

MASTER OF ARTIFICIAL INTELLIGENCE IN BUSINESS (MAIB)

Unit Learning Outcomes

1 Data Science and Analytics (MAIB DSC 101) – Core

- Evaluate data types and analyze the data to interpret innovative solutions.
- Demonstrate presentation & communication skills by working on the assigned project, to arrive at solutions for mathematical & business problems.
- Use quantitative abilities to solve data science and business problems.
- Develop analytically-sound solutions for real life business problems.

2 Fundamentals of Artificial Intelligence (MAIB AI 101) - Core

- Recognize the basic ideas and concepts of Artificial Intelligence.
- Use analytical and quantitative skills to solve practical business problems.
- Manipulate mathematical and statistical methods for decision making.
- Research and Communicate effectively using mathematical and computerized expressions and presentations.

3 Probability and Statistics (MAIB MAT 101) - Core

- Identify the principles of mathematical probability, sample spaces, moments, conditional probabilities and limit theorems.
- Apply the principles of mathematical statistics, including data collection, sampling & design and summarization of data.
- Manipulate parameter estimation, hypothesis testing, and ANOVA.
- Apply the techniques of regression and correlation, decision and Bayesian theory.

4 Programming with Python and R (MAIB CSC 101) - Core

- Recognize the use of Python as a general-purpose object-oriented programming language, its data & programming structures.
- Identify and apply Python libraries for data exploration and analysis.
- Apply the statistical language R, its programming and data structures.
- Demonstrate the functions and packages available in R for visual, numerical, and statistical analysis.

5 Machine Learning Fundamentals (MAIB AI 102) – Core

- Identify the theory of Machine Learning and recognize statistical learning algorithms.
- Apply analytical and quantitative skills to solve business problems.
- Construct statistical algorithms for supervised and unsupervised learning from data.
- Research & Communicate effectively using mathematical and computerized expressions and presentations.

6 Reasoning and Decision Making under Uncertainty (MAIB AI 103) – Core

- Recognize basic ideas and concepts of reasoning and decision making under uncertainty.
- Use mathematical and statistical methods to solve decision making under conditions of uncertainty.
- Apply analytical and quantitative skills to solve practical business problems of optimal decision making.
- Research & communicate effectively using mathematical and computerized expressions and presentations.

7 Economics – Micro, Macro, and Digital (MAIB ECO 101) – Core

- Recognize the workings of markets and market processes to coordinate economic activities.
- Apply problem solving methodologies to provide solutions to pricing and output decisions.
- Apply key economic principles relevant to market structure analysis, financial decision making, and the digital economy.
- Demonstrate teamwork and communication skills in a group decision-making environment.
- Analyze current economic policies and issues and their social and ethical implications.

8 Financial and Managerial Accounting (MAIB ACC 101) – Core

- Recognize economic, political, social, legal and environmental influences on the financial information needs of users and financial reporting practices of firms.
- Analyse a range of financial reporting issues and use the accounting principles-based approach to develop innovative solutions for complex business transactions.
- Identify the principles underpinning the current Australian and International accounting standards and Interpret various financial accounting and reporting practices.
- Evaluate key managerial accounting techniques and apply various performance measurement techniques/models in different business environments.
- Demonstrate a range of accounting results and evaluations to different stakeholder groups using a variety of presentation media.

9 Organisational Behaviour (MAIB ORG 101) – Core

- Illustrate organizational diversity.
- Evaluate alternative leadership models.
- Apply organizational behaviour concepts to human resource management.
- Demonstrate effective interpersonal communication skills.

10 Operations Management (MAIB LSC 101) – Core

- Execute business planning and control in a dynamic global environment.
- Understand the principles of the design and management of the transformation of inputs to outputs and their transportation and logistics.
- Examine and recognize a framework for systematic operations management.
- Apply important tools and practices for managing manufacturing and service production.

