MBA Program Outcomes, Program Education Outcomes and Course Outcomes

SIBAR is affiliated to SPPU and follows the OBE approach

Concept of OUTCOME BASED EDUCATION APPROACH

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

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

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

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

Programme Educational Objectives (PEOs): Programme Educational Objectives are a set of broad future-focused student performance outcomes that explicitly identify what students will be able to do with what they have learned, and what they will be like after they leave school 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 graduation1).

3**.3 Graduate.3 Attributes (GAs):** Graduate Attributes (GAs) are the qualities, knowledge and capabilities that students are encouraged to take responsibility for developing throughout their studies and are the defining characteristics of the students passing out of the MBA program. These attributes include, but go beyond, the disciplinary expertise or technical knowledge.

3.4 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.

3.5 Programme Specific Outcomes (PSOs): Programme Outcomes are a set of

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narrow statements that describes what students (learners) of a particular specialization of the programme are expected to know and be able to perform or attain by the time of graduation. PSOs are also a function of the various course combinations offered by the Institute.

3.6 Learning Outcomes: A learning outcome is what a student CAN DO as a result of a learning experience. It describes a specific task that he/she is able to 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

3.7 Course Outcomes (COs): A set of specific statements that describes the complex performances a student should be capable of as a result of learning experiences within a course.

3.8 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.

3.9 Outcome Based Assessment (OBA): An assessment system that asks course teachers to first identify what it is that we expect students to be able to do once they have completed a course or program. It then asks course teachers to provide evidence that they are able to do so. In other words, how will each learning outcome be assessed? What evidence of student learning is most relevant for each learning outcome and what standard or criteria will be used to evaluate that evidence? Assessment is therefore a key part of outcome-based education and used to determine whether or not a qualification has been achieved.

Programme Outcomes (POs):

At the end of the MBA programme the learner will possess the

PO	ATTRIBUTE	PROGRAM OUTCOME
1	**Generic and Domain Knowledge**	Ability to articulate, illustrate, analyse, 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

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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 behaviours & 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.

Program Educational Objectives:

PEOs	Description
PEO 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.
PEO 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.
PEO 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 cantered leadership.
PEO 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.

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PEO 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.

Course Outcomes – MBA Sem I

Semester I		101 – Managerial Accounting
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO101.1	REMEMBERING	DESCRIBE the basic concepts related to Accounting, Financial Statements, Cost Accounting, Marginal Costing, Budgetary Control and Standard Costing
CO101.2	UNDERSTANDING	EXPLAIN in detail, all the theoretical concepts taught through the syllabus.
CO101.3	APPLYING	PERFORM all the necessary calculations through the relevant numerical problems.
CO101.4	ANALYSING	ANALYSE the situation and decide the key financial as well as non-financial elements involved in the situation.
CO101.5	EVALUATING	EVALUATE the financial impact of the decision.

Semester I		102 - Organizational Behavior
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO102.1	REMEMBERING	DESCRIBE the major theories, concepts, terms, models, frameworks and research findings in the field of organizational behavior.
CO102.2	UNDERSTANDING	EXPLAIN the implications of organizational behavior from the perspectives of employees, managers, leaders and the organization.
CO102.3	APPLYING	MAKE USE OF the Theories, Models, Principles and Frameworks of organizational behavior in specific organizational settings.
CO102.4	ANALYSING	DECONSTRUCT the role of individual, groups, managers and leaders in influencing how people behave and in influencing organizational culture at large.
CO102.5	EVALUATING	FORMULATE approaches to reorient individual, team, managerial and leadership behavior in order to achieve organizational goals.
CO102.6	CREATING	ELABORATE UPON the challenges in shaping organizational behavior, organizational culture and organizational change.

