

# MSc Business Analytics

## Course Syllabi and Descriptions

### **Strategic Management – MG557**

The objective of this module is to provide exposure to the concepts, theories and techniques of strategic management in a business context and application of strategic management concepts across a wide range of business settings. Understand the design, implementation and maintenance of strategic planning systems and strategic thinking. Developing an in-depth understanding of some of the key theoretical standpoints in the literature on strategic management. Developing your ability to critically review research and journal articles and improving your writing, presentational and research skills. Promoting the development of case study based analysis through the application of seminal strategic management frameworks and theories.

### **Systems Development & Project Management – MS804**

The objective of this course is to develop in students an understanding of the fundamentals of project management within the context of information systems development. Topics include the systems development life cycle, project planning, requirements analysis and scope management, time management, cost management, project HR management, risk management, communications management, configuration management, change control, project audit and closure, managing agile projects and emerging issues.

### **Information Systems Strategy & Innovation – MS802**

The objective of this course is to provide students with an in-depth understanding of the relationship between IS strategy and IS innovation. Topics may include: IS Strategy Frameworks and Business Models, Patterns of Innovation, Mobile Commerce, Pervasive Computing, Choosing & Measuring IS Projects, Modelling IS Innovation and Strategic Selection, Cloud Computing, Factors Impacting Strategy and Innovation, Emerging Topics and Issues in IS Strategy and Innovation.

### **Database Systems - MS805**

The objective of this module is to provide students with an understanding of business and technical issues in the development of database systems. Topics may include: database management systems; data modelling techniques e.g. normalisation, entity-relationship modelling, class diagrams; logical and physical database design; data quality and integrity; data definition; Structured Query Language (SQL); transaction management; distributed databases; emerging topics and issues.

### **Business Applications Programming - MS806**

The objective of this module is to introduce students to the fundamentals of interactive applications programming. Topics may include: principles of structured programming; object-oriented programming; event-driven programming; business applications modelling (e.g. Unified Modelling Language); functions and subroutines; conditional logic; repetition statements; arrays; emerging topics and issues.

### **Enterprise Systems – MS809**

The objective of this module is to develop students understanding of Enterprise Systems in business. Topics may include: information systems in the functional areas including systems to support finance, marketing, human resources and manufacturing; business processes; Enterprise Resources Planning (ERP) systems; Customer Relationship Management (CRM) systems; Supply Chain Management (SCM) systems; Global Supply Chain Management and Design; Enterprise Application Integration (EAI); operations management; designing Enterprise Systems; frameworks for implementing Enterprise Systems; benefits and drawbacks of Enterprise Systems; Enterprise Systems software (e.g., SAP); critical perspectives on Enterprise Systems; case studies in Enterprise Systems; emerging directions and issues in Enterprise Systems.

### **Information Systems Security & Ethics – MS810**

The objective of this module is to help future managers to understand the broad range of technical and managerial issues related to information systems security; and ethical, legal and societal dimensions of information systems. Students will learn specific tools and techniques to support effective IS security management. Topics may include: nature and scope of IS security; security of technical systems in organizations; models for specification of IS security; cryptography and technical IS security; network infrastructure and security; planning and designing IS security; risk management for IS security etc.

### **Advanced Applications Programming – MS815**

The objective of this module is to provide students with an understanding of advanced programming methods and techniques. Topics may include: Object oriented programming languages e.g. Java, C++; programming paradigms; programming concepts such as methods, classes, objects, exception handling, inheritance, polymorphism, file handling; programming constructs; new and emerging issues in object-oriented programming.

### **Decision Theory & Analysis – MS5104**

The objective of this course is to introduce students to the different aspects of decision theory and analysis and specifically how these apply to business. Topics include, decision theory, decision making, framing of decisions, types of decision making, flaws in decision making approaches, group decision making, risk, heuristics, data visualization in organisational decision making and emerging topics in decision theory and analysis.

### **Statistical Techniques for Business Analytics – MS5105**

The objectives of this module are to build the knowledge and skills required to apply quantitative techniques to analyse business data, and interpret and present results from such analyses. Topics may include: descriptive analysis; visualisation and charting; how to work with various data types and how they relate to statistical tests; how to know what analytical tests to run; how to read data output; how to interpret and report results; business data correlations, regression; t-tests and various analyses of variance methods; factor analysis; parametric and nonparametric analyses; other statistical techniques for business analytics.

### **Data Science & Big Data Analytics – MS5106**

This course provides practical foundation level training that enables immediate and effective participation in big data and other analytics projects. It includes an introduction to big data and the Data Analytics Lifecycle to address business challenges that leverage big data. The course provides grounding in basic and advanced analytic methods and an introduction to big data analytics technology and tools, including MapReduce and Hadoop. The course allows students to understand how these methods and tools may be applied to real world business challenges by a practicing data scientist.

### **Business Modelling & Analytics – MS5107**

The objective of this course is to develop students understanding of the role of business analytics in decision making and equip them with solutions used to create scenarios, understand realities, and predict future states. The course focuses on three types of business analytics: descriptive analytics used to gain insight from historical data; predictive analytics used to forecast future business performance; and prescriptive analytics used to recommend decisions using optimisation, simulation etc. Students are introduced to core concepts and technologies of business analytics, such as modelling, analysis, optimisation; data exploration and data mining; forecasting models; decision trees; neural networks; clustering techniques; etc. The course uses real business cases, to illustrate the application and interpretation of these methods. An important feature of the course is the use of MS Excel, an environment familiar to business analysts. All discussed models are provided by the Excel add-ins Analytic Solver Platform and XLMiner plus illustrative examples.

### **Applied Customer Analytics – MS5108**

In today's digitally enabled world, businesses are collecting more data than they know what to do with. Using the R programming language, which has become the industry standard for statistical analytics, this module will focus on turning large datasets into useful insights. The focus is applying statistical techniques to real datasets using R, rather than the mathematical details. With an emphasis on customer datasets, candidates will explore the R, RStudio, and R packages; learn how to programme basic statistics; create attractive, intuitive statistical graphics; write user-defined functions; combine and reshape multiple datasets; build linear, generalised linear, and nonlinear models; assess the quality of models and variable selection; analyse univariate and multivariate time series data; and learn how to write-up data analyses.

### **Business Intelligence with SAP – MS5109**

This SAP certification course verifies the knowledge in the area of the SAP Business Intelligence solution. This certificate builds on the basic knowledge gained by a BI Consultant and preferably refined by practical experience within a BI team and the Consultant can implement this knowledge of the specialist areas practically in projects.