting Posters
22. Writing an Advice Column
23. Library Magazines based assessment
24. Peer assessment
25. Autobiography/Biography
26. Writing a Memo
27. Work Portfolio

Group E (Use of Literature / Research Publications- Individual Assessment) – Not more than 1 per course

28. Book Review
29. Drafting a Policy Brief
30. Drafting an Executive Summary
31. Literature Review
32. Term Paper
33. Thematic Presentation
34. Publishing a Research Paper
35. Annotated Bibliography
36. Creating Taxanomy
37. Creating Concept maps

Group F (Use of Technology - Individual Assessment) – Not more than 1 per course

38. Online Exam
39. Simulation Exercises
40. Gamification Exercises
41. Presentation based on Google Alerts
42. Webinar based assessment
43. Creating Webpage / Website / Blog
44. Creating infographics / infomercial
45. Creating podcasts / Newscast
46. Discussion Boards

7.2 Rubrics: The course teacher shall design Rubrics for each FA/CCE. Rubrics are scoring tools that define performance expectations for learners. The course teacher shall seek approval for the rubrics from the Director / Head of the Department / other designated competent academic authority of the institute. The course teacher shall share the approved Rubrics with the students at the start of the course. The rubric shall detail the following:

1. Linkages of the FA/CCE to COs.
2. A description of the assessment - brief concept note
3. Criteria that will be assessed - the expected learning outcomes.
4. Descriptions of what is expected for each assessment component - the expectations from the student.
5. Substantive description of the expected performance levels indicating mastering of various components - the assessment criteria.
6. The team composition, if applicable.
7. The format and mode of submission, submission timelines
8. Any other relevant details.

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7.3 Safeguards for Credibility of FA/CCE: The following practices are encouraged to enhance transparency and authenticity of concurrent evaluation:

1. Involving faculty members from other management institutes.
2. Setting multiple question paper sets and choosing the final question paper in a random manner.
3. One of the internal faculty members (other than the course teacher) acting as jury during activity based evaluations.
4. Involvement of Industry personnel in evaluating projects / field based assignments.
5. Involvement of alumni in evaluating presentations, role plays, etc.
6. 100% moderation of answer sheets, in exceptional cases.

7.4 Retention of FA/CCE Documents: Records of FA/CCE shall be retained for 3 years from the completion of the Academic Year. i.e. **Current Academic Year (CAY) + 3 years.**

8.0 End Semester Evaluation (ESE)/ Summative Asssement (SA)

1. The End Semester Evaluation (Summative Evaluation) shall be conducted by the Savitribai Phule Pune University.
2. The ESE/SA shall have 5 questions each of 10 marks.
3. All questions shall be compulsory with internal choice within the questions.
4. The broad structure of the ESE/SA question paper shall be as follows:

Question Number	COGNITIVE ABILITIES EVALUATED	Nature
Q.1	REMEMBERING	Answer any 5 out of 8 (2 marks each)
Q.2	UNDERSTANDING	Answer any 2 out of 3 (5 marks each)
Q.3	APPLYING	Answer 3 (a) or 3 (b) (10 marks)
Q.4	ANALYSING	Answer 4 (a) or 4 (b) (10 marks)
Q.5	EVALUATING	Answer 5 (a) or 5 (b) (10 marks)
	CREATING	

9.0 Programme Flexibility:

9.1 Dropping an Elective Course:

1. Students who opt for an elective course and fail to earn the credits for the elective course (generic / subject / open) are permitted to opt for another elective course (generic / subject / open) in case they feel to do so.
2. In such a case they shall be said to have dropped the original course and opted for a new one.
3. Generic Core (GC), Subject Core (SC) CANNOT be dropped.
4. Generic Elective & Subject Elective can be dropped and replaced with equivalent alternative courses
5. Not more than four courses can be dropped and replaced with equivalent alternative courses during the entire MBA programme.

9.2 Credit Transfer for MOOCs:

1. Since MOOC is a guided self study course 40 - 45 hours of work shall be equivalent to one credit. The faculty shall oversee the progress of the learner as well as evaluate the learner for 50 marks / 2 credits.
2. Students shall apply to the Director / Head of the Department / other designated competent academic authority of the institute in advance and seek permission for seeking credit transfer for the proposed MOOCs, he/she wishes to pursue.
3. For claiming these credits - SWAYAM / NPTEL course / MOOC completion certificate submission to the institute shall be mandatory

10.0 Additional Specialization:

1. **A student who has completed the MBA programme under this pattern may enroll for additional specialization after passing out the regular MBA programme.**

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2. Such students will be exempted from appearing for all the generic core and generic elective courses.
3. Such students shall have to appear for the subject core, subject elective courses, DR, FP, OJT and RP of the additional specialization that they have opted for.

11.0 Passing Standards:

1. A student shall be said to have earned the credits for a course if he/she earns minimum 40% marks.
2. Formative Evaluation and Summative Evaluation shall be separate heads of passing.

12.0 Grading System: The Indirect and Absolute Grading System shall be used, i.e. the assessment of individual Courses in the concerned examinations will be on the basis of marks. However, the marks shall later be converted into Grades by a defined mechanism wherein the overall performance of the learners can be reflected after considering the Credit Points for any given course. The overall evaluation shall be designated in terms of Grade. The 10-point standard scale mandated by UGC shall be used.

The performance of a student will be evaluated in terms of two indices, viz.

(a) Semester Grade Point Average (SGPA) which is the Grade Point Average for a semester.
(b) Cumulative Grade Point Average (CGPA) which is the Grade Point Average for all the completed semesters at any point in time.

13 Miscellaneous

13.1 Scaling Down of CCE/FA Scores: The marks obtained by the student for the CCE/FA SHALL BE SCALED DOWN, to the required extent, if percentage of the marks of CCE/FA exceeds the percentage of marks scored in the ESE (End Semester University Examination) by 25% for the respective course.

