



## LECTURE PLAN ON & RELATED LINK

### Computer Science (Honours)

#### PROGRAMMING USING PYTHON 3

**Teacher: Mridul Ghosh**

**Paper: CMS-A-DSE-B--2-TH**

**Credit: 4**

Class	Content	Links	Faculty approach	Student activity	Learning Outcome
Class 1	<b>Introduction to the Python:</b> <ul style="list-style-type: none"> <li>✓ Interpreted vs. compiled languages. Bytecodes. The importance of whitespace.</li> <li>✓ Variables and the lack of explicit data types</li> </ul>	<a href="https://www.geeksforgeeks.org/python-compiled-or-interpreted/">https://www.geeksforgeeks.org/python-compiled-or-interpreted/</a>	Explains	Listens	Understanding
Class 2	<b>How Python uses</b> <ul style="list-style-type: none"> <li>✓ the concepts of duck, Strong, and static typing, to figure out data types in runtime.</li> <li>✓ The assignment operator, the binding of names to objects, and aliasing.</li> <li>✓ Keywords and their significance.</li> </ul>	<a href="https://www.tutorialspoint.com/python/python_quick_guide.htm">https://www.tutorialspoint.com/python/python_quick_guide.htm</a>	Explains	Listens	Understanding
Class 3	<b>Strings:</b> <ul style="list-style-type: none"> <li>✓ Definition, declaration, and immutability, string constants, declaration,</li> </ul>	<a href="https://www.w3schools.com/python/python_strings.asp">https://www.w3schools.com/python/python_strings.asp</a>	Explains	Listens	Understanding
Class 4	<ul style="list-style-type: none"> <li>✓ The equivalence of single and double quotes. Multi-line strings</li> <li>✓ Raw strings. String formatting using the format function and the % operator. f-strings in Python 3.6+.</li> </ul>	<a href="https://realpython.com/python-f-strings/">https://realpython.com/python-f-strings/</a>	Explains	Listens	Understanding
Class 5	<ul style="list-style-type: none"> <li>✓ Built-in functions: count, find, replace, upper, lower, strip, etc. Time and space complexities of the functions and operations</li> </ul>	<a href="https://www.javatpoint.com/program-to-replace-lower-case-characters-with-upper-case-and-vice-versa">https://www.javatpoint.com/program-to-replace-lower-case-characters-with-upper-case-and-vice-versa</a>	Explains	Listens	Understanding
Class 6	<ul style="list-style-type: none"> <li>✓ Lists: definition, declaration, and mutability. Nested lists. Indexing and slicing: same as strings. List comprehensions. The split and join methods. Built-in list functions – append, extend, count, find, index, etc. Time and space complexities of the functions and operations.</li> </ul>	<a href="https://www.geeksforgeeks.org/python-lists/">https://www.geeksforgeeks.org/python-lists/</a>	Explains	Listens	Understanding
Class 7	<ul style="list-style-type: none"> <li>✓ Tuples: definition, declaration, and immutability. Packing and unpacking lists and tuples.</li> <li>✓ The + and * operators on strings, lists, and tuples. Indexing and slicing strings, lists, and tuples.</li> </ul>	<a href="https://www.tutorialsteacher.com/python/python-tuple#:~:text=Tuple%20is%20an%20immutable%20(unchang">https://www.tutorialsteacher.com/python/python-tuple#:~:text=Tuple%20is%20an%20immutable%20(unchang</a>	Explains	Listens	Understanding