Semester I		103 – Economic Analysis for Business Decisions

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3 Credits	LTP: 2:1:1		Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO103.1	REMEMBERING	DEFINE the key terms in micro-economics.
CO103.2	UNDERSTANDING	EXPLAIN the key terms in micro-economics, from a managerial perspective.
CO103.3	APPLYING	IDENTIFY the various issues in an economics context and DEMONSTRATE their significance from the perspective of business decision making.
CO103.4	ANALYSING	EXAMINE the inter-relationships between various facets of micro-economics from the perspective of a consumer, firm, industry, market, competition and business cycles.
CO103.5	EVALUATING	DEVELOP critical thinking based on principles of micro-economics for informed business decision making.
CO103.6	CREATING	ANTICIPATE how other firms in an industry and consumers will respond to economic decisions made by a business, and how to incorporate these responses into their own decisions.

Semester I		104 - Business Research Methods
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO104.1	REMEMBERING	DEFINE various concepts & terms associated with scientific business research.
CO104.2	UNDERSTANDING	EXPLAIN the terms and concepts used in all aspects of scientific business research.
CO104.3	APPLYING	MAKE USE OF scientific principles of research to SOLVE contemporary business research problems.
CO104.4	ANALYSING	EXAMINE the various facets of a research problem and ILLUSTRATE the relevant aspects of the research process from a data driven decision perspective.
CO104.5	EVALUATING	JUDGE the suitability of alternative research designs, sampling designs, data collection instruments and data analysis options in the context of a given real-life business research problem from a data driven decision perspective.
CO104.6	CREATING	FORMULATE alternative research designs, sampling designs, data collection instruments, testable hypotheses, data analysis strategies and research reports to address real-life business research problems.

Semester I		105 – Basics of Marketing
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO105.1	REMEMBERING	RECALL and REPRODUCE the various concepts, principles, frameworks and terms related to the function and role of marketing.
CO105.2	UNDERSTANDING	DEMONSTRATE the relevance of marketing management concepts and frameworks to a new or existing business across wide variety of sectors and ILLUSTRATE the role that marketing plays in the 'tool kit' of every organizational leader and manager.

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CO105.3	APPLYING	APPLY marketing principles and theories to the demands of marketing function and practice in contemporary real-world scenarios.
CO105.4	ANALYSING	EXAMINE and LIST marketing issues pertaining to segmentation, targeting and positioning, marketing environmental forces, consumer buying behavior, marketing mix and Product Life Cycle in the context of real-world marketing offering (commodities, goods, services, e-products/ e-services).
CO105.5	EVALUATING	EXPLAIN the interrelationships between segmentation, targeting and positioning, marketing environment, consumer buying behavior, marketing mix and Product Life Cycle with real world examples.
CO105.6	CREATING	DISCUSS alternative approaches to segmentation, targeting and positioning, the marketing environment, consumer buying behavior, marketing mix and Product Life Cycle in the context of real-world marketing offering (Commodities, goods, services, e-products/ e-services.).

Semester I		106 – Digital Business
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO106.1	REMEMBERING	DESCRIBE the conceptual framework of e commerce, mobile commerce and social commerce.
CO106.2	UNDERSTANDING	SUMMARIZE the impact of information, mobile, social, digital, IOT and related technologies on society, markets & commerce.
CO106.3	APPLYING	ILLUSTRATE value creation & competitive advantage in a digital Business environment.
CO106.4	ANALYSING	EXAMINE the changing role of intermediaries, changing nature of supply chain and payment systems in the online and offline world.
CO106.5	EVALUATING	ELABORATE upon the various types of digital business models and OUTLINE their benefits and limitations.
CO106.6	CREATING	DISCUSS the various applications of Digital Business in the present-day world.

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MCA Program Outcomes, Program Specific Outcomes and Course outcomes

Following are the MCA Program Outcomes designed:

Institute has clearly defined learning outcomes on web portals shared to faculty, students, and parents. Learning outcomes are notified and made available on website.

The POs of MCA program are as follows:

1. 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.
2. PO2: Identify, formulate, research literature, and solve complex Computing problems reaching substantiated conclusions using fundamental principles of Mathematics, Computing sciences, and relevant domain disciplines.
3. 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.
4. 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.
5. PO5: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
6. PO6: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.
7. PO7: Recognize the need, and have the ability, to engage in independent learning for continual development as a Computing professional.
8. 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.
9. 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.
10. 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.
11. PO11: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.
12. 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.

