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Description generated with very high confidence

**Course Plan**

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| **Department :** | Department of Computer Applications |
| **Course Name & code :** | Machine Learning Lab & MCA 5161 |
| **Semester & branch :** | 3rd & MCA |
| **Name of the faculty :** | Mr. Nirmal Kumar Nigam |
| **No of contact hours/week:** | |  |  |  |  | | --- | --- | --- | --- | | **L** | **T** | **P** | **C** | | Lecture(L) | Tutorial(T) | 3 | 1 | |

**ASSESSMENT PLAN**

**Course Outcomes (COs)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***At the end of this course, the student should be able to:*** | **No. of Contact Hours** | **Marks** |
| CO1: | Write scripts in Python for analysis | 2 \* 3 | 20 |
| CO2: | Write scripts using Python packages for Machine Learning | 3\* 3 | 60 |
| CO3: | Perform simple OLAP operations using Excel | 1 \* 3 | 20 |
| CO4: | Click or tap here to enter text. | Hrs. | Marks |
| CO5: | Click or tap here to enter text. | Hrs. | Marks |
|  | **Total** | 18 | 100 |

|  |  |
| --- | --- |
| 1. **Continuous Evaluation** | 60% |
| 1. LAB TEST 2 \* 10 MARKS, 2. VIVA VOCE 2 \* 10 MARKS , 3. OBSERVATION, RECORD= 2 \* 10 MARKS | |
| 1. **Lab Examination** | 40% |
| * 2 exercises from Python, Exam (Max. Marks: 40) | |

**Course Plan**

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| **L. No.** | **Topics** | **Course Outcome Addressed** |
| **L1** | Python Programming Tutorial – Basic Commands, Operators, Script Files – Writing and execution | CO1 |
| **L2** | Basic Data Analysis – Measures of central tendency, Data Dispersion and Visualization | CO1 |
| **L3** | Regression – Linear, Multilinear, and Logistic | CO2 |
| **L4** | Classification Techniques, Performance evaluation in Python | CO2 |
| **L5** | MS EXCEL exercise for summary tables, contingency tables & visualization | CO3 |
| **L6** | Feature Selection Techniques: Information Gain, Chi-Square Test, Correlation Coefficient | CO2 |
| **L7** | Dimensionality Reduction using Principal Component Analysis | CO2 |
| **L8** | Classification Techniques – KNN, Naïve Bayes | CO2 |
| **L9** | Classification Techniques – Decision Trees, Support Vector Machines | CO2 |
| **L10** | Classifier Ensembling using KNN, Decision Trees and SVM | CO2 |
| **L11** | Clustering using K-Means and K-Medoids | CO2 |
| **L12** | Term End Examination | CO |
| **L13** | Click or tap here to enter text. |  |
| **L14** | Click or tap here to enter text. | CO |

**References:**

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| --- | --- |
| 1. | Hans Peter Langtangen, Python Scripting for Computational Science, (3e), Springer Publishers, 2014 |
| 2. | E. Tufte. The Visual Display of Quantitative Information, (2e), Graphics Press, 2007. |
| 3. | Glenn J. Myatt., Making sense of Data: A practical Guide to Exploratory Data Analysis and Data Mining, (2e), Wiley Press, 2006. |
| 4. | Inroduction to Machine Learning with Python, A Guide for Data Scientists, Andreas C Miller and Sarah Guido, Oreilly Publications, 2016, First Edition |
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| **Submitted by:** | Mr. Nirmal Kumar Nigam |

**(Signature of the faculty)**

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| **Date:** | 25-07-2022 |

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| **Approved by:** | Click or tap here to enter text. |

**(Signature of HOD)**

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| **Date:** | 25-07-2022 |

**Faculty members teaching the course (IF MULTIPLE sections EXIST):**

|  |  |  |  |
| --- | --- | --- | --- |
| **FACULTY** | **Section** | **FACULTY** | **Section** |
| Mr. Nirmal Kumar NIgam | A & B |  |  |
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