

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule – June 2024 to November 2024**

**Department** : Computer Science  
**Name/s of the Faculty** : Dr. Faustina Joan S P, Ms. Rajalakshmi S  
**Course Title** : Computer Networks  
**Course Code** : 19CS/MC/CN55  
**Shift** II

<b>Week &amp; No. of Hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Jun 19 – 26, 2024 (Day Order 1 to 6) 5 Hrs.	<b>Unit 1</b> <b>1.1 Introduction</b> Data Communication – Networks – Network Types – Internet History – Standard and Administration	Lecture / Flipped Classroom	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Discussion
Jun 27 – July 4, 2024 (Day Order 1 to 6) 5 Hrs.	<b>1.2 Network Models</b> Protocol Layering – TCP/IP Protocol Suite – The OSI Model	Lecture / Analogy / Role Play	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Activity – Decode your Network
July 5 – 12, 2024 (Day Order 1 to 6) 5 Hrs.	<b>Unit 2</b> <b>2.1 Physical Layer</b> Data and Signals – Digital Signals – Performance – Transmission Modes	Lecture / Video Demo	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Questioning
July 15 – 23, 2024 (Day Order 1 to 6) 5 Hrs.	Multiplexing – Transmission Media – Switching – Introduction – Circuit-Switched Networks – Packet Switching	Lecture / Presentation	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	<b>Component I:</b> Test – Puzzles, Find the Network by Diagram, Crosswords – 25 marks
July 24 – 31, 2024 (Day Order 1 to 6) 5 Hrs.	<b>Unit 3</b> <b>3.1 Data Link Layer</b> Introduction – Data Link Control – Framing – Data-Link Layer Protocols – Error Detection and Correction – Introduction	Lecture / Video Demo	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	
Aug 1 – 5, 2024 (Day Order 1 to 3) 2 Hrs.	Cyclic Codes – Cyclic Redundancy Check – Checksum	Lecture / Presentation	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Activity – Problem Solving

Week & No. of Hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Aug 6 – 10, 2024	<b>C.A. Test</b>			
Aug 12 – 14, 2024 (Day Order 4 to 6) 3 Hrs.	<b>3.2 MAC and Ethernet</b> Random Access, Controlled Access, Channelization – Ethernet – Ethernet Protocol, Standard Ethernet, Fast Ethernet (100 Mbps), Gigabit Ethernet, 10 Gigabit Ethernet	Lecture / Presentation	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Classroom Discussion
Aug 16 – 23, 2024 (Day Order 1 to 6) 5 Hrs.	<b>3.3 Network Layer</b> Network-Layer Services – IPv4 Addresses – IPv6 Addressing – Representation	Lecture / Presentation	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Open Book Test
Aug 27 – Sep 3, 2024 (Day Order 1 to 6) 5 Hrs.	Address Space – Address Space Allocation <b>Unit 4</b> <b>4.1 Transport Layer</b> Transport Layer Services Connectionless and Connection-Oriented Protocols	Lecture / Presentation	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Activity – Subnetting Practice
Sep 4 – 11, 2024 (Day Order 1 to 6) 5 Hrs.	<b>4.2 Application Layer</b> Domain Naming System – DNS Name Space, Distribution of Name Space, DNS in the Internet, Resolution,	Lecture / Network Simulation	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012.	Activity – Know the Internet
Sep 12 – 20, 2024 (Day Order 1 to 6) 5 Hrs.	DNS Messages, Electronic Mail, FTP, TELNET <b>Unit 5</b> <b>5.1 Wireless Networking</b> Introduction – Components of a Wireless Communication System – Architectural Comparison	Lecture / Peer Teaching	<i>Data Communications and Networking</i> , Behrouz Forouzan 5th ed. McGraw-Hill, 2012. <i>Distributed System: Principles and Paradigms</i> , Tanenbaum, Andrew. S., Maarten Van Steen, Prentice Hall, 2007.	<b>Component II:</b> Part 1: Poster Presentation Submission on any one wireless network (15 marks)

