

Department of Commerce



Outcome Based Education (OBE) Framework

Two Year full-time Postgraduate Programme

M.Sc. (Business Analytics)

2022 Regulations

1. NATURE AND EXTENT OF THE PROGRAMME:

Business Analytics has become vital for the growth and sustenance of companies in today's highly competitive world. Companies increasingly use business analytics tools and techniques for faster and better decision-making and problem-solving. Keeping the growing demand in the analytics domain, the Department of Commerce launched the niche M.Sc. (Business Analytics) programme in 2019. The 2-year duration programme aims to develop business analytics professionals who aspire to make their presence in the highly promising business analytics and data science field. The programme aims to prepare the candidates to apply analytics in functional areas of business, including finance, operations, human resources, and marketing. Students will be exposed to real-time business data through analytical tools such as Python, R, Tableau, Power BI, and other industry-relevant analytical tools to develop models and implement them for getting meaningful insights for businesses. Students will be encouraged to take up research projects through seminars, minor projects, and dissertations to develop skills in data visualisation, data mining, statistical modelling, and simulation to proficiently analyse datasets for business decision making. A full-time internship for a semester is part of the course structure, wherein the students get hands-on experience in the practical application of analytics in the industry. This interdisciplinary programme is a unique combination of the business domain and analytics knowledge at the postgraduate level that enables the students to grow with promising career opportunities as business analysts, data analysts, data scientists, and consultants in diverse industries, including banking, finance, healthcare, information technology, insurance, retail, manufacturing and engineering, among others. The programme also facilitates higher education and academic opportunities in India and abroad.

2. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

The Learning Outcomes-based Curriculum Framework (LOCF) programme educational objectives for M.Sc. (Business Analytics) programme are as follows.

PEO No	Programme Educational Objectives
PEO 1	Students will be able to use fundamental concepts and technical competence in the business analytics domain to achieve professional excellence.
PEO 2	Students will demonstrate their skills and practical knowledge in data handling and database management.
PEO 3	Students will demonstrate logical and critical reasoning abilities with appropriate statistical and artificial intelligence tools in business analytics.
PEO 4	Students will attain a personality that enables them to think independently, argue critically, solve problems, and communicate effectively in a team, reflecting their core competency.
PEO 5	Students will demonstrate academic and professional competencies to undertake the research and higher studies for their continuous growth and development and lifelong learning.
PEO 6	Students will be responsible citizens and leaders demonstrating ethical behaviour in their actions in the business or academic organisations and teams.

3. GRADUATE ATTRIBUTES:

S No.	Attribute	Description
1	Disciplinary Knowledge	Graduates will have comprehensive knowledge of different dimensions of the analytics domain, learning various software tools for analytics and other related technologies.
2	Problem-solving aptitude applying analytics	Graduates will possess problem-solving aptitude in business statistics and research methodology, data visualisation, R and Python programming, database management, Econometrics, Multi-variate data analysis, Time series analysis, Finance, and Marketing Analytics, Optimization, Data mining and warehousing, Artificial Learning and Machine Learning.
3	Analytical Skills and Industry-ready Professionals	Graduates will possess hands-on skills in software tools and apply various analytics techniques and acquire certifications related to analytical tools.
4	Effective and Influencing communication	Graduates will have adequate and influencing communication ability to share thoughts and ideas through written and verbal communication.
5	Leadership readiness/Qualities	Graduates will have the qualities to be efficient leaders, cultivating key characteristics to be visionary leaders who can inspire the team.
6	Critical/ Reflective thinking & language efficiency	Graduates will have critical/reflective thinking ability to employ innovative ideas to create a sense of awareness of oneself, business, and society.
7	Technologically Efficient Professional	Graduates will have the capability to apply effective tools and techniques in the business analytics domain in a digital society.
8	Ethical Awareness	Graduates as analytics professionals are responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society with ethical competency in data handling, usage, and sharing.
9	Lifelong Learning	Graduates will be lifelong learners and will consistently update themselves with current knowledge, skills, and technologies throughout life.
10	Research-related Skills	Graduates will have a sense of enquiry and investigation for raising relevant and contemporary research questions and synthesising and articulating the research questions with a strong analytical approach.
11	Teamwork and multicultural learning	Graduates will be capable of building a team, motivating, and inspiring the team members to work with cooperation to their utmost efficiency in a multicultural environment.