13.2 Degree Requirements: The degree requirements for the MBA programme are completion of minimum 104 credits.

13.3 Maximum Attempts per Course:

1. A student shall earn the credits for a given course in maximum FOUR attempts.

13.4 Maximum Duration for completion of the Programme: The candidates shall complete the MBA Programme **within 4 years** from the date of admission.

13.5 Attendance: The student must meet the requirement of **75% attendance per semester per course** for grant of the term. The institute may condone the shortage in attendance in exceptional circumstances, up to a maximum of 10%. The institute shall have the right to withhold the student from appearing for examination of a specific course if the above requirement is not fulfilled.

13.6 Text Books and Reference Books refer to the latest edition.

13.7 Medium of Instruction: The medium of Instruction & Evaluation shall be English.

13.8 Grade Improvement:

1. A Candidate who has secured any grade other than F (i.e. passed the MBA programme) and desires to avail the Grade Improvement option, may apply under Grade Improvement Scheme within five years from passing that Examination.
2. He/she can avail not more than three attempts, according to the syllabus in existence, for grade improvement.
3. He /she shall appear for University Evaluation of **at least 1/3rd** of the Generic Core / Subject Core Courses (except SIP) for the purpose of Grade Improvement.

Annexures:
Annexure I – Semester wise Course List.
Annexure II - Detailed syllabus.

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Annexure I – LIST OF COURSES
OFFERED IN EACH SEMESTER

SEMESTER I							
Type	**Sem Code**	**Course Code**	**Course**	**Credits**	**FA**	**SA**	**Marks**
Mandatory	MA 501 MJ	GC – 01	Managerial Accounting	3	50	50	100
Mandatory	OB 502 MJ	GC – 02	Organizational Behaviour	3	50	50	100
Mandatory	EAB 503 MJ	GC – 03	Economic Analysis for Business Decisions	3	50	50	100
Mandatory	BM 504 MJ	GC – 04	Basics of Marketing	3	50	50	100
Mandatory	BA 505 MJ	GC – 05	Business Analytics	3	50	50	100
Mandatory	DS 506 MJ	GC – 06	Decision Science	3	50	50	100
Mandatory	MF 507 MJ	GC – 07	Management Fundamentals	2	0	50	50
Mandatory	IKS 508 MJ	GC – 08	Indian Knowledge Systems	2	0	50	50
	CORE TOTAL		**8**	**22**	**300**	**400**	**700**
Semester I Generic Electives - Any 2 Courses to be Opted from the following list							
Elective	BC 510 MJ	GE 01	Business Communication-I	2	50	0	50
Elective	TTB 511 MJ	GE 02	Technology Tools in Business Management - I	2	50	0	50
Elective	ESG 512 MJ	GE 03	Environmental, Social, and Governance (ESG)	2	50	0	50
Elective	DAF 513 MJ	GE 04	Demand Analysis & Forecasting	2	50	0	50
Elective	GWE 514 MJ	GE 05	Geopolitics & World Economic Systems	2	50	0	50
Elective	CFM 515 MJ	GE 06	Contemporary Frameworks in Management	2	50	0	50
Elective	EPM 516 MJ	GE 07	Essentials of Psychology for Managers	2	50	0	50
	ELECTIVE TOTAL		**2**	**4**	**100**	**0**	**100**
	SEMESTER TOTAL		**10**	**26**	**400**	**400**	**800**

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SEMESTER II							
Type	**Sem Code**	**Course Code**	**Course**	**Credits**	**FA**	**SA**	**Marks**
Mandatory	MM 551 MJ	GC – 09	Marketing Management	3	50	50	100
Mandatory	FM 552 MJ	GC – 10	Financial Management	3	50	50	100
Mandatory	HRM 553 MJ	GC – 11	Human Resources Management	3	50	50	100
Mandatory	OSCM 554 MJ	GC – 12	Operations & Supply Chain Management	3	50	50	100
Mandatory	LAB 555 MJ	GC - 13	Legal Aspects of Business	2	0	50	50
	CORE TOTAL		**5**	**14**	**200**	**250**	**450**
Mandatory	BRM 556 MJ	RM - 01	BRM	2	-	50	50
Mandatory	DR 557 MJ	RM - 02	Desk Research	2	50	0	50
Mandatory	FP 558 MJ	RM - 03	Field Project	4	50	100	150
	RESEARCH TOTAL		**3**	**8**	**100**	**150**	**250**
Semester II Generic Electives - Any 2 Courses to be Opted from the respective elective list							
Elective	BC 560 MJ	GE 08	Business Communication-II	2	50	0	50
Elective	TTB 561 MJ	GE 09	Technology Tools in Business Management - II	2	50	0	50
Elective	SDG 562 MJ	GE 10	Sustainable Development Goals	2	50	0	50
Elective	SNS 563 MJ	GE 11	Selling & Negotiation Skills Lab	2	50	0	50
Elective	IE 564 MJ	GE 12	Indian Economy	2	50	0	50
Elective	IBE 565 MJ	GE 13	International Business Environment	2	50	0	50
Elective	BE 566 MJ	GE 14	Business Ethics	2	50	0	50
	ELECTIVE TOTAL		**2**	**4**	**100**	**0**	**100**
	SEMESTER TOTAL		**10**	**26**	**400**	**400**	**800**

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SEMESTER III							
	Sem Code	**Course Code**	**Course**	**Credits**	**FA**	**SA**	**Marks**
Mandatory	301	GC – 14	Strategic Management	3	50	50	100
Mandatory	302	SC - 01		3	50	50	100
	CORE TOTAL		**2**	**6**	**100**	**100**	**200**
Mandatory	303	OJT (SC)	On the Job Training	8	100	100	200
	SIP TOTAL		**1**	**8**	**100**	**100**	**200**
Semester III Specialization Electives - Any 4 Courses to be Opted from the respective elective list							
Elective	304	SE 01		3	50	50	100
Elective	305	SE 02		3	50	50	100
Elective	306	SE 03		3	50	50	100
Elective	307	SE 04		3	50	50	100
Elective	308	SE 05		3	50	50	100
Elective	309	SE 06		3	50	50	100
Elective	310	SE 07		3	50	50	100
Elective	311	SE 08		3	50	50	100
	ELECTIVE TOTAL		**4**	**12**	**200**	**200**	**400**
	SEMESTER TOTAL		**7**	**26**	**400**	**400**	**800**