		<a href="https://www.geeksforgeeks.org/python-set-3-strings-lists-tuples-iterations/">eable, declares %20a%20tuple %20type%20va riable. https://www.ge eksforgeeks.org /python-set-3- strings-lists- tuples- iterations/</a>			
Class 8	✓ Practice Examples with Tuples		Explains and Narrates with suitable board work	Listens	Solving examples
Class 9	✓ <b>Conditionals</b> , Iterators, and Generators ✓ Conditionals: If, elif, and else statements. Nested conditionals. Containment checking in containers using the in keyword.	<a href="https://www.javatpoint.com/java-if-else">https://www.ja vatpoint.com/ja va-if-else</a>	Explains and Narrates with suitable board work	Listens	Understanding
Class 10	✓ <b>Looping constructs</b> : while and for loops. Flow control using break, continue, and pass. Nested loops. ✓ Generators: range, zip, sorted, reversed, and enumerate	<a href="https://www.geeksforgeeks.org/loops-and-control-statements-continue-break-and-pass-in-python/">https://www.g eeksforgeeks.o rg/loops-and- control- statements- continue- break-and- pass-in- python/</a>	Board work	Listens and writes	Understanding
Class 11	✓ Practice Examples based previous classes concept		Explains	Comprehends	Solving examples
Class 12	<b>User-defined Functions and Recursion.</b> ✓ Functions: definition, function signature, positional, default, and keyword arguments. ✓	<a href="https://www.javatpoint.com/python-functions">https://www.ja vatpoint.com/p ython-functions</a>	Explains and Narrates with suitable board work	Listens	Understanding
Class 13	<b>Documentation strings.</b> ✓ Unnamed functions – lambda, filter, and map. <b>Recursion:</b> ✓ basic idea, implementing recursion, sharing variables across the recursion stack, modifying the size of the recursion stack.	<a href="https://www.javatpoint.com/python-lambda-functions">https://www.ja vatpoint.com/p ython-lambda- functions</a>	Explains	Comprehends	Concept generation
Class 14	Practice with Functions and recursion-based examples	University questions	Explains and Narrates with suitable board work	Comprehends	Understanding
Class 15	<b>File Handling and Exception Handling</b> <b>File handling:</b> ✓ open and close methods, the different read and write modes. ✓ Using the with open approach to files. read, readline, readlines functions. The csv module for efficient read/write of structured data.	<a href="https://www.w3schools.com/python/ref_file_readlines.asp">https://www.w 3schools.com/p ython/ref_file_r eadlines.asp</a>	Explains	Comprehends	Concept generation



Class 16	<ul style="list-style-type: none"> <li>✓ The pickle module for persistent storage of variables in a program.</li> <li>✓ Exception handling: the popular errors- Name Error, Value Error, Syntax Error, Key Error, etc.</li> </ul>	<a href="https://docs.python.org/3/library/pickle.html">https://docs.python.org/3/library/pickle.html</a>	Explains	Listen and write	Understanding
Class 17	<ul style="list-style-type: none"> <li>✓ Error, Attribute Error, etc, and their cause and effects. Using try-except blocks for graceful handling of exceptions</li> </ul>	<a href="https://www.dacamp.com/tutorial/exception-handling-python">https://www.dacamp.com/tutorial/exception-handling-python</a>	Explains with formulation	Listen and write	Understanding
Class 18	<b>Unordered data types - Sets and Dictionaries</b> <b>Basic concepts of hashing:</b> <ul style="list-style-type: none"> <li>✓ hash functions, open chain, closed chain, advantages</li> <li>✓ disadvantages compared to conventional ordered data types. The hash() function in Python.</li> </ul>	<a href="https://www.geeksforgeeks.org/hash-functions-and-list-types-of-hash-functions/">https://www.geeksforgeeks.org/hash-functions-and-list-types-of-hash-functions/</a>	Explains	Comprehends	Concept generation
Class 19	<b>Sets and frozensets:</b> <ul style="list-style-type: none"> <li>✓ definition, declaration, mutability, and advantages over lists / tuples.</li> <li>✓ Insertion, deletion, union, intersection, and other built-in operations.</li> <li>✓ Time and space complexities of the functions and operations</li> </ul>	<a href="https://www.geeksforgeeks.org/sets-in-python/">https://www.geeksforgeeks.org/sets-in-python/</a>	Explains	Listen and write	Understanding
Class 20	<b>Dictionaries:</b> <ul style="list-style-type: none"> <li>✓ Concept of keys and values. Immutability requirement for keys.</li> <li>✓ Basic operations on dictionaries.</li> <li>✓ Iterating over the keys and key, value pairs of a dictionary.</li> <li>✓ Dictionary inversions</li> </ul>	<a href="https://www.w3schools.com/python/python_dictionaries.asp">https://www.w3schools.com/python/python_dictionaries.asp</a>	Explains	Listen and write	Understanding
Class 21	<b>Intro to Object Oriented Programming</b> <ul style="list-style-type: none"> <li>✓ The Python data model, magic methods (__init__, __str__, __eq__, etc) and their utilities,</li> <li>✓ accessing and mutating data, constructors, class methods, and the lack of explicit access modifiers of class methods –</li> <li>✓ naming conventions of private, protected, and public variables and methods.</li> </ul>	<a href="https://www.geeksforgeeks.org/access-modifiers-in-python-public-private-and-protected/">https://www.geeksforgeeks.org/access-modifiers-in-python-public-private-and-protected/</a>	Explains and Narrates with suitable board work	Writes	Understanding
Class 22	<b>Inheritance:</b> <ul style="list-style-type: none"> <li>✓ inheriting a parent class, the super() method. Basic multiple inheritance.</li> </ul>	<a href="https://www.w3schools.com/js/js_class_inheritance.asp#:~:text=By%20calling%20the%20super(),you%20">https://www.w3schools.com/js/js_class_inheritance.asp#:~:text=By%20calling%20the%20super(),you%20</a>	Explains	Listens	Concept generation