<b>Week &amp; No. of Hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Sep 23 – 26, 2024 (Day Order 1 to 4) 3 Hrs.	Characteristics – Access Control – IEEE 802.11 Project – Wireless Networking Standards – Bluetooth Technology – Other Wireless Technology – WiMax	Lecture / Presentation	<i>Distributed System: Principles and Paradigms</i> , Tanenbaum, Andrew. S., Maarten Van Steen, Prentice Hall, 2007.	Discussion
Sep 27 – Oct 3, 2024	<b>C.A. Test</b>			
Oct 4 – 5, 2024 (Day 5 & 6) 2 Hrs.	Cellular Telephony – Satellite Networks - Wireless Network Protocols: ZigBee, ZWAVE, THREAD	Lecture / Example-based Learning	<i>Distributed System: Principles and Paradigms</i> , Tanenbaum, Andrew. S., Maarten Van Steen, Prentice Hall, 2007.	Group Discussion
Oct 7 – 15, 2024 (Day Order 1 to 6) 5 Hrs.	Bluetooth Low Energy (BLE) – IPv6 for Low Power and Lossy Networks(6LoWPAN) – Routing Protocol for Low Power and Lossy Networks (RPL) – 2G – 3G and 4G <b>5.2 Distributed Networking</b> Introduction – Definition of a Distributed System, Goals, Types of Distributed Systems – Architecture	Lecture / Presentation	<i>Distributed System: Principles and Paradigms</i> , Tanenbaum, Andrew. S., Maarten Van Steen, Prentice Hall, 2007.	<b>Component II:</b> Part 2: Assignment on Wireless Network Protocols (10 marks)
Oct 16 – 22, 2024 (Day Order 1 to 6) 5 Hrs.	Architectural Styles, System Architectures, Architecture Vs. Middleware, Applications of Distributed Networking	Lecture / Presentation	<i>Distributed System: Principles and Paradigms</i> , Tanenbaum, Andrew. S., Maarten Van Steen, Prentice Hall, 2007.	Final Teaching Learning Assessment through Classroom Feedback
Oct 23 – 24, 2024 (Day Order 1 to 2)	<b>REVISION</b>			

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule: June - November 2024**

**Department : Computer Science**  
**Name/s of the Faculty : Dr Renuka Devi D [A] & Ms Madhura Prabha R [B]**  
**Course Title : Data Science**  
**Course Code : 19CS/MC/DS54**  
**Shift II**

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Jun 19 – 26, 2024 (Day Order 1 - 6) 5 hrs	<b>Unit 1</b> <b>1.1 Python language Basics</b> The Python Interpreter-IPython basics- Python Language Basics <b>1.2 Built-in Data Structures, Functions and Files</b> Data Structure and Sequences- Functions-Files	Lecture/Demo  Group Discussions	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Quiz /Elicitation Activity
Jun 27 – July 4, 2024 (Day Order 1 - 6) 5 hrs	<b>1.3 NumPy Basics: Arrays and Vectorized Computation</b> The NumPy ndarray: A Multidimensional Array Object - Universal Functions-Array Oriented Programming with Arrays- File Input and Output with Arrays	Learning by Doing	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Finding output for the given snippet
July 5 – 12, 2024 (Day Order 1 - 6) 5 hrs	<b>Unit 2</b> <b>2.1 Introduction of Data Science and Data pipeline</b> What is Data Science? -Data Science Process- Data Loading, Storage and File Formats – Reading and Writing Data in Text Format- Binary Data Formats - Interacting with Web API-Interacting with Databases	Case Analysis	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Brainstorming
July 15 – 23, 2024 (Day Order 1 - 6) 5 hrs	<b>2.2 Visualization</b> Matplotlib – Simple Line Plots- Simple Scatter Plots-Visualizing Errors-Density and Contour Plots- Histogram, Binnings and Density - Customizing Color Bars- Customizing Plot Legends -Multiple Subplots-Text and Annotation- Customizing Ticks	Problem-based learning	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Visualize and write

