**QM 669 - Business Analytics & Strategy**

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| Resource Person: |  |
| Email: |  |
| Contact Hours: |  |
| Office Address: |  |
| Program | MBA |
| Section: |  |
| Semester: | Spring 2023 |
| Course Pre-requisites: | NA |
| Credit Hours: | 3 |
| Course Type: | First Semester – MBA |
| Venue/Day/Time: | 1N12 /Tuesday /06:30 PM - 09:30 PM |
| Course URL (if any): |  |

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| **Course Description:** |
| The course emphasizes that business analytics is not a theoretical discipline: these techniques are only interesting and important to the extent that they can be used to provide real insights and improve the speed, reliability, and quality of decisions. The concepts learned in this class should help you identify opportunities in which business analytics can be used to improve performance and support important decisions. It should make you alert to the ways that analytics can be used — and misused — within an organization. Business analytics refers to the ways in which enterprises such as businesses, non-profits, and governments can use data to gain insights and make better decisions. Business analytics is applied in operations, marketing, finance, and strategic planning among other functions. The ability to use data effectively to drive rapid, precise and profitable decisions has been a critical strategic advantage for companies as diverse as WalMart, Google, Capital One, and Disney. For example, Capital One uses sophisticated analytic capabilities to match credit card offerings to customers more accurately than their competition. WalMart uses analytics to monitor and update its inventory in a way that allows it to serve its customers at an exceptionally low cost. In addition, many current and recent startups such as Planter and Splunk are based on the application of analytics to large databases. With the increasing availability of broad and deep sources of information — so-called “Big Data” — business analytics are becoming an even more critical capability for enterprises of all types and all sizes in order to create a sustainable environment. |

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| **Course Teaching Methodology:** |
| * Interactive lectures with hands on case studies. * Research Papers & Case Studies * In Class Exercises * Computer Software |

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| **Programme Educational Objectives (POs): MBA** | |
| PO1 | To inculcate reasoning, critical analytical, problem-solving, and decision-making skills. |
| PO2 | To provide real-life work experiences. |
| PO3 | To provide opportunities to network with employers and entrepreneurs. |
| PO4 | To develop future leaders, managers, and entrepreneurs for the digital and globalized world. |
| PO5 | To develop effective presentation, oral, and written communication skills. |
| PO6 | To expose students to the important social, environmental, economic and ethical issues. |

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| **Programme Learning Outcomes (PLOs): MBA**  **After completing this degree programme, students shall be able to:** | |
| PLO1 | Apply and evaluate business plans and strategies in response to changing market conditions and unforeseen challenges. |
| PLO2 | Apply business theories and principles to real-world business challenges, demonstrating the ability to transfer knowledge into workplace settings. |
| PLO3 | Apply effective communication skills to convey ideas, proposals, and solutions. |
| PLO4 | Analyze local & global business environments to formulate business strategies |
| PLO5 | Apply technology and analyze the impact of digital transformation on business operations and competitiveness. |
| PLO6 | Evaluate the ethical and social responsibility implications of business decisions and practices, considering their broader societal impacts. |
| **Subject Specific:** | |
| PLO7 | Apply predictive modeling techniques to forecast trends, patterns, and future outcomes, enabling organizations to address challenges and seize opportunities proactively. |

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| **Course Learning Outcomes (CLOs):**  **After completing this course, students shall be able to:** | | | |
|  | | **Mapping the PLOs** | **Level** |
| CLO1 | Critically evaluate relevant data pre-processing and cleaning techniques to prepare diverse business data for effective analysis, ensuring data quality and suitability for chosen analytical methods. | PLO5 | L5 |
| CLO2 | Compare suitable analytical techniques (e.g., descriptive statistics, regression analysis, forecasting) based on specific business problems and data characteristics, justifying the chosen approach based on its strengths and limitations. | PLO2 | L5 |
| CLO3 | Utilize data visualization tools to effectively communicate complex analytical insights to diverse audiences, ensuring clarity, conciseness, and appropriate visual representations. | PLO5, PLO3 | L3 |
| CLO4 | Analyze trends, patterns, and potential risks within business data, applying the extracted knowledge to formulate data-driven recommendations and inform strategic decision-making processes using analytical insights. | PLO1, PLO4 | L4 |
| CLO5 | Critically assess the ethical implications of using business analytics, considering potential biases, data privacy concerns, and responsible data practices, while proposing strategies to mitigate risks and ensure ethical use of data. | PLO6 | L5 |