		<a href="#">create%20a%20new%20class.</a>			
Class 23	Solution of various problems and discussions on university questions.		Question Answering	Solves problems	Solutions
Class 24	Doubt clearing class		Question Answering	Question or doubts	Understanding

\_\_Mridul Ghosh\_\_

(SIGNATURE OF THE SUBJECT TEACHER)

**LECTURE PLAN ON & RELATED LINK**

**Data Base Management System (DBMS)**

**Computer Science (Honours)**

**Paper: CMS-A-CC-5-11-TH**

**(Core Course – 11) Theory**

**Credit: 4**

Class	Content	Links	Faculty Approach	Student Activity	Learning Outcome
Class 1	Introduction to DBMS, Drawbacks of Legacy System; Advantages of DBMS; Layered Architecture of Database, Data Independence, Data Models;	<a href="https://www.slideshare.net/SmritiJain7/database-management-introduction">https://www.slideshare.net/SmritiJain7/database-management-introduction</a> <a href="https://www.javatpoint.com/data-models">https://www.javatpoint.com/data-models</a> <a href="https://www.tutorialspoint.com/explain-the-architecture-of-dbms">https://www.tutorialspoint.com/explain-the-architecture-of-dbms</a>	Explains	Listens	Understanding
Class 2	Schemas And Instances; Database Languages; Database Users, DBA; Data Dictionary; Functional Components of a DBMS	<a href="https://www.javatpoint.com/dbms-three-schema-architecture">https://www.javatpoint.com/dbms-three-schema-architecture</a> <a href="https://www.slideshare.net/Tech_MX/database-administrator-14155432">https://www.slideshare.net/Tech_MX/database-administrator-14155432</a>	Explains And narrates with suitable board work	Listens	Understanding



Class 3	Entity Relationship(ER) Modeling, Entity, Attributes and Relationship, Structural Constraints, Keys, ER Diagram of Some Example Database, Weak Entity Set,	<a href="https://www.geeksforgeeks.org/introduction-of-er-model/">https://www.geeksforgeeks.org/introduction-of-er-model/</a> <a href="https://www.javatpoint.com/dbms-er-model-concept">https://www.javatpoint.com/dbms-er-model-concept</a> <a href="https://www.geeksforgeeks.org/difference-between-strong-and-weak-entity/">https://www.geeksforgeeks.org/difference-between-strong-and-weak-entity/</a>	Explains And narrates with suitable board work	Listens	Understanding
Class 4	Specialization and Generalization, Constraints of	<a href="https://www.educative.io/answers/what-is-specialization-and-generalization-in-dbms">https://www.educative.io/answers/what-is-specialization-and-generalization-in-dbms</a>	Explains	Listens and writes	Understanding
Class 5	Specialization and Generalization, Aggregation. Basic Concepts of Relational Model; Relational Algebra;	<a href="https://www.tutorialspoint.com/dbms/relational-algebra.htm">https://www.tutorialspoint.com/dbms/relational-algebra.htm</a>	Explains	Listens	Understanding
Class 6	Tuple Relational Calculus; Domain Relational Calculus.	<a href="https://beginnersbook.com/2019/02/dbms-relational-calculus/">https://beginnersbook.com/2019/02/dbms-relational-calculus/</a>	Explains And narrates with suitable board work	Listens and writes	Understanding
Class 7	Integrity Constraints Domain Constraints, Referential Integrity, Assertions, Triggers.	<a href="https://www.javatpoint.com/dbms-integrity-constraints">https://www.javatpoint.com/dbms-integrity-constraints</a>	Explains And narrates with suitable board work	Listens	Understanding