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
July 24 – 31, 2024 (Day Order 1 - 6) 5 hrs	<b>Unit 3</b> <b>3.1 Data Cleaning and Preparation</b> Handling Missing Data-Data Transformation-String Manipulation <b>3.2 Data Wrangling-Join, Combine and Reshape</b> Hierarchical Indexing	Inquiry-based learning	<i>Wes McKinney.</i> <b>Python for Data Analysis.</b> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	<b>Component I: (Unit 1 – 3.1)</b> Activity based on python basics, visualization and data preparation <b>Tot.Marks: 25</b> <b>Assessment</b> Debugging in python basics: 10 marks Visualization of given problem: 5 marks Data transformation & string manipulation: 10 marks
Aug 1 – 5, 2024 (Day Order 1 - 3) 3 hrs	Combining and Merging Datasets-Reshaping and Pivoting	Experiments	<i>Andreas C. Mueller.</i> <i>Sarah Guido.</i> <b>Introduction to Machine Learning with Python.</b> USA: O'Reilly Media, Inc.,2016.	Preprocessing for the case study
Aug 6 – 10, 2024	<b>C.A. Test – I</b>			
Aug 12 – 14, 2024 (Day Order 4-6) 2 hrs	Getting Started with Pandas - Introduction to Pandas Data Structures - Essential Functionality	Demonstration	<i>Andreas C. Mueller.</i> <i>Sarah Guido.</i> <b>Introduction to Machine Learning with Python.</b> USA: O'Reilly Media, Inc.,2016.	Crossword

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Aug 16 – 23, 2024 (Day Order 1-6) 5 hrs	<b>Unit 4</b> <b>4.1 Machine Learning</b> Introduction to Machine Learning - Why Machine Learning? <b>4.2 Supervised Learning</b> Classifications and Regression-Generalization-Overfitting-Underfitting	Problem-based learning	<i>Alberto Boschetti.</i> <i>Luca Masaaron.</i> <b>Python Data Science Essentials.</b> UK: Packt Publishing Ltd, 2016.	Activity based on classification
Aug 27 – Sep 3, 2024 (Day Order 1-6) 5 hrs	Supervised Machine Learning Algorithms-K-Nearest Neighbor-Linear Models-Naïve Bayes Classifiers-Decision Tree-Ensemble of Decision Trees	Real-world Connections	<i>Alberto Boschetti.</i> <i>Luca Masaaron.</i> <b>Python Data Science Essentials.</b> UK: Packt Publishing Ltd, 2016.	Applying algorithms for scenarios
Sep 4 – 11, 2024 (Day Order 1-6) 5 hrs	<b>4.3 Unsupervised Learning</b> Types of Unsupervised Learning -Dimensionality Reduction - Feature Extraction-Clustering- Model Evaluation and Improvement - Cross Validation - Grid Search	Real-world Connections	<i>Alberto Boschetti.</i> <i>Luca Masaaron.</i> <b>Python Data Science Essentials.</b> UK: Packt Publishing Ltd, 2016.	Classifying based on problems
Sep 12 - 20, 2024 (Day Order 1- 6) 5 hrs	Evaluation metrics and Scoring-Using evaluation metrics in model selection <b>Unit 5</b> <b>5.1 Natural Language Processing (NLP)</b> Natural Language Processing (NLP)- Understand the Problem Statement- Tweets Preprocessing and Cleaning	Collaborate in Github	<i>Jake VanderPlas.</i> <b>Python Data Science Handbook.</b> USA: O’Reilly Media, Inc., 2016.	<b>Component II:</b> Explore and present GitHub Data Science Projects <b>Total Marks:25</b> <b>Assessment:</b> Exploration of Github projects: 10 marks Case study report: 5 marks Presentation: 10 marks

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Sep 23 - 26, 2024 (Day Order 1-4) 3 hrs	Removing Twitter Handles - Removing Punctuations, Numbers and Special Characters - Removing Short Words - Tokenization	Case Analysis	<i>Jake VanderPlas. Python Data Science Handbook. USA: O'Reilly Media, Inc., 2016.</i>	Discussion
Sep 27 – Oct 3, 2024	<b>C.A. Test – II</b>			
Oct 4 – 5, 2024 (Day 5 & 6) 2 hrs	Stemming - Story Generation and Visualization from Tweets – Hashtags	Case Analysis	<i>Jake VanderPlas. Python Data Science Handbook. USA: O'Reilly Media, Inc., 2016.</i>	Quiz
Oct 7 - 15, 2024 (Day Order 1 to 6) 5 hrs	Extracting Features from Cleaned Tweets - Model Building and Sentiment Analysis	Project Design	<i>Jake VanderPlas. Python Data Science Handbook. USA: O'Reilly Media, Inc., 2016.</i>	Model building for Twitter
Oct 16 - 22, 2024 (Day Order 1 to 6) 5 hrs	<b>5.2 Social Network Analysis</b> Introduction to Graph Theory- Graph Algorithms - Graph Loading - Dumping and Sampling	Presentation	<i>Jake VanderPlas. Python Data Science Handbook. USA: O'Reilly Media, Inc., 2016.</i>	Mapping Graph algorithm with Social Network
Oct 23 - 24, 2024 (Day Order 1 to 2) 2 hrs	<b>REVISION</b>			