SEMESTER IV							
	Sem Code	**Course Code**	**Course**	**Credits**	**FA**	**SA**	**Marks**
Mandatory	401	GC – 15	Entrepreneurship, Innovation and Design Thinking	3	50	50	100
Mandatory	402	GC - 16	Enterprise Performance Management	2	0	50	50
Mandatory	403	SC - 02		3	50	50	100
	CORE TOTAL		**3**	**8**	**100**	**150**	**250**
Mandatory	404	RP	Research Project	6	100	50	150
	RESEARCH PROJECT TOTAL		**1**	**6**	**100**	**50**	**150**
Semester IV Specialization Electives - Any 4 Courses to be Opted from the following list							
Elective	405	SE 09		3	50	50	100
Elective	406	SE 10		3	50	50	100
Elective	407	SE 11		3	50	50	100
Elective	408	SE 12		3	50	50	100
Elective	409	SE 13		3	50	50	100
Elective	410	SE 14		3	50	50	100
Elective	411	SE 15		3	50	50	100
Elective	412	SE 16		3	50	50	100
	ELECTIVE TOTAL		**4**	**12**	**200**	**200**	**400**
	SEMESTER TOTAL		**8**	**26**	**400**	**400**	**800**
	PROGRAMME TOTAL		**35**	**104**	**1600**	**1600**	**3200**