11 Neural Networks and Deep Learning with Business Applications (MAIB AI 104) – Core

- Recognize the theory and concepts of neural learning with deep and wide multi-layer neural networks.
- Apply neural and deep learning methods to solve practical business problems.
- Illustrate and apply deep learning network structures and training algorithms.
- Recognize some of the latest research in the field of learning.

12 Natural Language and Conversational Systems with Business Applications (MAIB AI 105) – Core

- Outline techniques for designing agents that can comprehend natural language and produce natural language utterances.
- Design and deploy methods for lexical, syntactic and semantic analysis of language and statistical language processing.
- Acquire knowledge of NLP tools and techniques that are used to solve practical business problems.
- Understand the principles and techniques for chatbot construction.

13 Database Management (MAIB CSC 102) – Core

- Recognize the basic principles of database systems, their design, especially the Entity Relationship Model and its enhancements.
- Apply the relational database concepts, models and schemas using SQL, use basic and advanced SQL queries and carry out basic database programming.
- Understand the ideas of object and object relational databases, the XML data model, and database design and normalization principles.
- Apply query processing and optimization techniques, transaction processing, and concurrency control techniques.
- Understand the concepts of distributed databases, NOSQL systems and Big Data applications using MapReduce and Hadoop.

14 Ethics, Philosophy and Sociology of Artificial Intelligence (MAIB AI 106) – Core

- Recognize the ethics and social impacts of computing technology, internet and social media.
- Indicate how computers and information technology are having an impact on society including privacy, freedom of speech, intellectual property, and work.
- Outline the philosophical principles of cognition, consciousness, and machine intelligence & Theories of the mind and consciousness.
- Apply ethical imperatives and requirements for artificial general intelligence and superintelligence.
- Demonstrate the possibility of a run-away intelligence singularity, and existential risks from artificial intelligence.

15 Corporate Finance (MAIB FIN 101) – Core

- Identify the fundamentals of decision making and control used by finance managers.
- Recognize the critical role of corporate finance in complex financial and investment problems.
- Construct and present effective oral and written forms of professional communication.
- Recognize ethical practices in corporate finance and how to resolve ethical conflicts in an appropriate way.

16 Marketing Management (MAIB MKT 101) – Core

- Review marketing management knowledge to aid planning and control in a dynamic global environment.
- Organize the principles and methods of marketing research for the purpose of responsible investigation from an applied business perspective.
- Comprehend marketing issues and apply skills to responsibly solve problems in local and global contexts.
- Combine written and verbal communication skills tailored to the needs of various audiences.
- Organize effectively with others to provide marketing solutions.

17 AI and Automation in Finance (MAIB AI 207) – Core

- Recognize the fundamental skills and knowledge necessary to apply Artificial Intelligence and automation to financial applications.
- Demonstrate analytical and quantitative skills for using data exploration, credit scoring, default probability and loss analytics, prudential regulation, and stress testing.
- Apply analytical and quantitative skills for fraud data analysis, fraud pattern recognition, and fraud ring detection.
- Research and employ mathematical, statistical and software techniques for trading, stock selection, and portfolio construction.

18 AI in Marketing (MAIB AI 208) – Core

- Outline the basic concepts of marketing research and modelling techniques using predictive analytics, and research about consumers, markets and marketing.
- Gather data from traditional, web, and social media sources, and build data-based models of seller and buyer preferences.
- Use quantitative tools and methods to analyse current customers, their lifetime value, their churn and retention, and to find new customers.
- Position current products, develop new products, and build brands.

19 AI in Logistics (MAIB AI 209) – Core

- Apply the principles of predictive analytics and machine learning to supply chain management.
- Demonstrate the use of algorithms and techniques for demand analysis, inventory control, and replenishment.
- Apply algorithms and tools for quantitative analysis of transportation, procurement, and production.
- Use quantitative tools such as geospatial analytics for global location mapping and route optimization.

20 Applied Business Project (ABR) (MAIB PRO 201) – Core

- Identify relevant disciplinary and interdisciplinary management and AI knowledge related to the project.
- Formulate a project idea, plan and manage its execution.
- Demonstrate cognitive, technical and design skills to investigate and provide solutions for business problems.
- Write and present a comprehensive project report.