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**  
**Course Schedule: June - November 2024**

**Department** : Computer Science  
**Name/s of the Faculty** : Ms. A. R. Charulatha, Ms. Geethanjali S.  
**Course Title** : Functional Web Development  
**Course Code** : 19CS/MC/FW54  
**Shift** II

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 (Day Order 1 - 6) 5 hrs.	<b>Unit 1</b> <b>1.1 Introduction to React</b> Understanding React – React’s Future – Keeping up the changes -Setting up the Environment - Working with Files	Lecture / Presentation	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Quiz
Jun 27 – July 4, 2024 (Day Order 1 - 6) 5 hrs.	<b>1.2 Emerging JavaScript</b> Declaring Variables – Arrow Functions – Transpiling ES6 – ES6 Objects and Arrays – Promises – Classes – ES6 Modules – CommonJS	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Puzzles / Assignment
July 5 – 12, 2024 (Day Order 1 - 6) 5 hrs.	<b>Unit 2</b> <b>2.1 Functional Programming with JS</b> Understanding Functional Programming – Functional Concepts: Immutability, Pure Functions, Data Transformations Higher- Order Functions, Recursion, Composition	Lecture / Presentation	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Quiz
July 15 – 23, 2024 (Day Order 1 - 6) 5 hrs.	<b>2.2 Pure React</b> Page Setup – The Virtual DOM- React Elements – ReactDOM – Children – Constructing Elements with Data – React Components - DOM Rendering – Factories	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Quiz / Lab exercise
July 24 – 31, 2024 (Day Order 1 - 6) 5 hrs.	<b>2.3 React with JSX</b> React Elements as JSX – Babel – Recipes as JSX – Intro to Webpack	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	<b>Component – 1 (25 marks)</b> MCQs, Coding (15 marks) & Mini project Storyboard (10 marks)

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Aug 1 – 5, 2024 (Day Order 1 - 3) 3 hrs.	<b>Unit 3</b> <b>3.1 Props, State and Component Tree</b> Property Validation – Validating Props with createClass - Default Props – Custom Property Validation	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Quiz / Lab exercise
Aug 6 – 10, 2024	<b>C.A. Test – I</b>			
Aug 12 – 14, 2024 (Day Order 4-6) 2 hrs.	ES6 Classes and Stateless Functional Components – Refs-	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Puzzles / Lab exercise
Aug 16 – 23, 2024 (Day Order 1-6) 5 hrs.	React State Management – State within the Component Tree <b>3.2 Enhancing Components</b> Component Life Cycles: Mounting, Updating	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Assignment / Lab exercise
Aug 27 – Sep 3, 2024 (Day Order 1-6) 5 hrs.	React Children – JavaScript Library Integration Higher Order Components Managing State Outside of React	Lecture / Presentation	Anthony, Accomazzo, Murray Nathaniel, and Lerner Ari. Fullstack React: The Complete Guide to ReactJS and Friends. (2017).	Quiz / Lab exercise
Sep 4 – 11, 2024 (Day Order 1-6) 5 hrs.	Flux: Views, Actions and Action Creators, Dispatcher, stores, Flux Implementations	Lecture / Presentation	Anthony, Accomazzo, Murray Nathaniel, and Lerner Ari. Fullstack React: The Complete Guide to ReactJS and Friends. (2017).	Quiz / Lab exercise
Sep 12 - 20, 2024 (Day Order 1- 6) 5 hrs.	<b>Unit 4</b> <b>4.1 Forms</b> Basic Button – Events and Event Handlers – Text Input- Remote Data – Async Persistence	Lecture / Presentation	Anthony, Accomazzo, Murray Nathaniel, and Lerner Ari. Fullstack React: The Complete Guide to ReactJS and Friends. (2017).	Quiz / Lab exercise
Sep 23 - 26, 2024 (Day Order 1-4) 3 hrs.	Redux – Form Modules <b>4.2 React Router</b> Incorporating the Router	Lecture / Presentation	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc.,	<b>Component – 2 (25 marks) Mini-project</b>