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MARKETING MANAGEMENT							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SC MKT- 01	Services Marketing	III	3	50	50	100
403	SC MKT- 02	Marketing Strategy	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses - Semester III (Any 4 to be opted for)							
304	SE MKT- 01	Consumer Behaviour	III	3	50	50	100
305	SE MKT- 02	Product & Brand Management	III	3	50	50	100
306	SE MKT- 03	Sales & Distribution Management	III	3	50	50	100
307	SE MKT- 04	Digital Marketing-I	III	3	50	50	100
308	SE MKT- 05	International Marketing	III	3	50	50	100
309	SE MKT- 06	Business to Business Marketing	III	3	50	50	100
310	SE MKT- 07	Marketing Analytics	III	3	50	50	100
311	SE MKT- 08	Marketing 5.0	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses - Semester IV (Any 4 to be opted for)							
405	SE MKT- 09	Integrated Marketing Communication	IV	3	50	50	100
406	SE MKT- 10	Rural & Agriculture Marketing	IV	3	50	50	100
407	SE MKT- 11	Tourism & Hospitality Marketing	IV	3	50	50	100
408	SE MKT- 12	Digital Marketing-II	IV	3	50	50	100
409	SE MKT- 13	Retail Marketing	IV	3	50	50	100
410	SE MKT- 14	Marketing of Financial Services	IV	3	50	50	100
411	SE MKT- 15	Recent trends in Marketing	IV	3	50	50	100
412	SE MKT- 16	Marketing 6.0	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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FINANCIAL MANAGEMENT							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SC FIN- 01	Advanced Financial Management	III	3	50	50	100
403	SC FIN - 02	Financial Markets and Banking Operations	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses - Semester III (Any 4 to be opted for)							
304	SE FIN - 01	Financial Statement & Analysis	III	3	50	50	100
305	SE FIN - 02	Personal Financial Planning	III	3	50	50	100
306	SE FIN - 03	Security Analysis and Portfolio Management	III	3	50	50	100
307	SE FIN - 04	Fundamentals of Life Insurance - Products and Underwriting	III	3	50	50	100
308	SE FIN - 05	Digital Banking	III	3	50	50	100
309	SE FIN - 06	Direct Taxation	III	3	50	50	100
310	SE FIN - 07	Financial Reporting	III	3	50	50	100
311	SE FIN - 08	International Finance	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses - Semester IV (Any 4 to be opted for)							
405	SE FIN - 09	Corporate Financial Restructuring	IV	3	50	50	100
406	SE FIN - 10	Business Valuation	IV	3	50	50	100
407	SE FIN - 11	Technical Analysis of Financial Markets	IV	3	50	50	100
408	SE FIN - 12	Risk Management	IV	3	50	50	100
409	SE FIN - 13	Rural and Micro Finance	IV	3	50	50	100
410	SE FIN - 14	Indirect Taxation	IV	3	50	50	100
411	SE FIN - 15	Corporate Financial Restructuring	IV	3	50	50	100
412	SE FIN - 16	Commodities Market	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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HUMAN RESOURCE MANAGEMENT							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SC HRM- 01	Strategic Human Resource Management	III	3	50	50	100
403	SC HRM - 02	Employee Relations & Labour Legislation	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses - Semester III (Any 4 to be opted for)							
304	SE HRM - 01	Competency Based HRM	III	3	50	50	100
305	SE HRM - 02	Conflict management and Negotiation Skills	III	3	50	50	100
306	SE HRM - 03	HR Analytics	III	3	50	50	100
307	SE HRM - 04	Diversity & Inclusion	III	3	50	50	100
308	SE HRM - 05	HR Perspective in Merger & Acquisition	III	3	50	50	100
309	SE HRM - 06	Labour Economics & Costing	III	3	50	50	100
310	SE HRM - 07	Organization Diagnosis and Development	III	3	50	50	100
311	SE HRM - 08	HR Operations	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses - Semester IV (Any 4 to be opted for)							
405	SE HRM - 09	Compensation & Reward Management	IV	3	50	50	100
406	SE HRM - 10	Employee Engagement	IV	3	50	50	100
407	SE HRM - 11	Designing HR Policies	IV	3	50	50	100
408	SE HRM - 12	Performance Management System	IV	3	50	50	100
409	SE HRM - 13	Change Management & New Technologiesin HRM	IV	3	50	50	100
410	SE HRM - 14	Global HR Practices	IV	3	50	50	100
411	SE HRM - 15	Mentoring & Coaching	IV	3	50	50	100
412	SE HRM - 16	Labour Welfare	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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OPERATIONS & SUPPLY CHAIN MANAGEMENT							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SC OSCM- 01	Services Operations Management	III	3	50	50	100
403	SC OSCM- 02	Supply Chain Management	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses - Semester III (Any 4 to be opted for)							
304	SE OSCM- 01	Planning & Control of Operations	III	3	50	50	100
305	SE OSCM- 02	Productivity Management	III	3	50	50	100
306	SE OSCM- 03	Theory of Constraints	III	3	50	50	100
307	SE OSCM- 04	Manufacturing Resource Planning	III	3	50	50	100
308	SE OSCM- 05	Quality Management Standards	III	3	50	50	100
309	SE OSCM- 06	Strategic Supply Chain Management	III	3	50	50	100
310	SE OSCM- 07	Business Excellence	III	3	50	50	100
311	SE OSCM- 08	Service Value Chain Management	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses - Semester IV (Any 4 to be opted for)							
405	SE OSCM- 09	Industry 4.0	IV	3	50	50	100
406	SE OSCM- 10	Six Sigma for Operations	IV	3	50	50	100
407	SE OSCM- 11	Toyota Production System	IV	3	50	50	100
408	SE OSCM- 12	World Class Manufacturing	IV	3	50	50	100
409	SE OSCM- 13	Supply Chain Strategy	IV	3	50	50	100
410	SE OSCM- 14	Financial Perspectives in Operations Management	IV	3	50	50	100
411	SE OSCM- 15	Facilities Planning	IV	3	50	50	100
412	SE OSCM- 16	Sustainable Supply Chains	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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BUSINESS ANALYTICS							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SC BA - 01	Python	III	3	50	50	100
403	SC BA- 02	Data Mining	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses - Semester III (Any 4 to be opted for)							
304	SE BA- 01	Advanced Statistical Methods	III	3	50	50	100
305	SE BA- 02	Data Visualization and storytelling	III	3	50	50	100
306	SE BA- 03	Marketing Analytics	III	3	50	50	100
307	SE BA- 04	Financial Analytics	III	3	50	50	100
308	SE BA- 05	Workforce Analytics	III	3	50	50	100
309	SE BA- 06	Big Data Analytics	III	3	50	50	100
310	SE BA- 07	Supply & Operation Chain Analytics	III	3	50	50	100
311	SE BA- 08	Digital marketing	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses - Semester IV (Any 4 to be opted for)							
405	SE BA- 09	Time Series Analysis and Forecasting	IV	3	50	50	100
406	SE BA - 10	Strategic Management and Business Analytics	IV	3	50	50	100
407	SE BA - 11	Retail and E-Commerce Analytics	IV	3	50	50	100
408	SE BA - 12	Generative AI for Business Applications	IV	3	50	50	100
409	SE BA - 13	Healthcare Analytics	IV	3	50	50	100
410	SE BA - 14	Predictive Analytics and Machine learning using Python	IV	3	50	50	100
411	SE BA - 15	Sports Analytics	IV	3	50	50	100
412	SE BA - 16	Business applications of Blockchain technologies	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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AGRI BUSINESS MANAGEMENT							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SC ABM- 01	Agriculture and Indian Economy	III	3	50	50	100
403	SC ABM- 02	ICT for Agriculture	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses - Semester III (Any 4 to be opted for)							
304	SE ABM- 01	Agricultural Marketing Management	III	3	50	50	100
305	SE ABM- 02	Rural Marketing	III	3	50	50	100
306	SE ABM- 03	Rural Banking	III	3	50	50	100
307	SE ABM- 04	Agri- Insurance	III	3	50	50	100
308	SE ABM- 05	Agri- Supply Chain Management	III	3	50	50	100
309	SE ABM- 06	Agricultural Import Export	III	3	50	50	100
310	SE ABM- 07	Current trends in Agriculture	III	3	50	50	100
311	SE ABM- 08	Agri- Entrepreneurship & Startup Management	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses - Semester IV (Any 4 to be opted for)							
405	SE ABM- 09	Food Retail management	IV	3	50	50	100
406	SE ABM- 10	Agri- Input Marketing	IV	3	50	50	100
407	SE ABM- 11	Microfinance	IV	3	50	50	100
408	SE ABM- 12	Commodity derivatives and Risk Management	IV	3	50	50	100
409	SE ABM- 13	Procurement Management	IV	3	50	50	100
410	SE ABM- 14	Agri- Production, Planning and Control	IV	3	50	50	100
411	SE ABM- 15	Management of Allied Agro Industries	IV	3	50	50	100
412	SE ABM- 16	Agri- Cooperative Management	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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PHARMA & HEALTHCARE MANAGEMENT							
Specialization Core Courses							
Sem Code	**Course Code**	**Course**	**Semester**	**Credits**	**FA**	**SA**	**Total Marks**
302	SCPHM-01	Fundamentals of Pharma and Healthcare Management	III	3	50	50	100
403	SCPHM-02	Regulatory laws in Indian Pharmaceutical & healthcare Industry	IV	3	50	50	100
				6	**100**	**100**	**200**
Specialization Elective Courses-Semester III(Any4 to be opted for)							
304	SEPHM-01	Healthcare management	III	3	50	50	100
305	SEPHM-02	Pharmaceutical Marketing Management	III	3	50	50	100
306	SEPHM-03	Digital marketing in Pharma & Healthcare	III	3	50	50	100
307	SEPHM-04	Supply Chain Management in Pharmaceutical Sector	III	3	50	50	100
308	SEPHM-05	Pharmaceutical Production Management	III	3	50	50	100
309	SEPHM- 06	Compensation Management and Performance Appraisal in Pharma and healthcare	III	3	50	50	100
310	SEPHM- 07	Health Insurance	III	3	50	50	100
311	SEPHM- 08	Entrepreneurship in Pharma and Healthcare	III	3	50	50	100
				12	**200**	**200**	**400**
Specialization Elective Courses-Semester IV(Any 4 to be opted for)							
405	SEPHM- 09	Ethics and Legal aspects of Pharmaceutical and Healthcare Business	IV	3	50	50	100
406	SEPHM- 10	Clinical Data Management	IV	3	50	50	100
407	SEPHM- 11	Regulatory affairs in pharmaceuticals	IV	3	50	50	100
408	SEPHM- 12	International Pharma marketing	IV	3	50	50	100
409	SEPHM- 13	Marketing of Medical Devices and Diagnostics	IV	3	50	50	100
410	SEPHM- 14	Quality Assurance and Control Management in Pharma	IV	3	50	50	100
411	SEPHM-15	Pharmaceutical advanced Human Resource Management	IV	3	50	50	100
412	SEPHM-16	Healthcare Analytics	IV	3	50	50	100
				12	**200**	**200**	**400**
				30	**500**	**500**	**1000**