Programme Specific Outcomes of MCA:

1. Learning of mathematics and computing fundamentals useful for various real life applications in order to provide simple, optimal and automated solutions for decision making.
2. Acquisition of knowledge about the technologies like Java, .NET, PHP, Mobile Computing and other internet technologies to develop commercial e-commerce websites, android applications, electronic trading platforms, gaming applications and digital advertising.

1. Competency in database concepts and data analytics for implementation in design and administration useful for policy making, cost reduction, faster and better decision making, developing new products and services.
2. Acquisition of knowledge about networking useful in network administration and application development.
3. Competency in operating system concepts beneficial for being good system administratorsand OS developers of various gadgets.
4. Well versed with machine learning, image processing, graphic design applications andintelligent games by learning 'Python'.
5. Expertise in Cloud environment makes student to handle the challenges and opportunities inthe technologies like SaaS, PaaS, IaaS.
6. Competent software developers groomed through software engineering and software project management.

MCA Course Outcomes:

Master of Computer Applications (2020 Pattern)

Semester-I

Course:	Java Programming
CO1	Student will be able to understand Basic Concepts of OOPs, Java, Inheritance, Package.
CO2	Student will be able to Understand Exception handling, arrays and Strings and multi-threading in Java
CO3	Student will be able to understand collection framework
CO4	Student will be able to develop GUI using Abstract Windows Toolkit (AWT) and event handling
CO5	Student will be able to develop Web application using JSP and Servlet, JDBC

Course:	Data Structure and Algorithms
CO1	Student will be able to demonstrate linear data structures linked list, stack and queue
CO2	Student will be able to implement tree, graph, hash table and heap data structures
CO3	Student will be able to apply brute force and backtracking techniques
CO4	Student will be able to demonstrate greedy and divide-conquer approaches
CO5	Student will be able to implement dynamic programming technique

Course:	Object Oriented Software Engineering
CO1	Student will be able to distinguish different process model for a software development.
CO2	Student will be able to design software requirements specification solution for a given problemdefinitions of a software system
CO3	Student will be able to apply software engineering analysis/design knowledge to suggest solutions forsimulated problems
CO4	Student will be able to design user interface layout for different types of applications
CO5	Student will be able to recognize and describe current trends in software engineering

Course:	**Operating System Concepts**
CO1	Student will be able to understand structure of OS, process management and synchronization.
CO2	Student will be able to understand multicore and multiprocessing OS.
CO3	Student will be able to explain realtime and embedded OS
CO4	Student will be able to understand Windows and Linux OS fundamentals and administration
CO5	Student will be able to solve shell scripting problems

Course:	**Network Technologies**
CO1	Student will be able to understand the basic concepts of computer network, and principle of layering
CO2	Student will be able to apply the error detection and correction techniques used in data transmission
CO3	Student will be able to apply ip addressing schemes and sub netting
CO4	Student will be able to understand the concept of routing protocols, application layer protocols andnetwork security
CO5	Student will be able to apply the socket programming basics to create a simple chat application

Semester -II

Course:	**Python Programming**
CO1	Student will be able to understand demonstrate the concepts of python and modular programming.
CO2	Student will be able to apply the concepts of concurrency control in python
CO3	Student will be able to solve the real-life problems using object-oriented concepts and python libraries
CO4	Student will be able to demonstrate the concept of io, exception handling, database
CO5	Student will be able to analyze the given dataset and apply the data analysis concepts and datavisualization

Course:	**Software Project Management**
CO1	Student will be able to understand the process of software project management framework and applyestimation techniques
CO2	Student will be able to learn the philosophy, principles and lifecycle of an agile project.
CO3	Student will be able to demonstrate agile teams and tools and apply agile project constraints and trade-offs for estimating project size and schedule
CO4	Student will be able to explain project tracking and interpretation of progress report
CO5	Student will be able to analyze problem statement and evaluate user stories

Course:	Optimization Techniques
CO1	Student will be able to understand the role and principles of optimization techniques in business world
CO2	Student will be able to demonstrate specific optimization technique for effective decision making
CO3	Student will be able to apply the optimization techniques in business environments
CO4	Student will be able to illustrate and infer for the business scenario
CO5	Student will be able to analyze the optimization techniques in strategic planning for optimal gain.