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Sep 27 – Oct 3, 2024	<b>C.A. Test – II</b>			
Oct 4 – 5, 2024 (Day Order 5 & 6) 2 hrs.	Nesting Routes – Router Parameters <b>Unit 5</b> <b>5.1 React and Server</b> Isomorphism vs Universalism	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Quiz / Lab exercise
Oct 7 - 15, 2024 (Day Order 1 to 6) 5 hrs.	Universal Color Organizer- Communicating with the Server	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Quiz / Lab exercise
Oct 16 - 22, 2024 (Day Order 1 to 6) 5 hrs.	<b>5.2 Database Operations</b> CRUD operations in ReactJS - Case study	Lecture / Demo	Banks, Alex, and Eve Porcello. Learning React: Functional Web Development with React and Redux. O'Reilly Media, Inc., 2017	Assignment / Lab exercise
Oct 23 - 24, 2024 (Day Order 1 to 2)	<b>REVISION</b>			

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule: June - November 2024**

**Department** : Computer Science  
**Name/s of the Faculty** : Dr. Renuka Devi D [A] & Ms. Madhura Prabha R [B]  
**Course Title** : Data Science Practical  
**Course Code** : 19CS/MC/P552  
**Shift** II

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Jun 19 – 26, 2024 (Day Order 1 - 6) 3 hrs	Python Basics	Learning by doing	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Exercises on python basics
Jun 27 – July 4, 2024 (Day Order 1 - 6) 3 hrs	Python Basics	Learning by doing	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Exercises on python basics
July 5 – 12, 2024 (Day Order 1 - 6) 3 hrs	Installation of Python packages	Learning by doing	<i>Wes McKinney. Python for Data Analysis.</i> Gravenstein Highway North, Sebastopol: O'Reilly Media, Inc., 2018. Second Edition.	Exercises on packages
July 15 – 23, 2024 (Day Order 1 - 6) 3 hrs	Loading different formats of Datasets & Dataset creation	Learning by doing	<i>Andreas C. Mueller. Sarah Guido. Introduction to Machine Learning with Python.</i> USA: O'Reilly Media, Inc.,2016.	Exercises on datasets
July 24 – 31, 2024 (Day Order 1 - 6) 3 hrs	Cleaning and preprocessing datasets & Missing data substitution	Learning by doing	<i>Andreas C. Mueller. Sarah Guido. Introduction to Machine Learning with Python.</i> USA: O'Reilly Media, Inc.,2016.	<b>Component I:</b> Data collection – real time datasets – EDA – Prepare the dataset and Outlier detection <b>Total Marks: 25</b> <b>Assessment:</b> Data collection – 10 Marks EDA – 5 Marks Preprocessing – 10 Marks

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Aug 1 – 5, 2024 (Day Order 1 - 3) 2 hrs	Data transformation & Data wrangling	Problem-based learning	<i>Andreas C. Mueller. Sarah Guido. Introduction to Machine Learning with Python. USA: O'Reilly Media, Inc.,2016.</i>	Exercises on data cleaning
Aug 6 – 10, 2024	<b>C.A. Test – I</b>			
Aug 12 – 14, 2024 (Day Order 4- 6) 1 hr	Indexing and pivoting	Problem-based learning	<i>Andreas C. Mueller. Sarah Guido. Introduction to Machine Learning with Python. USA: O'Reilly Media, Inc.,2016.</i>	Exercises on indexing and pivoting
Aug 16 – 23, 2024 (Day Order 1- 6) 3 hrs	Machine learning: Supervised Learning algorithms	Problem-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on machine learning algorithms
Aug 27 – Sep 3, 2024 (Day Order 1- 6) 3 hrs	K-nearest neighbor & Linear model	Problem-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on model building concepts
Sep 4 – 11, 2024 (Day Order 1- 6) 3 hrs	Naïve bayes, Decision tree & Random Forest	Problem-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on classification algorithms
Sep 12 - 20, 2024 (Day Order 1- 6) 3 hrs	Unsupervised learning algorithms	Problem-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on unsupervised algorithms