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Savitribai Phule Pune University, Pune

Faculty of Commerce and Management

Master of Computer Application (MCA)

Programme Curriculum

(Pattern 2024)

(With Effect from Academic Year 2024-25)

Revised 2-year, 4 Semester Full time Programme Choice Based Credit System (CBCS) and Grading System Outcome Based Education Pattern Aligned with National Education Policy (NEP) 2020

MCA 1st year effective from A.Y. 2024 – 25

MCA 2nd year effective from A.Y. 2025 - 26

Preamble:

1. The name of the programme shall be Master of Computer Application (M.C.A)
2. The revised MCA Curriculum 2024 builds on the implementation of the Choice Based Credit System (CBCS). The curriculum takes the MCA programme to the next level in terms of implementing National Education Policy (NEP) and Outcome Based Education (OBE) along with the CBCS and Grading System.
3. The Institutes should assist in placements for M.C.A. students by interacting with Industries. Institute's placement cell should focus on identifying industrial expectations and institutional preparation for meeting industrial needs.
4. Industry and academia should identify possible areas of collaboration and work together to cater to the rapidly changing scenario.
5. During each semester students can attempt to complete various certifications for better opportunities in the industry.

Introduction:

1. Definition: Outcome Based Education:

1.1 Outcome Based Education (OBE) Approach: Outcomes are about performance, and this implies:

1.1.1 There must be a performer – the student (learner), not only the teacher

1.1.2 There must be something performable (thus demonstrable or assessable) to perform

1.1.3 The focus is on the performance, not the activity or task to be performed

1.2 Programme Educational Objectives (PEOs): Programme educational objectives are broad statements that describe the career and professional accomplishments that the programme is preparing graduates to achieve. Programme Educational Objectives are a set of broad future focused learner's performance outcomes that explicitly identify what learners will be able to do with what they have learned, and what they will be like after they leave institution and are living full and productive lives. Thus, PEOs are what the programme is preparing graduates for in their career and professional life (to attain within a few years after graduation).

1.3 Programme Outcomes (POs): Programme Outcomes are a set of narrow statements that describes what students (learners) of the programme are expected to know and be able to perform or attain by the time of graduation.

1.4 Course Outcomes (COs): Course Outcomes are narrower statements that describe what students are expected to know and be able to do at the end of each course. These relate to the skills, knowledge, and behavior that students acquire in their matriculation through the course.

1.5 Learning Outcomes: A learning outcome is what a student CAN DO because of a learning experience. It describes a specific task that he/she can perform at a given level of competence under a certain situation. The three broad types of learning outcomes are: a) Disciplinary knowledge and skills b) Generic skills c) Attitudes and values

1.6 Teaching and Learning Activities (TLAs): The set of pedagogical tools and techniques or the teaching and learning activities that aim to help students to attain the intended learning outcomes and engage them in these learning activities through the teaching process.

1.7 Assessment and Evaluation: Assessment is one or more processes, carried out by the institution, that identify, collect, and prepare data to evaluate the achievement of programme educational objectives and programme outcomes. Evaluation is one or more processes, done by the evaluation team, for interpreting the data and evidence accumulated through assessment

practices evaluation determines the extent to which programme educational objectives or programme outcomes are being achieved, and results in decisions and actions to improve the programme.

2. MCA Programme Focus:

The basic objective of the Master of Computer Application (MCA) is to provide a steady stream of necessary knowledge, skills and foundation for acquiring a wide range of rewarding careers into rapidly expanding world of Information Technology

2.1 Programme Educational Objectives: PEOs are defined by institution. Following are the guidelines for defining PEOs

2.1.1 PEOs should be assessable and realistic within the context of the committed resources.

2.1.2 The PEOs should be consistent with the mission of the institution.

2.1.3 All the stakeholders should participate in the process of framing PEOs.

2.1.4 The number of PEOs should be manageable.

2.1.5 It should be based on the needs of the stakeholders.

2.1.6 It should be achievable by the programme.

2.1.7 It should be specific to the programme and not too broad.

2.1.8 It should not be too narrow and similar to the POs.

2.2 MCA Programme Outcomes (POs):

Learners are expected to know and be able to		
PO1	**Computing Knowledge**	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	**Problem Analysis**	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 & Development**	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	**Research & Development**	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	**Prompt Tool Usage**	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
PO6	**Ethical Practices**	Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.

PO7	**Life Long Learning**	Recognize the need, and have the ability, to engage in independent learning for continual development as a Computing professional.
PO8	**Professional Skills**	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	**Communication Skills**	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	**Societal Contribution**	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	**Teamwork & Leadership**	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.
PO12	**Innovation & Sustainability**	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.

3. Admission Details:

3.1 Eligibility for Admission: The eligibility criteria for admission for the MCA course will be as decided by the All India Council of Technical Education (AICTE), New Delhi and Directorate of Technical Education (DTE), Government of Maharashtra. It will publish on their respective websites time to time.

