

AC-11-03-2025

Item No. 05

Approved by the BoS in Information
Technology on 05-03-2025 Item No. 05

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Knowledge is Supreme

Title of the Course: Business Intelligence

**Programme: B.Sc.(Information Technology)
Semester VI**

**Syllabus for 4 credits
From the academic year-2025-2026**

| Sr. No. | Heading | Particulars |
|---------|----------------------------------|--|
| 1 | Description the course :: | Business intelligence may be defined as a set of mathematical models. and analysis methodologies that exploit the available data to generate information and knowledge useful for complex decision-making processes. |
| 2 | Vertical: | Major Electives |
| 3 | Type: | Theory and Practical |
| 4 | Credit: | 4 credits |
| 5 | Hours Allotted: | 60 Hours |
| 6 | Marks Allotted: | 100 Marks Practical Evaluation: 40Marks Semester-End: 60 Marks |
| 7 | Course Objectives | <ol style="list-style-type: none"> 1. To support better business decision making. 2. This course provides an overview of the technology of BI and the application of BI to an organization's strategies and goals. 3. To develop the skills for implementing the supervised and unsupervised learning Techniques 4. To comprehend the core concepts of logistics planning and optimal decision making |
| 8 | Course Outcomes | <ol style="list-style-type: none"> 1. Enable all participants to recognize, understand and apply the language, theory and models of the field of business analytics 2. Foster an ability to critically analyse, synthesise and solve complex unstructured business problems 3. Encourage an aptitude for business improvement, innovation and entrepreneurial action 4. Encourage the sharing of experiences to enhance the benefits of collaborative learning |

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| 9 | Modules:- |
| | Module1:Business intelligence, Decision support systems (15 Hours) |
| | <ul style="list-style-type: none"> • Effective and timely decisions, Data, information and knowledge, The role of mathematical models, Business intelligence architectures, Ethics and business intelligence • Definition of system, Representation of the decision-making process, Evolution of information systems, Definition of decision support system, Development of a decision support system |
| | Module2:Mathematical models for decision making, Data mining, Data preparation (15 Hours) |
| | <ul style="list-style-type: none"> • Structure of mathematical models, Development of a model, Classes of models • Definition of data mining, Representation of input data , Data mining process, Analysis methodologies • Data validation, Data transformation, Data reduction |
| | Module3:Classification, Clustering (15 Hours) |
| | <ul style="list-style-type: none"> • Classification problems, Evaluation of classification models, Bayesian methods, Logistic regression, Neural networks, Support vector machines • Clustering methods, Partition methods, Hierarchical methods, Evaluation of clustering models |
| Module4:Business intelligence applications, Marketing models, Logistic and production models, Data envelopment analysis (15 Hours) | |
| <ul style="list-style-type: none"> • Business intelligence applications: • Relational marketing, Sales force management, • Supply chain optimization, Optimization models for logistics planning, Revenue management systems. • Efficiency measures, Efficient frontier, The CCR model, Identification of good operating practices | |

11 Reference Books:

1. **Author:** Carlo Vercellis, **Title:** Business Intelligence: Data Mining and Optimization for Decision Making, **Publisher:** Wiley 1st Edition **year:**2009
2. **Author:** Efraim Turban, Ramesh Sharda, Dursun Delen, **Title:** Decision support and Business Intelligence Systems, **Publisher:** Pearson 9th Edition **year:**2011
3. **Author:** Grossmann W, Rinderle-Ma, **Title:** Fundamental of Business Intelligence, **Publisher:** Springer 1st Edition **year:**2015

12 Practical Assessment: 40%

Semester End Examination: 60%

13 Continuous Evaluation through:

Practical

14 Format o question Paper:

**Scheme of Evaluation Pattern
Table 1A: Scheme of Continuous Evaluation (CE/Practical)
Scheme of Evaluation Pattern**

| Sub-components | Maximum Marks | Conditions for passing |
|--------------------|---------------|--|
| 1)Practical exam | 30 | A learner must be present for each of the sub components |
| 2)Journal and Viva | 10 | |
| Total | 40 | |

**Table 1B: Scheme of Semester End Examination (SEE) Evaluation
Question Paper Pattern for Semester End Examination (SEE)
Maximum Marks: 60 Duration: 2 Hrs.
Note: All questions are compulsory. Each question has an internal choice.**

Q.1. Attempt any three of the following (15)

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| | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |
| | e) | | |
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| | | Attempt any three of the following | (15) |
| Q.2. | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |
| | e) | | |
| | | Attempt any three of the following | (15) |
| Q.3. | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |
| | e) | | |
| | | Attempt any three of the following | (15) |
| Q.4. | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |
| | e) | | |

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| Course Name: Business Intelligence Practical | | | |
| Periods per week (1 Period is 60 minutes) | | 4 | |
| Credits | | 2 | |
| | | Hours | Marks |
| Evaluation System | Practical Examination | 2 | 40 |

| Practical No | Details |
|---------------------|---|
| 1 | Import the legacy data from different sources such as (Excel , SqlServer, Oracle etc.) and load in the target system. (You can download sample database such as Adventureworks, Northwind, foodmart etc.) |
| 2 | Perform the Extraction Transformation and Loading (ETL) process to construct the database in the Sqlserver. |
| 3 | a. Create the Data staging area for the selected database. b. Create the cube with suitable dimension and fact tables based on ROLAP, MOLAP and HOLAP model. |

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| 4 | a. Create the ETL map and setup the schedule for execution. b. Execute the MDX queries to extract the data from the datawarehouse. |
| 5 | a. Import the datawarehouse data in Microsoft Excel and create the Pivot table and Pivot Chart. b. Import the cube in Microsoft Excel and create the Pivot table and Pivot Chart to perform data analysis. |
| 6 | Apply the what – if Analysis for data visualization. Design and generate necessary reports based on the data warehouse data. |
| 7 | Perform the data classification using classification algorithm. |
| 8 | Perform the data clustering using clustering algorithm. |

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| 1 | Q.1 | 15 |
| 2 | Q.2 | 15 |
| 3 | Viva | 5 |
| 4 | Journal | 5 |
| 5 | Total | 40 |