Course:	Advanced Internet Technologies
CO1	Student will be able to Outline the basic concepts of Advance Internet Technologies
CO2	Student will be able to Design appropriate user interfaces and implements webpage based on givenproblem Statement
CO3	Student will be able to Implement concepts and methods of nodejs
CO4	Student will be able to Implement concepts and methods of Angular
CO5	Student will be able to Build Dynamic web pages using server-side PHP programming with DatabaseConnectivity

Course:	Advanced DBMS
CO1	Student will be able to describe the core concepts of dbms and various databases used in realapplications
CO2	Student will be able to design relational database using e-r model and normalization
CO3	Student will be able to demonstrate xml database and nonprocedural structural query languages fordata access
CO4	Student will be able to explain concepts of parallel, distributed and object-oriented databases and their
CO5	Student will be able to apply transaction management, recovery management, backup and security –privacy concepts for database applications

Semester -III

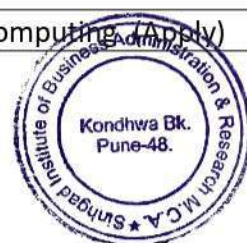| Course:	Mobile Application Development
CO1	Student will be able to Understand Various Mobile Application Architectures. (Understand)
CO2	Student will be able to Apply different types of widgets and Layouts. (Apply)
CO3	Student will be able to Describe Web Services and Web Views in mobile applications. (Understand)
CO4	Student will be able to Implement data storing and retrieval methods in android. (Apply)
CO5	Student will be able to Demonstrate Hybrid Mobile App Framework. (Apply)

Course:	Data Warehousing and Data Mining
CO1	Student will be able to Understand Data warehouse concepts, architecture and models (Understand)
CO2	Student will be able to Learn and understand techniques of preprocessing on various kinds of data (Understand)
CO3	Student will be able to Apply association Mining and Classification Techniques on Data Sets (Apply)
CO4	Student will be able to Apply Clustering Techniques and Web Mining on Data Sets (Apply)
CO5	Student will be able to Understand other approaches of Data mining (Understand)

Course:	Software Testing and Quality Assurance
CO1	Student will be able to Understand the role of software quality assurance in contributing to the efficient deliveryof software solutions. (Understand)
CO2	Student will be able to Demonstrate specific software tests with well-defined objectives and targets. (Apply)
CO3	Student will be able to Apply the software testing techniques in commercial environments. (Apply)
CO4	Student will be able to Construct test strategies and plans for software testing. (Analyze)
CO5	Student will be able to Demonstrate the usage of software testing tools for test effectiveness, efficiency andcoverage (Apply)

Course:	Knowledge Representation and Artificial Intelligence: ML, DL
CO1	Student will be able to Understand basic building block of Artificial Intelligence and Knowledge Representation.(Understand)
CO2	Student will be able to Apply Propositional Logic for knowledge representation. (Apply)
CO3	Student will be able to Design various models based on Machine Learning methodology (Apply)
CO4	Student will be able to Design various models based on Deep Learning methodology (Apply)
CO5	Student will be able to Understand various hardware and software aspect used for AI and its application.(Understand)

Course:	Cloud Computing
CO1	Student will be able to Describe the concepts of Cloud Computing and its Service Models& DeploymentModels.(Understand)
CO2	Student will be able to Classify the types of Virtualization. (Understand)
CO3	Student will be able to Describe the Cloud Management and relate Cloud to SOA. (Understand)
CO4	Student will be able to Interpret Architecture and Pharell Programming of Cloud Computing. (Apply)
CO5	Student will be able to Demonstrate practical implementation of Cloud computing. (Apply)

Course:	**Practicals**
CO1	Student will be able to Develop mobile application. (Apply)
CO2	Student will be able to Develop ML, DL models using Python (Apply)

Course:	DevOps
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)

Course:	PPM&OB
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)