Class 8	Relational Database Design, Problems of Un-Normalized Database;	<a href="https://www.javatpoint.com/dbms-normalization">https://www.javatpoint.com/dbms-normalization</a>	Explains	Listens	Understanding and analyz
Class 9	Functional Dependencies (FD), Derivation Rules, Closure Of FD Set, Membership Of A Dependency, Canonical Cover;	<a href="https://www.javatpoint.com/dbms-functional-dependency">https://www.javatpoint.com/dbms-functional-dependency</a>	Explains	Listens	Understanding
Class 10	Decomposition to 1NF, 2NF, 3NF Or BCNF Using FD;	<a href="https://www.javatpoint.com/dbms-normalization">https://www.javatpoint.com/dbms-normalization</a>	Explains And narrates with suitable board work	Listens and writes	Understanding and analyz

Class 11	Lossless Join Decomposition Algorithm; Dependency preservation.	<a href="https://www.geeksforgeeks.org/lossless-join-and-dependency-preserving-decomposition/">https://www.geeksforgeeks.org/lossless-join-and-dependency-preserving-decomposition/</a>	Explains And narrates with suitable board work	Listens and writes	Understanding
Class 12	SQL Basic Structure, Data Definition, Constraints and Schema Changes; Basic SQL Queries (Selection, Insertion, Deletion, Update);	<a href="https://www.geeksforgeeks.org/sql-concepts-and-queries/">https://www.geeksforgeeks.org/sql-concepts-and-queries/</a>  <a href="https://www.javatpoint.com/sql-tutorial">https://www.javatpoint.com/sql-tutorial</a>	Explains And narrates with suitable board work	Listens	Understanding



Class 13	Order by Clause; Complex Queries, Aggregate Function and Group by Clause;	<a href="https://www.geeksforgeeks.org/sql-concepts-and-queries/">https://www.geeksforgeeks.org/sql-concepts-and-queries/</a>  <a href="https://www.complexsql.com/complex-sql-queries-examples-with-answers/">https://www.complexsql.com/complex-sql-queries-examples-with-answers/</a>	Explains	Listens and writes	Understanding and analyze
Class 14	Nested Sub Queries; Correlated Sub Queries; Views (Insertable and Updatable),	<a href="https://www.geeksforgeeks.org/nested-queries-in-sql/">https://www.geeksforgeeks.org/nested-queries-in-sql/</a>  <a href="https://www.tutorialspoint.com/sql/sql-sub-queries.htm">https://www.tutorialspoint.com/sql/sql-sub-queries.htm</a>	Explains And narrates with suitable board work	Listens	Understanding
Class 15	Joined Relations; Set Comparisons (All, Some); Derived Relations Etc; Grant and Revoke, Transaction in SQL	<a href="https://www.tutorialspoint.com/sql/sql-using-joins.htm">https://www.tutorialspoint.com/sql/sql-using-joins.htm</a>  <a href="https://www.javatpoint.com/mysql-derived-table">https://www.javatpoint.com/mysql-derived-table</a>	Explains And narrates with suitable board work	Listens	Understanding
Class 16	Record Storage and File Organization (Concepts only) Fixed Length and Variable Length Records; Spanned and Un-Spanned Organization of Records;	<a href="https://byjus.com/gate/file-organization-in-dbms-notes/">https://byjus.com/gate/file-organization-in-dbms-notes/</a>	Explains	Listens	Understanding and analyz
Class 17	Primary File Organizations and Access Structures Concepts;	<a href="https://www.tutorialspoint.com/dbms/dbms_file_structure.htm">https://www.tutorialspoint.com/dbms/dbms_file_structure.htm</a>	Explains	Listens	Understanding



Class 18	Unordered, Sequential, Hashed; Concepts of Primary and Secondary Index; Dense and Sparse Index; Index Sequential Files; Multilevel Indices.	<a href="https://www.javatpoint.com/dbms-hash-file-organization">https://www.javatpoint.com/dbms-hash-file-organization</a>  <a href="https://beginnersbook.com/2022/06/hash-file-organization-in-dbms/">https://beginnersbook.com/2022/06/hash-file-organization-in-dbms/</a>	Explains And narrates with suitable board work	Listens	Understanding
Class 19	Transaction Processing (Concepts only) ACID Properties; Transaction States, Concurrent Execution	<a href="https://www.geeksforgeeks.org/acid-properties-in-dbms/">https://www.geeksforgeeks.org/acid-properties-in-dbms/</a>	Explains	Listens	Understanding
Class 20	Serializability (Conflict and View), Recoverability, Test for Serializability.	<a href="https://www.tutorialspoint.com/what-is-the-term-serializability-in-dbms">https://www.tutorialspoint.com/what-is-the-term-serializability-in-dbms</a>	Explains	Listens	Understanding