4. QUALIFICATION DESCRIPTORS:

- a. Demonstrate a systematic, extensive, and coherent knowledge and understanding of the field of business analytics as a whole and its applications and links to related disciplinary areas/subjects of study, including a critical understanding of the established advanced theories, principles, and concepts.
- b. Possess procedural knowledge that creates different types of professionals related to the sectors of business analytics, including research and development, academics, and public services.
- c. Possess professional and communication skills in business analytics, including a critical understanding of the latest developments in financial reporting standards and an ability to use established techniques in business analytics.
- d. Demonstrate comprehensive knowledge about materials, including current research, scholarly, and professional literature, relating to essential and advanced learning areas in business analytics for identifying problems and solutions.
- e. Demonstrate skills in identifying information needs, collection of relevant quantitative and qualitative data from a wide range of sources, for the analysis and interpretation to formulate strategies and take decisions.
- f. Possess the knowledge of methodologies appropriate to the subject(s) for formulating evidence-based arguments and solutions. Use knowledge, understanding, and skills to critically assess a wide range of ideas, complex problems, and issues relating to business analytics.
- g. Address learning needs relating to current and emerging areas of study, using research, development, and professional expertise as appropriate with new frontiers of knowledge.
- h. Incorporate disciplinary knowledge and transferable skills to new/unfamiliar contexts to identify and analyse problems and issues and seek solutions to real-life problems.

5. PROGRAMME OUTCOMES:

After successful completion of M.Sc. (Business Analytics) programme, students will be able to:

PO No	Attribute	Competency
PO 1	Domain knowledge	Apply statistical and artificial intelligence techniques for data-driven decision-making in the business analytics domain.
PO 2	Problem analysis	Identify, formulate, and collect data, build models, and analyse complex business analytics related problems.
PO 3	Design/develop solutions	Design and develop data-driven solutions for complex business problems by applying analytical tools and techniques.
PO 4	Conduct investigations of complex problems	Use analytical and research techniques to implement solutions, including design of experiments, analysis and interpretation of business data, and synthesis of the information to provide valid conclusions.
PO 5	Modern tool usage	Create, select, and apply appropriate analytical tools, techniques, resources, and technologies for developing a better solution to business problems.
PO 6	Business and society	Apply contextual knowledge to assess societal, health, safety, legal, and cultural issues relevant to the professional management practices influencing business and society.
PO 7	Environment and sustainability	Appraise the impact of the business solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.
PO 8	Ethics	Apply ethical principles and commit to professional ethics, responsibilities, and norms of the business practices.
PO 9	Individual / Teamwork	Function effectively as an individual member or leader in diverse teams and multidisciplinary settings.
PO 10	Communication	Communicate effectively on complex business activities and solutions with stakeholders, community, and society, comprehend and write effective reports, make effective presentations and visualisations for decision making.
PO 11	Project management and finance	Demonstrate knowledge and understanding of project management principles and apply analytics for effective decision-making considering financial aspects.
PO 12	Life-long learning	Engage in independent and lifelong learning in the broadest context of technological and policy changes.

PROGRAMME STRUCTURE

Course Structure

First Year					
Semester I					
Course Code	Course Title	L	T	P	C
MSBA5101	Business Analytics	2	-	-	2
MSBA5102	Statistical Methods with R	2	-	4	4
MSBA5103	Managerial Economics	4	-	-	4
MCMP5101	Financial Management	3	-	2	4
MSBA5104	Programming with Python	-	-	4	2
MSBA5105	Database Management	2	-	2	3
	Self-Directed Learning				
PMOOC001	Supply Chain Analytics Essentials	-	1	-	1
	Total	13	1	12	20
Semester II					
Course Code	Course Title	L	T	P	C
MSBA5201	Business Econometrics	1	-	4	3
MSBA5202	Applied Multivariate Data Analysis	1	-	4	3
MSBA5203	Data Visualisation	1	-	2	2
MSBA5204	Prescriptive Analytics	3	-	-	3
	Self-Directed Learning (Any one)				
PMOOC002	Data Visualization in Excel	-	1	-	1
PMOOC003	Business and Sustainable Development	-	1	-	1
MSBA5205	Minor Project I	-	2	-	2
	Elective (Any One)				
MSBA5206	Marketing Analytics	1	-	4	3
MSFE5203	Corporate Valuation	3	-	-	3
	Open Elective (Any One)				3
PGOEC002	Mindfulness and Wellbeing	3	-	-	3
PGOEC003	Ethical Leadership	3	-	-	3
PGOEC004	Critical and Creative Thinking	3	-	-	3
	Total	10/12	3	14/10	20
Second Year					
Semester III					
Course Code	Course Title	L	T	P	C
MSBA6301	Time Series Analysis	1	1	4	4
MSBA6302	Machine Learning Methods	2	-	4	4
MSBA6303	Big Data Analytics	2	-	4	4
MSBA6304	Minor Project (Research focused)	-	2	-	2
	Electives (Anyone)				
MSBA6305	Financial Analytics	3	1	0	4
MSBA6306	Social Media Marketing Analytics	2	1	2	4
	Self-Directed Learning				
PMOOC004	Excel Skills for Business: Advanced	-	2	-	2

	Total	08/06	6	12/14	20
Semester IV					
Course Code	Course Title	L	T	P	C
	(Any one)				
MSBA6401.1	Research Dissertation	-	20	-	20
MSBA6401.2	Semester Abroad	-	20	-	20
MSBA6401.3	Industry Internship	-	20	-	20
	Total	-	20	-	20