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Sep 23 - 26, 2024 (Day Order 1-4) 2 hrs	Feature extraction	Project-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	<b>Component II:</b> Mini Project on creating Machine Learning Model  <b>Total Marks:25</b>  <b>Assessment:</b>  Creating Machine Learning Model: 15 Marks  Metrics, accuracy and output: 10 Marks
Sep 27 – Oct 3, 2024	<b>C.A. Test – II</b>			
Oct 4 – 5, 2024 (Day 5 & 6) 1 hr	Clustering	Project-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on clustering
Oct 7 - 15, 2024 (Day Order 1 to 6) 3 hrs	Model evaluation - Visualization	Project-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on Model evaluation and Visualization
Oct 16 - 22, 2024 (Day Order 1 to 6) 3 hrs	Applications	Project-based learning	<i>Alberto Boschetti. Luca Masaaron. Python Data Science Essentials. UK: Packt Publishing Ltd, 2016.</i>	Exercises on Applications
Oct 23 - 24, 2024 (Day Order 1 to 2)	<b>REVISION</b>			

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule: June - November 2024**

**Department** : **Computer Science**  
**Name/s of the Faculty** : **Ms. Madhura Prabha R [A], Dr. K C Sharmili [B]**  
**Course Title** : **CRITICAL ANALYSIS ON AN ADVANCED TECHNOLOGY**  
**Course Code** : **19CS/MC/CA51**  
**Shift** : **II**

- Students will be formed into groups (Minimum – 2, Maximum - 3). Faculty supervisors will be allotted to each group.
- The groups will have to select a topic related to the Emerging/Advanced Trends and Technologies in the field of Computer Science.
- Students will explore and critically analyse the selected technology.

**Each group has to give two presentations to their fellow classmates and their guide before the CA – I and one presentation and report submission before CA - II**

The presentations or review should be on

- Discussing the recent advancements in that area of study (Abstract and Introduction)
- Complete review of the selected topic (Literature Survey)
- Critically analyse the pros and cons on the given topic with the Methods and Discussions (Comparative study)
- Students have to prepare the report in alignment with the presentations.
- Students have to approach the guide only during working hours.
- Adhere to the submission guidelines and timeline as specified.

**Pattern of Evaluation**

Jul 22 – Jul 27, 2024

**Component I** - Presentation / Review

(Includes abstract, introduction and literature survey)

**Total Marks: 25**

**Assessment:**

Abstract : 5 marks

Introduction : 5 marks

Literature survey : 10 marks

Viva / Presentation : 5 marks

Sep 20 - Sep 25, 2024

**Component II - Papers / Projects**

(Includes synopsis and detailed report with a proper conclusion in consultation with the guide)

**Total Marks: 25**

**Assessment:**

Synopsis/ Report: 10 marks

Conclusion / Results: 10 marks

Viva / Presentation: 5 marks

**Format of the report**

**Abstract (Short description of the paper)**

- Describe what the technology is, why it is significant or interesting, and your conclusion.

**Introduction**

- What is the technology?

**Literature review**

- What is the current thinking, findings, and approaches on the technology?
- What is the significance of the technology?
- How do you plan to use the technology?

**Methods / Approaches**

- What is your opinion of the utility, relevance, challenges or quality of the technology you have selected? (Support with project/papers)

**Results**

- What are your conclusions?
- What do your conclusions mean?
- How do your results fit into a broader context?

