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| **<** **IBM 525> - <DECISION MAKING PROCESSES AND ANALYSIS>** |
| **Course Code**  | **Course Name** | **Semester** |
| IBM 525 | Decision Making Processes and Analysis | Fall [x]  Spring [x]  Summer [ ]  |
| **Hours** | **Credit** | **ECTS** |
| **Theory** | **Practice** | **Lab** | 3 | 4 |
| 42 | - | - |

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| **Course Details** |
| **Department** |  International Business Administration |
| **Course Language** | English |
| **Course Level** | Undergraduate [ ]  Graduate [x]  |
| **Mode of Delivery** | Face to Face [x]  Online [ ]  Hybrid [ ]  |
| **Course Type** | Compulsory [ ]  Elective [x]  |
| **Course Objectives** | To provide students with the ability to analyze, model, and solve the decision problems they encounter. |
| **Course Content** | Structure of decision problem, elements of decision problem, examination of decision-making environments. Modelling of decision problems with decision trees and interaction diagram. The value of perfect information, sensitivity analysis. Use of utility theory. Modelling of Linear Programming Problems. Decision making with multi criteria. |
| **Course Method/****Techniques** | Lecture [x]  Question & Answer [x]  Presentation [ ]  Discussion [ ]  |
| **Prerequisites/****Corequisites** |  |
| **Work Placement(s)** |  |

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| **Textbook/References/Materials** |
| * Barry Render, Ralph M. Stair, Jr., Michael E. Hanna, trevor S. Hale, Quantitative Analysis for Management, Twelfth Edition, 2015, Pearson Education Limited. (Textbook)
* Ronald A. Howard, Ali E. Abbas, Foundations of Decision Analysis, Global Edition, 2016, Pearson Education Limited.
* Making Hard Decisions with DecisionTools, 3rd Edition, Robert T. Clemen and Terence Reilly, 2013 Cengage Learning.
* Holloway, C.A., (1979), Decision Making Under Uncertainty: Models and Choices, Prentice Hall
* Wayne L. Winston, Operations Research-Applications and Algorithms, 4th Ed., 2004, Thomson Learning Inc.
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| **Course Category** |
| Mathematics and Basic Sciences |[ ]   | Education | [ ]  |
| Engineering |[x]   | Science |[ ]
| Engineering Design |[ ]   | Health |[ ]
| Social Sciences |[x]   | Profession |[ ]

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| **Weekly Schedule** |
| **No** | **Topics** | **Materials/Notes** |
| 1 | Introduction  | Introduction to Quantitative Analysis |
| 2 | Introduction  | Introduction to Quantitative Analysis (Cont.) |
| 3 | Probability  | Probability Concepts and Applications |
| 4 | Probability  | Probability Concepts and Applications (Cont.) |
| 5 | Decision Analysis  | Decision analysis process, Decision-making under uncertainty and risk |
| 6 | Decision Analysis | Value of Information, Utility Theory |
| 7 | Forecasting | Types of Forecasting Models |
| 8 | Midterm Exam |  |
| 9 | Forecasting | Trend, Seasonal, and Random Variations |
| 10 | Modelling | Linear Programming Models |
| 11 | Linear Programming  | Graphical and Computer Methods |
| 12 | Applications | Linear Programming Applications |
| 13 | MCDM  | Multi Criteria Decision Making |
| 14 | AHP | The Analytic Hierarchy Processes |
| 15 | TOPSIS | Technique for Order Preference by Similarity |
| 16 | Final Exam |  |

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| **Assessment Methods and Criteria** |
| **In-term studies** | **Quantity** | **Percentage** |
| Attendance |  |  |
| Lab |  |  |
| Practice |  |  |
| Fieldwork |  |  |
| Course-specific internship |  |  |
| Quiz/Studio/Criticize |  |  |
| Homework |  |  |
| Presentation / Seminar |  |  |
| Project |  |  |
| Report |  |  |
| Seminar |  |  |
| Midterm Exam | 1 | 40 |
| Final Exam | 1 | 60 |
| **Total** | **100%** |
| **Contribution of Midterm Studies to Success Grade** |  | 40 |
| **Contribution of End of Semester Studies to Success Grade** |  | 60 |
| **Total** | **100%** |

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| **ECTS Allocated Based on Student Workload** |
| **Activities** | **Quantity** | **Duration (Hrs)** | **Total Workload** |
| Course Hours | 14 | 3 | 42 |
| Lab |  |  |  |
| Practice | 2 | 4 | 8 |
| Fieldwork |  |  |  |
| Course-specific Work Placement |  |  |  |
| Out-of-class study time | 3 | 5 | 15 |
| Quiz/Studio/Criticize |  |  |  |
| Homework |  |  |  |
| Presentation / Seminar |  |  |  |
| Project |  |  |  |
| Report |  |  |  |
| Midterm Exam and Preparation for Midterm | 3 | 5 | 15 |
| Final Exam and Preparation for Final Exam | 4 | 5 | 20 |
|  **Total Workload** | **100** |
|  **Total Workload / 25** | **100/25** |
|  **ECTS Credit** | **4** |

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| **Course Learning Outcomes** |
| **No** | **Outcome** |
| **L1** | Know the structure and elements of the decision problem. |
| **L2** | Analyze and model the decision problem. |
| **L3** | Analyze various decision environments and decision problems. |
| **L4** |  |
| **L5** |  |

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| **Contribution of Course Learning Outcomes to Program Competencies/Outcomes** |
| *Contribution Level: 1: Very Slight, 2: Slight, 3: Moderate, 4: Significant, 5: Very Significant* |
|  | **P1** | **P2** | **P3** | **P4** | **P5** | **P6** | **P7** | **P8** | **P9** | **P10** | **P11** | **P12** | **P13** | **P14** | **P15** | **Total** |
| **L1** |  | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  | 4 |
| **L2** |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  | 3 |
| **L3** |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  | 3 |
| **L4** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **L5** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Total** | 10 |