DON BOSCO INSTITUTE OF TECHONOLGY, KURLA, MUMBAI

Department of Computer Engineering (Odd semester, 2024-25)			
SE Comps			
Course Name:	Engineering Mathematics-III		
Course Code:	CSC301		
Faculty Name:	Mr. Staya		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSC301.1	Define Laplace and Inverse Laplace Transforms, Fourier series, even and odd functions, Analytic functions, Harmonic functions, orthogonal trajectories and Karl Pearson's Correlation Coefficient.		
CSC301.2	Find Laplace and Inverse Laplace Transforms of standard functions; Classify whether the function is even or odd, explain analytic and orthogonal trajectories, find Karl Pearson's Correlation Coefficient and Spearman's Rank Correlation Coefficient, probabilities and conditional		
CSC301.3	Use standard results to find the Laplace Transforms, Inverse Laplace Transforms of combinations of standard functions; Use a standard integral		
CSC301.4	Analyze use of combination of properties to find the Laplace Transforms; partial fractions, derivatives and convolution theorem to find Inverse		
CSC301.5	Evaluate integrals by comparing with Laplace transforms; determine an analytic function given a linear combination of its real and imaginary parts; Deduce using Fourier series; Decide whether line of regression is y on x or x on y and also if given lines represent regression lines or not.		
CSC301.6	Develop linear regression equations for a given data and forecast values.		

Course Name:	Discrete Structures and Graph Theory		
Course Code:	CSC302		
Faculty Name:	Kalpita Wagaskar		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSC302.1	Students will be able to identify and state the basic laws of logic, set theory, Posets, Counting principles, algebraic structures and graph theory		
CSC302.2	Students will be able to explain Inference logic, Induction, relation and functions and will be able to compare the types of counting mechanisms and graphs.		
CSC302.3	Students will be able to use posets and lattices, solve recurrence relation, and construct different types of Graphs.		
CSC302.4	Students will be able to analyze different relation in logic and algebraic structures to produce inference equivalent to real world problems.		
CSC302.5	Students will be able to reframe the logic based on inference and evaluate the various functions and summarize the coding theory		
CSC302.6	Students will be able to design the predicate logic equations based on real world statements, apply the counting principles and construct graph based on problem statements.		

Course Name:	Data Structure		
Course Code:	CSC303		
Faculty Name:	Imran Ali Mirza		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSC303.1	Students will be able to understand and explain various data structures, related terminologies and its types.		
CSC303.2	Students will be able to comprehend a Data Structure as an Abstract data Type.		
CSC303.3	Students will be able to implement the traversal Mechanisms and CURD operations on various data Structures. .		
CSC303.4	Students will be able to choose and implement appropriate data Structures to represent real world data for computational Problem solving.		
CSC303.5	Students will be able to implement and analyze appropriate searching techniques for a given problem.		
CSC303.6	Students will be able to demonstrate the ability to analyse the design, and use data structures to solve engineering problems and evaluate their solutions.		

Course Name:	Digital Logic & Computer Architecture		
Course Code:	CSC304		
Faculty Name:	Sejal Chopra		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSC304.1	Explain the basic concepts of digital logic and computer system components.		
CSC304.2	Compare and comment on various parallel processing mechanisms and different buses.		
CSC304.3	Implement methods to design control unit or memory unit(s).		
CSC304.4	Correlate the recent developments done in computer architectures improving system performance.		
CSC304.5	Predict the output of ALU functions using the arithmetic operations/algorithms.		
CSC304.6	Build a digital circuit for a particular case study given.		

Course Name:	Computer Graphics		
Course Code:	CSC305		
Faculty Name:	Dipti Jadhav		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSC305.1	Ability to define contemporary graphics hardware.		
CSC305.2	Demonstrate the overview of the graphics system and make use of various drawing algorithms of output primitives		
CSC305.3	Experiment with the geometric transformations in 2D & 3D graphics-related problems.		
CSC305.4	Analyze and apply different algorithms for viewing clipping & fractal generation		
CSC305.5	Compare and choose the appropriate visible surface detection algorithm for animation.		
CSC305.6	Solve the problems on viewing transformations and explain the projection and hidden surface removal algorithms.		

Course Name:	Data Structure Lab		
Course Code:	CSL301		
Faculty Name:	Imran Ali Mirza		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSL301.1	Exemplify and implement how abstract data types such as stack and queue can be implemented to manage the memory using static and dynamic allocations.		
CSL301.2	Understand and implement linked list, trees, binary trees, and binary search trees.		
CSL301.3	Implement binary tree traversals and operations on binary search trees.		
CSL301.4	Identify and develop code for real life DFS and BFS using graph theory.		
CSL301.5	Develop and compare the comparison-based search algorithms.		
CSL301.6	Identify data structuring strategies that are appropriate to a given contextual problem and able to design, develop, test and debug in C language considering appropriate algorithm.		