**CLO – PLO Mapping**

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| **CLOs** | **PLOs** | | | | | | |
| Apply and evaluate business plans and strategies in response to changing market conditions and unforeseen challenges. | Apply business theories and principles to real-world business challenges, demonstrating the ability to transfer knowledge into workplace settings. | Apply effective communication skills to convey ideas, proposals, and solutions. | Analyze local & global business environments to formulate business strategies. | Apply technology and analyze the impact of digital transformation on business operations and competitiveness. | Evaluate the ethical and social responsibility implications of business decisions and practices, considering their broader societal impacts. | Apply predictive modeling techniques to forecast trends, patterns, and future outcomes, enabling organizations to address challenges and seize opportunities proactively. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 |  |  |  |  | L5 |  |  |
| 2 |  | **L5** |  |  |  |  |  |
| 3 |  |  | L3 |  | L3 |  |  |
| 4 | **L4** |  |  | **L4** |  |  |  |
| 5 |  |  |  |  |  | L5 |  |

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| **Assurance of Learning and Assessment Items:**  *Specify Assessment Items that will assure student learning through application and achieve objectives of specific PLOs / COs / CLOs* | |
| **Assessment Item** | **Application/ Objectives**  **CLO** |
| Class Participation | **CLO1** |
| Assignment | **CLO2** |
| Quiz | **CLO1, CLO2** |
| Mid Term Exam | **CLO3, CLO4** |
| Term Project | **CLO3, CLO4** |

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| **Assessment Structure and Grading Policy\*:** | | |
| **Assessment Item** | **Weight (%)** | **Execution Plan** |
| Class Participation | 20 |  |
| Assignment | 10 | 3 Assignments |
| Quiz | 10 | 2 quizzes |
| Mid Term | 20 | One-time assessment |
| Term Project | 40 | One-time assessment |
| **Total** | **100** |  |
| **Notes – Norms and Important Class Policies:**   * **Class Policy**: You are required to be in class at the assigned time. If you arrive more than ten minutes late, you will be marked absent. * **Email Policy**: You will be responsible if you miss a deadline because you did not read your email. Participants should regularly check their university email account. * **Class Attendance Policy**: A minimum 80% attendance is required for a participant to be eligible to sit in the final examination. Reporting sick and attending family functions (such as a wedding) will be considered as absent. Participants with less than 80% attendance in a course will be given grade ‘F’ (Fail) and will not be allowed to take the final exam. An ‘F’ grade will negatively impact student’s CGPA. * **Mobile Policy**: Switch off your mobile phones while in class. * Withdrawal Policy: Students may withdraw from a course till the end of the 12th week of the semester. In such a case, a grade ‘W’ will be awarded. A ‘W’ grade will not impact student’s CGPA. A student withdrawing after the 12th week will be awarded ‘F’ grade, which will negatively impact CGPA. * **Harassment Policy**: Sexual or any other form of harassment through physical, verbal or electronic (mobile, email, etc.) means is constituted as punishable offence. Such actions will not be tolerated. * **Use of Unfair Means/Honesty Policy**: Any participant found using unfair means or assisting another participant during a class test, quiz, assignment, examination, etc. will be liable for strict disciplinary action. * **Plagiarism Policy**: Plagiarism is defined as the practice of taking someone else's work or ideas and passing them off as one's own. The participants will submit the plagiarism report to the resource person with every assignment, report, project, thesis, etc. A participant who fails to submit the ‘Turnitin’ report will receive ‘F’ grade that will count towards CGPA. If participants attempt to cheat ‘Turnitin,’ they will receive an additional ‘F’ that will count towards their CGPA. Look up the Student Handbook for further information on rules and regulations regarding plagiarism while submitting final report and other documents. | | |