3.2 Reservation of Seat: The percentage of seat reserved for candidates belonging to backward classes only from Maharashtra State in all the Government Aided, Un-aided Institutions/Colleges and University Departments is as per the norms given by Government of Maharashtra, time to time.

3.3 Selection Basis: The selection would be done as per the guidelines given by the Director of Technical Education, Maharashtra State, time to time.

***Bridge course:** Bridge course for Non- IT/ CS students shall be conducted by the Institute.

4. Lecture-Practical-Project

A course shall have either or all the three components, i.e. a course may have only lecture component, or only practical/project component or a combination of any two/three components.

The MCA programme is a combination of:

a. Three-Credit Courses (75 Marks each)
b. One-Credit Courses (25 Marks each)
c. Six- Credit Courses (100 Marks)
d. Three-Credit MOOC courses (50 marks each)
e. Three-Credit Practical courses and Mini Project (50 marks each)

f. Twelve Credit FP/OJT (Internal 150 marks & External 300 marks).

The curriculum of MCA is providing freedom to choose subjects based on their interests, regardless of their academic stream. This shift encourages disciplinary learning, enabling students to explore diverse fields and broaden their knowledge horizons. The choice based subjects start from the first semester and provide flexible options throughout the semesters.

4.1 Lecture(L): Classroom sessions delivered by faculty in an interactive mode. It should be conducted as per the scheme of lectures indicated in respective course.

4.2 Practical/Project(P): Practical / Project Work consisting of Hands-on experience /Field Studies / Case studies that equip students to acquire the much-required skill component. Besides separate Practical/Project course, three course in each semester include few practical assignment and it will be evaluated under internal evaluation

4.3 A Mini project is an assignment that the student needs to complete at the end of every semester in first year, in order to strengthen the understanding of fundamentals through effective application of the courses learnt.

4.4 The Field Project (FP)/On Job Training(OJT): To be conducted in the FINAL Semester and evaluated at the end of the semester. The detail guidelines have been in the respective course structure.

5. Elective Courses (EC):

Institute has to offer six elective courses with 3 credits from Semester I to Semester III. The motive behind keeping an elective course is to make students aware of current/upcoming trends in Information Technology and other domains.

6. MOOCs Certification:

Each course (Where ever applicable) includes suggested certification which help learners to enrich themselves as per industry demands and requirements.

MOOCs provide opportunities for students to delve deeper into specific topics or explore emerging areas. MOOC platforms offer a wide range of courses across various disciplines within computer applications. Students can access courses on advanced programming languages, artificial intelligence, data science, machine learning, cybersecurity, cloud computing, and many more. This diversity allows students to tailor their learning experience based on their interests and career goals.

7. Research Project

Research project within an MCA course is integral components designed to impart advanced skills and knowledge essential for addressing complex challenges in computing. Research project involve rigorous investigation, experimentation and application of theoretical concepts acquired during the program.

Students are encouraged to explore diverse areas such as software engineering, data science, cybersecurity, and artificial intelligence, fostering expertise that aligns with industry demands. Engaging in research not only enhances academic understanding but also cultivates practical skills in problem-solving, critical analysis, and project management.

Students are encouraged to publish their research work in reputed journals/conferences.

8. Soft Skill Assessment: The soft skill course comprised of one credit with total duration of 15 hours per semester focusing on different skills viz. interpersonal, communication, professional, writing etc.

9. Evaluation and Assessment:

Concurrent Evaluation, a continuous assessment system integral to semester-based courses, spans the duration of each course and is conducted by the course faculty. The assessment aims to provide timely feedback on the teaching-learning process. As part of this system, students undergo continuous evaluation by the institute to ensure progressive student learning.

Faculty promptly share assessment outcomes with students, guiding them toward improvement. Each institute has the autonomy to design evaluation components that offer a balanced assessment across Knowledge, Skills & Attitude (KSA) dimensions, using various assessment tools. The institute determines the type, method, and frequency of concurrent evaluation for each course, maintaining detailed records of all assessments. The curriculum spans two years and four semesters, totaling 95 credits.

Semester	Credit Points	UE	IE
Semester I	26	300	300
Semester II	26	300	300
Semester III	25	250	300
Semester IV	18	300	250
Total	**95**	**1150**	**1150**
			2300

The final total assessment of the candidate is made in terms of an internal (concurrent) evaluation and an external (university) examination for each course.

Examination: Examinations shall be conducted at the end of the semester i.e. during November and in April/May. However supplementary examinations will also be held in November and April/May.

Marks/Grade/Grade Point:

A grade is assigned to each head based on marks obtained by a student in evaluation of the course. These grades, their equivalent grade points are given in the following table.

Sr. No.	% of Max. Marks	Grade Point	Grade Letter
1	90 ≤ Marks ≤ 100	10	O (Outstanding)
2	75 ≤ Marks ≤ 89	9	A+ (Excellent)
3	60 ≤ Marks ≤ 74	8	A (Very Good)
4	55 ≤ Marks ≤ 59	7	B+ (Good)
5	50 ≤ Marks ≤ 54	6	B (Above Average)
6	45 ≤ Marks ≤ 49	5	C (Average)
7	40 ≤Marks ≤ 44	4	D (Pass)
8	Marks < 40	0	F (Fail)
9	Nil	0	Ab(Absent)
10	--	0	FX (Detained, Repeat the Course)
11	--	0	IC (Incomplete Course-Absent for Exam but continue for the course
12	--	0	AC(Audit Course Completed)
13	--	--	CAN (Audit Course not Completed)

Suggested components for Concurrent Evaluation (CE) are:

1. Class Test
2. Open Book Test
3. Group Discussion
4. Scrap Book
5. Role Play / Story Telling
6. Learning Diary
7. In-depth Viva
8. Quiz
9. Certification

10. Written Home Assignment 11. Small Group Project & Internal Viva-Voce
12. Literature Review / Book Review
13. Case Study / Situation Analysis – (Group Activity or Individual Activity)
14. Field Visit / Study tour and report of the same
15. Individual Term Paper / Thematic Presentation
16. Industry Analysis – (Group Activity or Individual Activity)
17. Model Development / Simulation Exercises – (Group Activity or Individual Activity)

Institute can decide the type, method and frequency of Concurrent Evaluation for each course and execute accordingly. Detailed record of the Concurrent Evaluation shall be maintained by the Institute. The same shall be made available to the University, on demand.