**LECTURE PLAN ON & RELATED LINK**  
**Data Visualization using spreadsheet**  
**Comp. Sc. (General)**  
**Paper: CMS-G-SEC-1-TH Credit: 4**

Class	Content	Links	Faculty approach	Student activity	Learning Outcome
Class 1	Introduction to Spreadsheets , Spreadsheets and their applications, overview of spreadsheet software (e.g., Open office, Google Sheets), navigating the spreadsheet interface.	<a href="https://docs.google.com/spreadsheets/create">https://docs.google.com/spreadsheets/create</a> <a href="https://en.wikipedia.org/wiki/Spreadsheet">https://en.wikipedia.org/wiki/Spreadsheet</a>			
Class 2	Entering and editing data in cells saving, opening, and closing spreadsheet files.	<a href="https://docs.google.com/spreadsheets/create">https://docs.google.com/spreadsheets/create</a> <a href="https://en.wikipedia.org/wiki/Spreadsheet">https://en.wikipedia.org/wiki/Spreadsheet</a>			
Class 3	Formatting Data : Formatting cells (e.g., font, alignment, and borders), adjusting column width and row height,	<a href="https://docs.google.com/spreadsheets/create">https://docs.google.com/spreadsheets/create</a>			





	using cell styles and themes.	<a href="https://en.wikipedia.org/wiki/Spreadsheet">https://en.wikipedia.org/wiki/Spreadsheet</a>			
Class 4	Organizing Data : Working with multiple worksheets.	<a href="https://edu.gcfglobal.org/excel2016/working-with-...">https://edu.gcfglobal.org/excel2016/working-with-...</a>			
Class 5	sorting and filtering data.	<a href="https://www.learnexcelnow.com/sorting-and-filtering...">https://www.learnexcelnow.com/sorting-and-filtering...</a>			
Class 6	Formulas and Functions : Understanding formulas and cell references, basic mathematical operations, using common functions (e.g., SUM, AVERAGE, COUNT),	<a href="https://edu.gcfglobal.org/excelformulas/relative-an...">https://edu.gcfglobal.org/excelformulas/relative-an...</a>			
Class 7	Absolute and relative cell references, nesting functions	<a href="https://www.geeksforgeeks.org/relative-and-absolut...">https://www.geeksforgeeks.org/relative-and-absolut...</a>			
Class 8	Data Manipulation: Working with text functions for data cleaning, Splitting and combining data, Data normalization and standardization.	<a href="https://www.geeksforgeeks.org/relative-and-absolut...">https://www.geeksforgeeks.org/relative-and-absolut...</a>			
Class 9	Working with ranges and named ranges, conditional 3 hours formatting, data validation and error checking,	<a href="https://www.geeksforgeeks.org/relative-and-absolut...">https://www.geeksforgeeks.org/relative-and-absolut...</a>			
Class 10	Using logical functions (e.g., IF, AND, OR), sorting and filtering data.	<a href="https://www.geeksforgeeks.org/relative-and-absolut...">https://www.geeksforgeeks.org/relative-and-absolut...</a>			
Class 11	Advanced Spreadsheet Features : Creating and managing tables,	<a href="https://in.indeed.com/.../CareerDevelopment">https://in.indeed.com/.../CareerDevelopment</a>			
Class 12	Creating and modifying pivot tables.	<a href="https://in.indeed.com/.../CareerDevelopment">https://in.indeed.com/.../CareerDevelopment</a>			