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**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule – June 2024 to November 2024**

**Department** : Computer Science and Psychology  
**Name/s of the Faculty** : Dr. Swetha Margaret. T.A., Ms. Rajalakshmi. S,  
 Ms. Ramya S, Ms. Y  
**Course Title** : Human Computer Interaction  
**Course Code** : 19ID/IC/HC55  
**Shift** II

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Jun 19 – 26, 2024 (Day Order 1 - 6) 6 hrs.	<p><b>CS Unit 1</b></p> <p><b>1.1 Introduction to Interaction Design</b> - Introduction-Good and poor Design-What is Interaction Design? -What is involved in the process of Interaction Design?</p> <p><b>PY 1.2 The Human</b> Understanding the human mind-computation: connectionism and symbol systems. Levels of information processing. Memory- Atkinson and Shrifin model. Structure of Working memory</p>	Lecture Presentation Debate	Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley & Sons, 2nd Edition 2002 2002 Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004	Discussion
Jun 27 – July 4, 2024 (Day Order 1 - 6) 6 hrs.	<p><b>CS 1.1 Contd.</b> The goals of interaction design-More on usability: Design and usability principles.</p> <p><b>PY 1.4 Models – Frameworks –</b></p>	Lecture Presentation Video	Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley & Sons, 2nd Edition 2002	Quiz

	Ergonomics: Bias - Arrangement of controls and displays, physical environment of interaction, health issues, use of colours, and ergonomics and HCI		Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004	
July 5 – 12, 2024 (Day Order 1 - 6) 6 hrs.	<p><b>CS 1.3 The Computer Devices</b> - Memory – Processing and Networks.</p> <p><b>4.1 Interactive Design Basics</b> Process – Scenarios– Navigation</p> <p><b>PY 1.4 Contd</b> Styles – Elements – Interactivity- Paradigms-Experience, engagement and fun- understanding and designing experience and physical design &amp; engagement.</p>	Lecture Presentation	<p>Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley &amp; Sons, 2nd Edition 2002</p> <p>Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004</p>	Group Discussion
July 15 – 23, 2024 (Day Order 1 - 6) 6 hrs.	<p><b>CS 4.1 Contd</b> Screen Design – Iteration and Prototyping.</p> <p><b>PY 2.1 Understanding Users</b> Cognition- Attention: visual and auditory attention. Parallel processing.</p>	Lecture Presentation, Discussion	<p>Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley &amp; Sons, 2nd Edition 2002</p> <p>Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004</p>	Quiz
July 24 – 31, 2024 (Day Order 1 - 6) 6 hrs.	<b>CS 4.2. HCI in Software Process</b> Software Life Cycle – Usability Engineering	Lecture Presentation, Videos	<p>Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction,</p>	<b>Comp I [25 Marks]</b> Assignment on Ergonomics and proposal for interface design

	<b>PY 2.1 Contd.</b> Perception-perceptual grouping- figure and ground, similarity, proximity, continuity, symmetry, closure.		John Wiley & Sons, 2nd Edition 2002 Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004	
Aug 1 – 5, 2024 (Day Order 1 - 3) 3 hrs.	<b>CS 4.2 Contd.</b> – Prototyping in Practice – Design Rationale  <b>PY 2.2 Designing for collaboration and communication</b> Introduction- Social mechanisms used in communication and Collaboration	Lecture Presentation, Case Studies	Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley & Sons, 2nd Edition 2002 Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004	Group Discussion
Aug 6 – 10, 2024	<b>C.A. Test</b>			
Aug 12 – 14, 2024 (Day Order 4-6) 3 hrs.	<b>CS 4.3. Design Rules</b> – Principles, Standards, Guidelines  <b>PY 2.2 contd.</b> Ethnographic studies of collaboration and Communication-Conceptual frameworks	Lecture Presentation, Case Studies	Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley & Sons, 2nd Edition 2002	Quiz
Aug 16 – 23, 2024 (Day Order 1-6) 6 hrs.	<b>CS 4.3 Contd.</b> Rules -Universal Design-User- centred approaches to interaction design	Lecture Presentation Demo	Preece Jenny. Rogers Yvonne. Interaction design beyond human-	Discussion