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| **Week** | **Topics / Contents** | **Application/Objectives**  **CLO** |
| 1 | **Introduction to Business Analytics & Strategy**  Provide the basic introduction of Business Analytics & Strategy with examples of how to Measures it and what are the basic Properties.  Students will be able to understand the basic terminology Business Analytics & Strategy with its impact. | CLO2 |
| 2 | **Introduction to Data mining and predictive analytics**  Understanding the concept of Data mining and how predictive analytics help in growing business.  Students will be able to learn the Empirical Background and technical key Definitions used in Data mining and predictive analytics. | CLO1 |
| 3 | **Data Science for Business**  Understanding the basic logics of Data Science use for Business.  They will be in position to understand Data Science for Business fundamentals.  **Assignment 1** | CLO3 |
| 4 | **Data Mining for Business Intelligence**  Understand the Data Mining for Business Intelligence.  After this lecture, students will be able to get complete understanding of Data Mining for Business Intelligence. | CLO2 |
| 5 | **Capstone Project Discussion 1**  Discussing the capstone project and its key parameters in details.  Students will be assigned with Capstone project that must be completed till end of semester. | CLO3 |
| 6 | **Introduction to Excel modeling and optimization.**  Provide the basic introduction of Excel modeling and optimization.  Students will understand the basic level of excel modeling and optimization. | CLO4 |
| 7 | **Modeling in a problem-solving framework, spreadsheet engineering**  Understanding of problem-solving framework, spreadsheet engineering.  After this, students will learn the use problem-solving framework, spreadsheet engineering. | CLO2 |
| 8 | **Analysis using spreadsheets, data exploration and preparation.**  Learning on how to perform Analysis using spreadsheets, data exploration and preparation of Data.  Students will Analyze using spreadsheets, data exploration and preparation.  **Assignment 3** | CLO3 |
| 9 | **Optimization of non-smooth models, decision analysis, optimization in simulation**  Understanding of Optimization by using different models and simulations in order to perform decision analysis.  Students will Optimization by using different models and simulations in order to perform decision analysis. | CLO1 |
| 10 | **Mid-Term Exam** | CLO1 |
| 11 | **Capstone Project Discussion 2**  Queries will be resolved, feedback of capstone project has been taken and next level of capstone project will be discussed in detail.  Students will discussed their issues and highlight the main areas and provide a timeline report of their projects. | CLO2 |
| 12 | **Big Data**  Introduction to big data, its fundamental properties and key terminologies of Big Data.  Student will get the foundation base of Big Data. | CLO4 |
| 13 | **Ethics when handling Big-Data**  Discussion on social, technical, legal, and ethical issues raised by the “big data” phenomenon.  Students will understand the ethical issues related to privacy, confidentiality, transparency and identity issues raised by Big Data revolution. | CLO1 |
| 14 | **The role that analytics may play in sustainability.**  What is the role of data analytics on sustainability related initiatives?  By collecting and analyzing data on a wide range of sustainability-related factors—including energy and resource use, greenhouse gas emissions, and supply chain performance—students will generate the deep insights they  to guide their sustainability-related initiatives and improve their overall resource efficiency. | CLO1 |
| 15 | **Capstone Project Presentation**  Student will present and will provide introductory session of How Business Analytics helping in making world better place. | CLO4 |
| 16 | Final Term Examination | CLO3, CLO4 |

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| **Primary Text Book (s):** |
| There is no required textbook for the class. There will be cases, articles as well as slides that we will distribute in each class. All the readings and cases will be uploaded on LMS |

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| **Reference / Supplementary Reading (s):** |
| **Softwares used during semester:**  Advanced MS Excel.  Power BI. |