10. Choice based Credit System (CBCS) and Grading:

The detail document about Choice based Credit System for PG Programme is available on university website. The Grading methodology is also available on university website. University reserves rights to revise CBCS and grading system time to time.

11. Medium of Instruction: The medium of Instruction will be English.

12. Clarification of Syllabus:

It may be necessary to clarify certain points regarding the course. The BOS should meet to study and clarify any difficulties from the Institutes, as and when required.

13. Revision of Syllabus: As the computer technology is changing very fast, revision of the syllabus should be considered every 2 years.

14. Attendance: The student must meet the requirement of 75% attendance per semester per course for grant of the term. The Director shall have the right to withhold the student from appearing for examination of a specific course if the above requirement is not fulfilled. Since the emphasis is on continuous learning and concurrent evaluation, it is expected that the students study all-round the semester. Therefore, there shall not be any preparatory leave before the University examinations.

15. ATKT Rules: The ATKT rules mention in CBCS handbook (available on university website) is application to MCA Programme.

16. Maximum Duration for completion of the Programme:

The candidates shall complete the MCA Programme WITHIN 4 YEARS from the date of admission, by earning the requisite credits. The student will be finally declared as failed if she/he does not pass in all credits within a total period of four years. After that, such students will have to seek fresh admission as per the admission rules prevailing at that time.

17. Exit option: The students can exit the Programme after one year of MCA, but he has to take additional 4 Credits of on- job Training. To get PG Diploma after Three Year UG Degree, he should earn total 52+ 4= 56 Credits.

Re-entry to complete the PG degree, after taking the exit option, will be permissible up to 05 years from the date of admission to the PG program

The institute may conduct bridge courses for the respective students at the discretion of Director/ Head of the institutions.

18. Scaling Down of CE/INT Scores: The marks obtained by the student for the CE/INT ***shall be scaled down***, to the required extent, if percentage of the marks of CE/INT exceeds the percentage of marks scored in the End Semester University Examination by 25% for the respective course.

19. Structure of the Programme and detail syllabus of each course:

MCA Semester I					
Sr. No.	**Course Title**	**Course Code**	**CP**	**EXT**	**INT**
1	Python Programming	PPR**501**MJ	3	50	25
2	Data Structure and Algorithms	DSA**502**MJ	3	50	25
3	Advanced DBMS	ADB**503**MJ	3	50	25
4	Business Statistics	BST**504**MJ	3	50	25
5	Software Engineering and Project Management	SEP**505**MJ	3	50	25
6	**Elective- I (Select any one from following)**		3	50	25
	Fundamentals of Cloud Computing	FCC**510**MJ			
	Web Development	WDE**511**MJ			
	Fundamental of Data Science	FDS**512**MJ			
	Introduction to Cyber Security	ICE**513**MJ			
***Practical**					
7	Practical based on Python and DS	PBP**506**MJP	3	-	50
8	Mini Project	MP**541**MP	3	-	50
Soft Skills and IKS					
9	Soft Skills – I	SSI**507**MJ	1	-	25
10	IKS	IKS**508**MJ	1	-	25
		Semester Total	**26**	**300**	**300**

MCA Semester II					
Sr. No.	**Course Title**	**Course Code**	**CP**	**EXT**	**INT**
1	Java Programming	JPR**551**MJ	3	50	25
2	Optimization Techniques	OTE**552**MJ	3	50	25
3	Software Testing and Quality Assurance	STQ**553**MJ	3	50	25
4	Research Methodology	RMW**554**MJ	3	50	25
5	**Elective- II (Select any one from following)**		3	50	25
	Cloud Computing Management and Security	CCM**560**MJ			
	JavaScript	JS**561**MJ			
	Machine Learning Techniques	MLT**562**MJ			
	Essentials of Cyber Security	ECS**563**MJ			
6	**Elective- III (Select any one from following)**		3	50	25
	Essentials of Cloud Computing and Security	ECS**564**MJ			
	Advance Web Development	AWD**565**MJ			
	Power BI	PBI**566**MJ			
	Essentials of Information Security	EIS**567**MJ			
***Practical**					
7	Practical based on Java	PBJ**555**MJP	3	-	50
8	Mini Project	MP**581**MP	3	-	50
Soft Skills and IKS					
9	Soft Skills – II	SSK**556**MJ	1	-	25
10	IKS	IKS**557**MJ	1	-	25
		Semester Total	**26**	**300**	**300**

MCA Semester III					
Sr. No.	**Course Title**	**Course Code**	**CP**	**EXT**	**INT**
1	Organizational Behaviour	OBE**601**MJ	3	50	25
2	Design and Analysis of Algorithm	DAA**602**MJ	3	50	25
3	**Elective- IV (Select any one from following)**		3	50	25
	Cloud API's and Services	CAS**610**MJ			
	Mobile Application Development	MAD**611**MJ			
	Tableau	TAB**612**MJ			
	End -Point Security	EPS**613**MJ			
4	**Elective- V (Select any one from following)**		3	50	25
	Cloud Migration and Management	CMM**614**MJ			
	MERN Stack Development	MSD**615**MJ			
	Deep Learning	DEL**616**MJ			
	Ethical Hacking	EH**617**MJ			
5	**Elective- VI (Select any one from following)**		3	50	25
	Enterprise Resource Planning (ERP)	ERP**618**MJ			
	E-Commerce	EC**619**MJ			
	Social media Marketing	SMM**620**MJ			
	Innovation and Entrepreneurship Development	IED**621**MJ			
***Practical**					
6	Practical based on Electives IV and V	PBE**603**MJP	3	-	50
7	Research Project	RP**641**RP	6	-	100
Soft Skills					
8	Soft Skills- III	SSK**604**MJ	1		25
		Semester Total	**25**	**250**	**300**