21 Business Strategy (MAIB MGT 201) – Core

- Analyze both competition and cooperation from a business and corporate level perspective.
- Recognize how corporations create, capture, and sustain competitive advantage.
- Investigate business situations and create coherent corporate strategy.
- Discover the fit between corporate strategy and organization structure to improve economic performance.

22 Design and Critical Thinking (MAIB MGT 202) – Core

- Recognize the essential and core ideas of design and critical thinking.
- Identify the concepts, methods, and distinctive characteristics of different disciplines.
- Determine when critical and design thinking is needed.
- Judge the impact of design thinking on innovation culture.

23 Embedded Artificial Intelligence and Robotics (MAIB AI 210) – Core

- Recognize basic concepts of artificial intelligence embedded in devices and objects.
- Apply analytical and quantitative skills to implement practical methods and control paradigms for mobile robotics.
- Employ mathematical, statistical and software skills for intelligent mechatronics and smart autonomous vehicles and devices.
- Use basic software tools and platforms for robotics and embedded intelligence.

24 Recommendation Engines for Marketing Applications (MAIB AI 211) – Elective – Specialization – Digital Marketing

- Identify the basic ideas and concepts of recommendation systems and their use in marketing.
- Generate product recommendations using user feedback, preferences, and consumption patterns.
- Apply collaborative filtering, content-based, and knowledge-based methods to recommend products.
- Develop practical recommendation system software using publicly available tools.

25 Computational Advertising (MAIB AI 212) – Elective – Specialization – Digital Marketing

- Recognize the algorithms, techniques and solutions for computational advertising as applied to online platforms and channels.
- Demonstrate analytical and quantitative skills to implement methods for practical problems of sponsored search, contextual matching, and mobile apps and games.
- Design marketplaces and platforms for modern advertising channels.
- Analyze the microeconomics of digital advertising.

26 Business Process Automation (MAIB CSC 203) – Elective – Specialization – Digital Logistics

- Recognize tools and technologies for optimizing and redesigning business processes, like Process Mining and Business Process Management.
- Assess Lean and Six Sigma Process Optimization Techniques and Robotic Process Automation.
- Manipulate Robotic Process Automation tools and techniques.
- Research and demonstrate multiple technologies to enable Digital Transformation.

27 Internet of Things and Smart Asset Management (MAIB CSC 204) – Elective – Specialization – Digital Logistics

- Recognize the fundamental principles behind the technologies, architectures, and application domains for Internet of Things.
- Develop skills to implement the IoT hardware base of processors, memories, sensors, actuators, and communication systems.
- Develop skills to implement the IoT software base of operating systems, data bases and control and AI software.
- Apply the principles of management of “smart assets” and networks.

28 AI Strategy and Change Management (MAIB MGT 203) – Elective

- Recognize the relationship between artificial intelligence technologies and corporate strategy and change management.
- Apply analytical skills to understand the transformation of the economy and society because of the rise of AI.
- Acquire business skills to manage large scale changes in corporate enterprises because of the AI revolution.
- Communicate effectively in an organization to effect and manage change.

29 AI and Entrepreneurship (MAIB ENT 201) – Elective

- Recognize the concepts, skills and tools necessary to succeed as an entrepreneur in the field of artificial intelligence.
- Apply skills to investigate possibilities for AI based products and services.
- Devise strategies to find investors, fund deals and plan for an eventual exit.
- Communicate effectively using media and presentations.

30 Capstone Industry Research Project (CIRP) (MAIB CPP 201) – Core

- Reflect critically on theory and professional practice and apply research principles, theoretical propositions and methodologies to professional practice.
- Investigate, analyze and synthesize complex information and apply relevant bodies of knowledge of management and AI to industry requirements.
- Collaborate effectively as a team to plan and execute the assigned project with a high level of personal and group accountability.
- Acquire research skills to analyze, evaluate and design ethical and socially responsible solutions for the assigned project.
- Write and present a comprehensive project report.