Course Name:	Digital Logic & Computer Architecture Lab		
Course Code:	CSL302		
Faculty Name:	Sejal Chopra		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSL302.1	Ability of the student to remember and verify the truth table of logic gates.		
CSL302.2	Ability to predict the output of combinational circuits.		
CSL302.3	Ability to determine the output of various sequential circuits.		
CSL302.4	Ability to estimate the probable working of various adders circuitry		
CSL302.5	Ability to validate the output of the basic building blocks of a computer.		
CSL302.6	Ability to simulate various algorithms used for arithmetic operations.		

Course Name:	Computer Graphics Lab		
Course Code:	CSL303		
Faculty Name:	Dipti Jadhav		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSL303.1	Ability to define contemporary graphics hardware.		
CSL303.2	Demonstrate the overview of graphics system and make use of various drawing algorithms of output and filled area primitives		
CSL303.3	Make use of homogeneous coordinates to implement 2D & 3D geometric transformations for graphics related problems.		
CSL303.4	Analyze different algorithms for viewing clipping & fractal generation and implement using C language.		
CSL303.5	Choose appropriate visible surface detection algorithm and implement for mini project.		
CSL303.6	Develop a Graphical application/Animation based on learned concept		

Course Name:	Skill base Lab course: Object Oriented Programming with Java		
Course Code:	CSL304		
Faculty Name:	Kalpita W.		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSL304.1	Students will be able to identify all the fundamental programming constructs.		
CSL304.2	Students will be able to explain the various Java constructs and will be able to compare classes, objects, packages, arrays and strings.		
CSL304.3	Students will be able to use arrays, strings, inheritance in the programs , and construct different types of exception handling and multi-threading into the code.		
CSL304.4	Students will be able to analyze the output of different Java constructs and use the same in real world problems.		
CSL304.5	Students will be able to reframe the programs based on the output from the constructs used in the logic.		
CSL304.6	Students will be able to design GUI using Applets and AWT to implement full Java application.		

Course Name:	Mini Project – 1 A		
Course Code:	CSM301		
Faculty Name:	Mayura Gavhane, Varsha Kulkarni		
Year:	2	**Sem**	III
CO Number	**Course Outcome**		
CSM301.1	Identify problems based on societal /research needs.		
CSM301.2	Identify Methodology for solving above problem and apply engineering knowledge and skills to solve it.		
CSM301.3	Apply Knowledge and skill to solve societal problems in a group.		
CSM301.4	Analyze the impact of solutions in societal and environmental context for sustainable development.		
CSM301.5	Demonstrate capabilities of self-learning, leading to lifelong learning.		
CSM301.6	Develop interpersonal skills to work as a member of a group or as a leader.		

TE Comps			
Course Name:	Theoretical Computer Science		
Course Code:	CSC501		
Faculty Name:	Shainila Shaikh		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSC501.1	To identify concepts in automata theory & to differentiate between NFA & DFA		
CSC501.2	To infer the equivalance of languages described by finite automata and regular expressions.		
CSC501.3	Design finite automata & pushdown automata,to solve computational problems		
CSC501.4	To associate regular and context free grammer for recognizing strings & token.		
CSC501.5	To develop an understanding of computation through turing machines		
CSC501.6	To describe the concepts of undecidability & decidability .		

Course Name:	Software Engineering		
Course Code:	CSC502		
Faculty Name:	Ms. Hiteshri		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSC502.1	Understand and demonstrate basic knowledge in software engineering		
CSC502.2	Identify requirements, analyze and prepare models.		
CSC502.3	Plan, schedule and track the progress of the projects.		
CSC502.4	Understands the concepts of software design principles.		
CSC502.5	Identify risks, manage the change to assure quality in software projects.		
CSC502.6	Apply testing principles on software project and understand the maintenance concepts		

Course Name:	Computer Network		
Course Code:	CSC503		
Faculty Name:	Ms. Varsha		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSC503.1	Demonstrate the concepts of data communication at physical layer and compare ISO - OSI model with TCP/IP model.		
CSC503.2	Explore different design issues at data link layer		
CSC503.3	Design the network using IP addressing and sub netting / supernetting schemes.		
CSC503.4	Analyze transport layer protocols and congestion control algorithms.		
CSC503.5	Explore protocols at application layer		

Course Name:	Data Warehousing & Mining		
Course Code:	CSC504		
Faculty Name:	Dr. Amiya Kumar Tripathy		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSC504.1	To define fundamentals of Data Warehousing and Mining with the help of real-life examples.		
CSC504.2	To explain the process of Data Pre-processing and Data Visualizations with the help of examples.		
CSC504.3	To apply association mining algorithms for solving real world problems.		
CSC504.4	To distinguish between types of Web Mining and analyze the results of Page ranking /HITS algorithms for given web page.		
CSC504.5	To apply and evaluate classification and clustering algorithms using accuracy measures.		
CSC504.6	To design a data warehouse using dimensional modelling and apply OLAP operations to query the warehouse.		