Class 13	Lookup functions (e.g., VLOOKUP, HLOOKUP).	<a href="https://in.indeed.com">https://in.indeed.com</a> › ... › Career Development			
Class 14	Working with charts and graphs, importing and exporting data.	<a href="https://in.indeed.com">https://in.indeed.com</a> › ... › Career Development			
Class 15	Collaboration and Sharing : Protecting worksheets and workbooks, sharing spreadsheets with others, tracking changes and commenting.	<a href="https://support.microsoft.com">https://support.microsoft.com</a> › en-au › office			
Class 16	Collaborating in real-time, using version history and revision control.	<a href="https://support.microsoft.com">https://support.microsoft.com</a> › en-au › office			
Class 17	Statistical Functions and Analysis Descriptive statistics (mean, median, mode, variance, etc.),	<a href="https://support.microsoft.com">https://support.microsoft.com</a> › en-us › office › statistic...			
Class 18	Calculating measures of central tendency and dispersion, Correlation and regression analysis,	<a href="https://support.microsoft.com">https://support.microsoft.com</a> › en-us › office › statistic...			
Class 19	Hypothesis testing and confidence intervals,	<a href="https://support.microsoft.com">https://support.microsoft.com</a> › en-us › office › statistic...			
Class 20	Analysis of variance (ANOVA).	<a href="https://statisticsbyjim.com">https://statisticsbyjim.com</a> › Blog			
Class 21	ANOVA	<a href="https://statisticsbyjim.com">https://statisticsbyjim.com</a> › Blog			
Class 22	Pivot Tables and Data Aggregation Creating pivot tables for data summarization, grouping and aggregating data by categories	<a href="https://in.indeed.com">https://in.indeed.com</a> › ... › Career Development			
Class 23	Applying filters and slicers to pivot tables,	<a href="https://in.indeed.com">https://in.indeed.com</a> › ... › Career Development			
Class 24	Calculating calculated fields and items.	<a href="https://in.indeed.com">https://in.indeed.com</a> › ... › Career Development			
Class 25	Advanced Data Visualization Creating charts and graphs for data representation	<a href="https://www.tutorialspoint.com">https://www.tutorialspoint.com</a> › advanced_excel › ad...			



Class 26	Customizing chart elements (titles, axes, legends),	<a href="https://www.tutorialspoint.com/advanced_excel/ad...">https://www.tutorialspoint.com/advanced_excel/ad...</a>			
Class 27	Using sparklines and data bars for visual analysis,	<a href="https://www.tutorialspoint.com/advanced_excel/ad...">https://www.tutorialspoint.com/advanced_excel/ad...</a>			
Class 28	Creating interactive dashboards,	<a href="https://www.tutorialspoint.com/advanced_excel/ad...">https://www.tutorialspoint.com/advanced_excel/ad...</a>			
Class 29	Incorporating trendlines and forecasting in charts.	<a href="https://www.ablebits.com/.../Excel/Excelcharts">https://www.ablebits.com/.../Excel/Excelcharts</a>			
Class 30	Exploratory Data Analysis Identifying patterns and outliers in data,	<a href="https://www.statology.org/exploratory-data-analysis...">https://www.statology.org/exploratory-data-analysis...</a>			
Class 31	Creating histograms and box plots, Using conditional formatting for data visualization,	<a href="https://trumpexcel.com/histogram-in-excel">https://trumpexcel.com/histogram-in-excel</a>			
Class 32	Data segmentation and drill-down analysis,	<a href="https://northstaranalytics.co.uk/creating-customer-s...">https://northstaranalytics.co.uk/creating-customer-s...</a>			
Class 33	Applying data validation rules for data integrity.	<a href="https://www.simplilearn.com/tutorials/excel-tutorial">https://www.simplilearn.com/tutorials/excel-tutorial</a>			
Class 34	Advanced Analysis Techniques : Using goal seek and solver for optimization problems,	<a href="https://careerfoundry.com/blog/data-analytics/data-...">https://careerfoundry.com/blog/data-analytics/data-...</a>			



Class 35	Performing "what-if" analysis with data tables, Simulating data using random number functions,	<a href="https://careerfoundry.com/blog/data-analytics/data-...">https://careerfoundry.com/blog/data-analytics/data-...</a>			
Class 36	Monte Carlo simulation for risk analysis. Creating scenario analysis models	<a href="https://www.solver.com/tutorial-risk-analysis-and-...">https://www.solver.com/tutorial-risk-analysis-and-...</a>			
Class 37	Designing informative reports and summaries,				
Class 38	Creating interactive dashboards for data presentation,				
Class 39	Data visualization best practices,				
Class 40	Documenting data analysis processes				
Class 41	Presenting findings to stakeholders.				

\_\_\_\_\_Annapurna Roy\_\_\_\_\_ (SIGNATURE OF THE SUBJECT TEACHER)