

GUJARAT UNIVERSITY

K. S. SCHOOL OF BUSINESS MANAGEMENT
[Five Years' (Full-time) Integrated Degree Course]

Semester-7 [M.Sc. (CA & IT)]

Subject Code: - KS_C_CC-478

Subject Name: - Project Development on KS_C_CC-474

Course Credit: - 5

Objective:

The goal of this subject is to introduce students with the upcoming technology which can be implemented using the high-level computer programming language called – Python. Students can implement algorithms which are already covered in the core subject AI as theory and they can come-up with their own project after learning the basics and libraries of python.

Unit No.	Course Content	Weight-age (%)
1	Introduction of NumPy Library: Data object sequence, Data object set, data object mapping, NumPy introduction, High-Dimensional Array and creating NumPy Array, Indexing, NumPy Operations, Broadcasting, File Handling with NumPy, basic Statistics with NumPy, Rules of Statistics with NumPy, Case Study based on NumPy	(20%)
2	Introduction of Pandas Library Introduction to Pandas, Creating Series Object, iLoc & Loc, Operations in Pandas, DataFrame Object, Creating Mean Row, Dropping Null Values, Querying from DataFrame, Applying Function on DataFrame, Use groupby Method, Filter, Split, Apply, Aggregate, Case Study based on Pandas	(20%)
3	Introduction of Matplotlib and Seaborn – Data Visualization What Is data Visualisation, Styling Tabulation, Distribution of data (Histogram), Distribution of categorical variable, Joint distribution of two variable, Box Plot, Boxen Plot, Swarm Plot, Violin Plot, Faceted Plot, Pair Plot, Pie Chart, Donut Chart, Stacked Bar Plot, Relative Stacked Bar Plot, Scatter Plot, Bar Plot, Line Plot, Heat Map.	(20%)
4	Implementation of AI Algorithm Implementation of BFS, Implementation of DFS, Implementation of single player game, Implementation A* Algorithm, Implementation Travelling salesman problem, Implementation of tic-tak-toe game, Program to solve N-Queens Problem, program to solve 8-puzzle problem.	(20%)

5	Project Implementation: <ul style="list-style-type: none"> ▪ Develop a mini project (small application) on a problem using an Artificial Intelligence approach and to learn the concept of intelligent application development through the implementation. ▪ Examples: Games like tic-tac toe, 8-puzzle, and application based in heuristic. ▪ It is recommended that the team should be of 2-3 students. ▪ Coding standards should be followed meticulously. 	(20%)
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Recommended Practical Scheme: Approximately 45 hours of Lab demonstration with coding Practice.

Assignment: Minimum five assignments should be given.

Main Reference Books:

1. Python CookBook, 3rd Edition
By David Beazley, Brian K. Jones: Publisher(s): O'Reilly Media, Inc.
2. Hands-on Data analysis with NumPy and Pandas
By Curtis Miller: Publisher(s): Packt Publishing Ltd.
3. Pandas for Everyone – 1st Edition
By Daniel Y. Chen: Publisher(s): Addison-Wesley Professional
4. NumPy Essentials
By Leo Chin, Tanmay Dutta: Publisher(s): Packt Publishing Ltd.
5. Matplotlib 3.0 cookbook
By Srinivasa Rao Poladi Publisher(s): Packt Publishing Ltd.
6. Data Visualisation with Python for Beginners
Publisher(s): AI Publishing LLC.