Course Name:	Internet Programming		
Course Code:	CSDLO5012		
Faculty Name:	Sana Shaikh		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSDLO5012.1	Define the core concepts and features of Web Technologies.		
CSDLO5012.2	Gather the end user requirements and design responsive web pages using HTML5, CSS3, JavaScript and JQuery.		
CSDLO5012.3	Use JDBC and validate database connectivity.		
CSDLO5012.4	Demonstrate Rich Internet Application using Ajax.		
CSDLO5012.5	Demonstrate and differentiate various Web Extensions.		
CSDLO5012.6	Develop web applications using React Js.		

Course Name:	Software Engineering Lab		
Course Code:	CSL501		
Faculty Name:	Ms. Hiteshri		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSL501.1	To understand the software engineering concepts and prepare the problem statement & proposed solution for the selected case study.		
CSL501.2	To identify software requirement specification and formulate it for the selected case study.		
CSL501.3	To apply software engineering process model to the selected case study.		
CSL501.4	To analyze, design models and evaluate for the selected case study using UML modeling.		
CSL501.5	To Use various software engineering tools.		
CSL501.6	To implement and present a case study based on the software engineering concept.		

Course Name:	Computer Network Lab		
Course Code:	CSL502		
Faculty Name:	Ms. Varsha		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSL502.1	Identify the important networking commands in Linux and understand their function.		
CSL502.2	Gather information regarding connectors and cables used for network and summarize their usage.		
CSL502.3	Use Network tool NS2 and NS3 simulator to simulate and explore networking algorithms and protocols.		
CSL502.4	Illustrate socket programming for TCP/UDP connections for demonstrating networking concepts.		
CSL502.5	Review various operations of TCP/IP layers using Wire shark.		
CSL502.6	Design and Build a network topology using packet tracer.		

Course Name:	Data Warehousing & Mining Lab		
Course Code:	CSL503		
Faculty Name:	Dr. Amiya Kumar Tripathy		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSL503.1	To define the design principles of data warehousing using dimensional modeling.		
CSL503.2	To explain OLAP operations like Slice, Dice, Pivot on a real-time case study.		
CSL503.3	To implement Web Mining algorithms like HITS , Page Rank to determine ranking of web pages.		
CSL503.4	To compare the working of various Data Mining algorithms on a given dataset using tools like WEKA and R.		
CSL503.5	To apply Data Mining algorithms on a given dataset for a real-time case study and evaluate their performance using Accuracy Measures.		
CSL503.6	To Choose correct data mining algorithm along with the appropriate data pre-processing technique for a given problem statement.		

Course Name:	Professional Comm. & Ethics-II		
Course Code:	CSL504		
Faculty Name:	Dipak Jadhav		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSL504.1	Students will be able to relateto techniques of formal and technical writing and principles of corporate ethics which includes knowledge of Intellectual Property Rights and ethical codes of conduct in business and corporate activities.		
CSL504.2	Students will be able to explain the objectives, format and style of the technical report, and technical proposal, and the importance of interpersonal skills and paraphrase a technical paper.		
CSL504.3	Students will be able to make use of the techniques for mock interviews and interpersonal skills in presentations.		
CSL504.4	Students will be able to compare various forms of technical writing like technical reports, Technical proposals, and Meeting documentation.		
CSL504.5	Students will be able to evaluate technical reports and technical proposals using the given rubric.		
CSL504.6	Students will be able to design resumes and Statement of Purpose as per the given format.		

Course Name:	Mini Project 2A		
Course Code:	CSM501		
Faculty Name:	Shainila Shaikh		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
CSM501.1	Identify societal/research/innovation/entrepreneurship problems through appropriate literature surveys.		
CSM501.2	Identify Methodology for solving above problem and apply engineering knowledge and skills to solve it.		
CSM501.3	Use standard norms of engineering practices and project management principles during project work.		
CSM501.4	Analyze and evaluate the impact of solution/product/research/innovation /entrepreneurship towards societal/environmental/sustainable development.		
CSM501.5	Demonstrate capabilities of self-learning, leading to lifelong learning.		
CSM501.6	Develop interpersonal skills to work as a member of a group or as a leader.		