MCA Semester IV					
Sr. No.	**Course Title**	**Course Code**	**CP**	**EXT**	**INT**
1	Internship/Project Work (FP/OJT)	IPW**681**FP	12	300	150
2	MOOC- I	MOO**682**MJ	3	-	50
3	MOOC- II	MOO**683**MJ	3	-	50
		Semester Total	**18**	**300**	**250**

Semester	Credit Points	UE	IE
Semester I	26	300	300
Semester II	26	300	300
Semester III	25	250	300
Semester IV	18	300	250
Total	**95**	**1150**	**1150**
		Total Marks	**2300**

Semester I

PPR501MJ: Python Programming

Teaching Scheme:	Credit: 03	Examination Scheme:
Theory Sessions: Total 45 Hours		**Internal (TH)**: 25 Marks **External (TH)**: 50 Marks **Total :75 Marks**

Prerequisites: Object oriented Concepts.

Course Objectives:

- To understand and use the basics of python.
- To understand advanced concepts of python and be able to apply it for solving complex problems.
- To understand the development of real-world applications using OOP concepts in python.
- To understand basic database concepts in python.
- To understand web application development using python and Django framework.

Course Outcomes: On completion of the course, learners should be able to

CO#	Cognitive Domain	Course Outcomes
CO1	Apply	To learn and apply basic constructs of python such as data, operations, conditions, loops, data types.
CO2	Apply	To understand advance concepts of python and apply it for solving the complex problems.
CO3	Apply	To develop Python programs that incorporate OOPS concept, regular expressions and multithreading for complex problem-solving and performance enhancement.
CO4	Apply	To implement various types of database operations in MongoDB.
CO5	Apply	To develop comprehensive web applications using Django Framework.

Unit No.	Contents	Weightage in %	No of Sessions
1	**Fundamentals of Python** 1.1 Introduction 1.2 Keywords, Identifiers, Literals, Operators 1.3 Data Types- Number, Strings, Lists, Tuples, Dictionaries, Sets 1.4 Understanding Python blocks 1.5 Control flow- if, else, elif 1.6 Loops- while, for, continue, break 1.7 Loop manipulation using pass, continue, break and else 1.8 For loop using ranges, string, list and dictionaries 1.9 Programming using Python conditional and loops block	15	9

	1.10 Comprehensions on List, Tuple, Dictionaries		
*Mapping of Course Outcomes for Unit 1: CO1			
2	**Functions, Modules & Packages, Exceptional Handling** 2.1. Function Basics-Scope, nested function, non-local statements 2.2. Built-in functions 2.3. Types of functions, Anonymous Function: lambda 2.4. Decorators and Generators 2.5. Modules: Module basic usage, Creating, importing modules. 2.6. Importing functions and variables from different modules. 2.7. Python built-in modules - math, random, datetime, etc. 2.8. Package: import basics 2.9. Python namespace packages 2.10. User defined modules and packages 2.11. Exception Handling 2.11.1 Avoiding code break using exception handling 2.11.2 Safeguarding file operation using exception handling 2.11.3 Handling multiple and user defined exception 2.11.4 Handling and helping developer with error code 2.11.5 Programming using Exception handling.	20	9
*Mapping of Course Outcomes for Unit 2: CO2			
3	**Python Object Oriented Programming** 3.1 Concept of class, object and instances, method call, Real time use of class in live projects 3.2 Constructor, class attributes and destructors 3.3 Inheritance, super class, method overriding 3.4 Overloading operators 3.5 Static and Class methods 3.6 Delegation and containership 3.7 Python Regular Expression 3.7.1 Pattern matching and searching using regex in python 3.7.2 Real time parsing of data using regex 3.7.3 Applications of Regex-Password, email, URL validation 3.8 Multithreading 3.8.1 Understanding threads 3.8.2 Synchronizing the threads 3.8.3 Programming using multithreading	25	9
*Mapping of Course Outcomes for Unit 3: CO3			

4	**Python database interaction using MongoDB** 4.1. Introduction to NoSQL database 4.2. Types of NoSQL 4.2.1 Document Based: MongoDB 4.2.2 Key-Value Database – Couchbase 4.2.3 Wide-column Databases: Cassandra 4.2.4 Graph/node Databases: Neo4j 4.3. SQL Vs NoSQL 4.4. Introduction to MongoDB with python 4.5. Installing MongoDB on Windows 4.6. Exploring Collections and Documents 4.7. Performing CRUD Operations 4.8. Commit, Rollback and Cursor operation 4.9. Handling errors.	20	9
*Mapping of Course Outcomes for Unit 4: CO4			
5	**Web Development using Django** 5.1 Introduction to Web Development and Django 5.2 Django Project Structure and Django Models 5.3 Django Views and Django Templates 5.4 Django URLs and Django Forms 5.5 Django Authentication and Advanced Django Features 5.6 Django Rest Framework (DRF) and Testing in Django 5.7 Deployment and Performance Optimization 5.8 Building a real-world Django application with Django Channels for WebSockets	20	9
*Mapping of Course Outcomes for Unit 5: CO5			

Learning Resources

Text Books:

- Introduction to Python Programming, By Gowrishankar S,
- Introduction to Python Programming by UDAYAN DAS, SAINT MARY'S COLLEGE OF CALIFORNIA AUBREY LAWSON, WILEY
- Python Crash Course: A Hands-On, Project-Based Introduction to Programming

Reference Books:

- Learning Python 5th ed. by Mark Lutz
- Python: The Complete Reference by Martin C. Brown
- Python Data Analytics: With Pandas, NumPy, and Matplotlib 2nd ed. Edition by Fabio Nelli
- Core Python Programming by Wesley J. Chun Publisher: Prentice Hall
- Python Programming: A modular approach by Taneja Sheetal, Kumar Naveen
- Beginner's Guide to Python Programming: Learn Python 3 Fundamentals, Plotting and