	<p><b>PY 2.3 Understanding how interfaces affect users</b> Introduction- What are affective aspects? - Expressive Interfaces</p>		<p>computer interaction, John Wiley &amp; Sons, 2nd Edition 2002 Dix Alan, Finlay Janet, Abowd Gregory, Beale Russell. Human Computer Interaction, 3rd Edition, Pearson Education, 2004</p>	
<p>Aug 27 – Sep 3, 2024 (Day Order 1-6) 6 hrs.</p>	<p><b>CS 5.1 Modelling Interaction</b> Descriptive models. Predictive model</p> <p><b>PY 2.3 Contd.</b> User Frustration Virtual characters: agents</p>	<p>Lecture Presentation</p>	<p>MacKenzie, I. Scott. <i>Human-computer interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley &amp; Sons, 2nd Edition 2002</p>	<p>Open book test</p>
<p>Sep 4 – 11, 2024 (Day Order 1-6) 6 hrs.</p>	<p><b>CS 5.1 Contd.</b> A model continuum model</p> <p><b>5.2 Groupware</b> Introduction- Groupware Systems-Computer-mediated Communication</p> <p><b>PY 3.1. Types of Users</b> Visualizers and verbalizers. High and low OSL. Variety and Novelty Seekers. Need for cognition.</p>	<p>Lecture Presentation Demo</p>	<p>MacKenzie, I. Scott. <i>Human-computer interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley &amp; Sons, 2nd Edition 2002</p>	<p>Group Discussion</p>
<p>Sep 12 - 20, 2024 (Day Order 1- 6)</p>	<p><b>CS 5.2 Contd.</b> Meeting and decision support Systems-Shared applications and Artifacts</p>	<p>Lecture Presentation</p>	<p>MacKenzie, I. Scott. <i>Human-computer</i></p>	<p><b>Comp II [25 Marks]</b> Find the flaws</p>

6 hrs.	<p><b>PY 3.1 Contd</b> Designing for special populations- children, the elderly and the disabled.</p> <p><b>3.2 Observing users</b> Introduction-Goals, questions and Paradigms-What and when to observe -How to observe- Participant observation and Ethnography</p>	Demo	<p><i>interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley &amp; Sons, 2nd Edition 2002</p>	and design betterments or solution using HCI design patterns and groupware's
Sep 23 - 26, 2024 (Day Order 1-4) 5 hrs.	<p><b>CS 5.2 Contd.</b> -Frameworks for groupware- Implementing synchronous groupware.</p> <p><b>5.3 Ubiquitous computing and augmented realities</b> Introduction-Ubiquitous computing applications research</p> <p><b>PY 3.2 contd</b> Data collection- Indirect observation tracking users' activities, analyzing, interpreting and presenting data.</p>	Lecture Presentation	<p>MacKenzie, I. Scott. <i>Human-computer interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley &amp; Sons, 2nd Edition 2002</p>	Puzzle
Sep 27 – Oct 3, 2024	<b>C.A. Test</b>			
Oct 4 – 5, 2024 (Day 5 & 6) 2 hrs.	<p><b>CS 5.3 Contd.</b>Virtual and augmented Reality-Information and data visualization</p> <p><b>5.4. Hypertext, multimedia and the World Wide Web</b> Introduction-Understanding hypertext-</p>	Lecture Presentation Demo	<p>MacKenzie, I. Scott. <i>Human-computer interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction,</p>	Discussion

	<b>PY 3.3. Asking users and experts</b> Introduction -Asking users: Interviews		John Wiley & Sons, 2nd Edition 2002	
Oct 7 - 15, 2024 (Day Order 1 to 6) 6 hrs.	<b>CS 5.4 Contd.</b> Finding Things- Web technology and issues - Static Web Content  <b>PY 3.3. Contd.</b> Asking users: Questionnaires- Asking users: Inspections	Lecture Presentation	MacKenzie, I. Scott. <i>Human-computer interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley & Sons, 2nd Edition 2002	Quiz
Oct 16 - 22, 2024 (Day Order 1 to 6) 6 hrs.	<b>CS 5.4 Contd.</b> Dynamic web content.  <b>PY 3.3. Contd.</b> Asking users: Walkthroughs	Lecture Presentation	MacKenzie, I. Scott. <i>Human-computer interaction: An empirical research perspective.</i> Newnes, 2013. Elsevier. Preece Jenny. Rogers Yvonne. Interaction design beyond human-computer interaction, John Wiley & Sons, 2nd Edition 2002	Quiz
Oct 23 - 24, 2024 (Day Order 1 to 2) 2 hrs.	<b>REVISION</b>			