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| http://www.ictee.in/images/logo.png | | | **COURSE SYLLABI**  **(2016 - 2020)** | | |
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| **DEPARTMENT OF COMPUTER ENGINEERING** | | | **W.E.F.** | **:** | 2018-19 |
| **TY BTECH** | | | **COURSE NAME** | **:** | Skill Development Lab |
| **COURSE CODE** | **:** | CS307 |
| **COURSE CREDIT** | **:** | 2 |
| **RELEASE DATE** | **:** | **01/06/2018** | **REVISION NO.** | **:** | 1.0 |

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| **TEACHING SCHEME :** | | **EVALUATION SCHEME :** | | | | | |
| **LECTURE** | **PRACTICAL** | **THEORY** | | | **PRACTICAL** | **PRESENTATION/**  **DEMONSTRATION** | **TOTAL** |
| **ICE** | **ECE** | **IA** |
| -- | 4 | -- | -- | -- | -- | 75 | 75 |
| **AIM:** | | | | | | | |
| To provide technical skills, for sharpening the students to enable them to meet the techno-socio-economic challenges. | | | | | | | |

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| **COURSE OBJECTIVES:** |
| 1. CS307.CEO.1: Plan Extraction, transformation, scraping, joining and cleaning of large data sets. 2. CS307.CEO.2: Analyze large data sets to bring out insights to solve business problems. 3. CS307.CEO.3: Make use of machine learning libraries and apply established machine learning   algorithms.   1. CS307.CEO.4: Utilize machine learning concepts in Python using problem solving approach by working on real time cases and in class programming assignments. 2. CS307.CEO.5: Develop code in support of Machine learning solutions in Python. 3. CS307.CEO.6: Evaluate and debug various learning algorithms. |

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| **COURSE OUTCOMES:** |
| Students successfully completing the course will be able to   1. CS307.CO.1: Apply python to build various machine learning application 2. CS307.CO.2: Interpret the fundamental issues and challenges of machine learning: data, model   selection, model complexity.   1. CS307.CO.3: Identify the strengths and weaknesses of many popular machine learning approaches.      1. CS307.CO.4: Analyze the underlying mathematical relationships within and across Machine Learning   algorithms and the paradigms of supervised and un-supervised learning.   1. CS307.CO.5: Design and implement various machine learning algorithms in a range of real-world   applications. |
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| **Guidelines for Laboratory Conduction** | | |
| The assignments to be framed by understanding the prerequisites, technological aspects, utility and recent trends related to the topic. All problem statements or the assignments are based on real world problems/applications. In addition to these, instructor can assign one real life application in the form of a mini-project based on the concepts learned. Instructor may also set one assignment or mini-project that is suitable to respective branch beyond the scope of syllabus. Team of 3 to 4 students may work on mini-project. During the assessment, the expert evaluator should give the maximum weightage to the satisfactory implementation and software engineering approach followed .The supplementary and relevant questions may be asked at the time of evaluation to test the student’s for advanced learning, understanding, effective and efficient implementation and demonstration skills. | | |
| **Module** | **Python and Machine Learning** | **36Hrs** |
| **Prerequisite:** Python  **Course Content**  Understanding Data Analytics, Importance of data in business, Data analytics ecosystem, Basis of Python programming, Basics of Python, Variables and Operators, Data types, Lists, Dictionary and Functions, Programming in Python, Introduction to Machine learning, Python Libraries, Numpy, Scikit, Pandas, Matplotlib, Data Visualization, Supervised learning, Linear Regression, Logistic Regression, Decision Tree, Naive Bayes, K Nearest Neighbor, Random Forest, Dimensionality Reduction, Gradient Boosting algorithms, Support Vector Machine, Unsupervised learning, Clustering techniques – K means clustering , Association Rule Learning, Natural Language Processing  **Benefits:**   1. Placement Opportunities. | | |
| **Practical List** | | |
| **Practical No. 01 4 Hrs** | | |
| Perform data processing and cleaning of dataset using Python. | | |
| **Practical No. 02 4 Hrs** | | |
| Create a machine learning model using Linear Regression (Example : Salary Prediction) | | |
| **Practical No. 03 4 Hrs** | | |
| Create a machine learning model using multiple linear regression (Example : [Flight delay Data For July 2014](https://www.statcrunch.com/5.0/index.php?dataid=2485443)). | | |
| **Practical No. : 04 4 Hrs** | | |
| Create a machine learning model using Decision Tree (Example : Position of an Employee as per salary) | | |
| **Practical No. : 05 4 Hrs** | | |
| Create a machine learning model using Decision Tree (Example : Facebook Ads) | | |
| **Practical No. : 06 4 Hrs** | | |
| Create a machine learning model using Decision Tree (Example : Showroom Customer spending time) | | |
| **Practical No.: 07 4 Hrs** | | |
| Create a natural language processing model (Example : Customer purchasing) | | |
| **Mini Project 8 Hrs** | | |
| **Note:** Data sets should be real time data sets like heart disease, Airline, etc. | | |

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| **REFERENCES:** |
| [Daniel Nedal](https://www.amazon.in/Daniel-Nedal/e/B07DGPB8MV/ref=dp_byline_cont_book_1), “Python Machine Learning from Scratch”,AI Sciences paperback edition 2016, I*SBN-13*: 9781720649496Chris Albon, “Machine Learning with Python Codebook”, O’REILLY Paperback, 2018, ISBN-13: 1491989388 |