Course Name:	Mathematics for Data Science (Honors)		
Course Code:	HDSC 501		
Faculty Name:	Ms. Kalpita Wagaskar		
Year:	3	**Sem**	V
CO Number	**Course Outcome**		
HDSC 501.1	Define Probability, Eigen Values, different type of graphs		
HDSC 501.2	Obtain Poisson, Exponential, Uniform Probability distributions and identify qualitative and quantitative data		
HDSC 501.3	Apply Gaussian (Normal), Uniform or exponential distributions to obtain probabilities and average values and use properties of vectors to obtain orthogonal vectors		
HDSC 501.4	Choose appropriate graphs for a given data and use Chi-square distributions to check independence of attributes		
HDSC 501.5	Evaluate SVD for a given matrix and apply optimization techniques to evaluate maximum or minimum for a given function		
HDSC 501.6	Construct the required column spaces, Covariance matrices and perform PCA		

BE Comps			
Course Name:	Machine Learning		
Course Code:	CSC701		
Faculty Name:	Priya Kaul		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSC701.1	To define the concept of Machine Learning and its working with the help of real-life examples.		
CSC701.2	To demonstrate working of Regression techniques and Decision trees and interpret their performance using accuracy measures.		
CSC701.3	To apply Dimensionality reduction techniques to solve real-world problems.		
CSC701.4	To implement and analyze variations of classification algorithms like SVM for different types of datasets.		
CSC701.5	To evaluate performance of various graph based and model based clustering techniques on given dataset.		
CSC701.6	To apply ensemble learning approach for creating machine learning models.		

Course Name:	Big Data Analytics		
Course Code:	CSC702		
Faculty Name:	Sana Shaikh		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSC702.1	Define the key issues in Big Data Management and the building blocks of Big Data Analytics.		
CSC702.2	Summarize and demonstrate fundamental enabling techniques like Hadoop and MapReduce in solving real world Problems.		
CSC702.3	Use NoSQL tools to develop problem solving and critical thinking skills for managing large datasets.		
CSC702.4	Examine advanced techniques for emerging applications like stream analytics.		
CSC702.5	Justify adequate perspectives of big data analytics in various Real-Time Big Data Models.		
CSC702.6	Develop statistical computing techniques and graphics for analyzing big data.		

Course Name:	Natural Language Processing		
Course Code:	CSDC7013		
Faculty Name:	Dr. Phiroj Shaikh		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSDC7013.1	To describe the field of natural language processing.		
CSDC7013.2	To design language model for word level analysis for text processing.		
CSDC7013.3	To design various POS tagging techniques and parsers.		
CSDC7013.4	To design, implement and test algorithms for semantic and pragmatic analysis.		
CSDC7013.5	To formulate the discourse segmentation and anaphora resolution.		
CSDC7013.6	To apply NLP techniques to design real world NLP applications.		

Course Name:	Block Chain		
Course Code:	CSDC7022		
Faculty Name:	Mayura		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSDC7022.1	Students will be able to describe blockchain concepts		
CSDC7022.2	Students will be able to Explain cryptographic hash required for blockchain		
CSDC7022.3	Students will be able to apply the concepts of smart contracts for an application		
CSDC7022.4	Students will be able to use different types of tools for blockchain applications		
CSDC7022.5	Students will be able to evaluate a public blockchain using Ethereum		
CSDC7022.6	Students will be able to design a private blockchain using Hyperledger		

Course Name:	Machine Learning lab		
Course Code:	CSL701		
Faculty Name:	Priya Kaul		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSL70011.1	To implement the basic techniques to build ML systems.		
CSL70011.2	To implement an appropriate machine learning model for thebguven application.		
CSL70011.3	To implement the dimensionality reduction technique.		
CSL70011.4	To implement clustering based techniques.		
CSL70011.5	To implement the ensemble learning.		
CSL70011.6	Design a problem definition for miniproject.		

Course Name:	Big Data Analytics Lab		
Course Code:	CSL702		
Faculty Name:	Sana Shaikh		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSL702.1	Use the Hadoop file system, debug and run simple Java programs.		
CSL702.2	Learn to write complex MapReduce programs.		
CSL702.3	Learn how to ingest data using Sqoop or Flume.		
CSL702.4	Derive insights using Data Analytics techniques with Hive/PIG/R/Hbase.		
CSL702.5	Implement stream data analysis or predictive analysis using big data tools.		
CSL702.6	Develop real-life projects using Hadoop and its Ecosystem.		

Course Name:	Natural Language Processing Lab		
Course Code:	CSDL7013		
Faculty Name:	Dr. Phiroj Shaikh		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSDL7013.1	Apply various text processing techniques.		
CSDL7013.2	Design language model for word level analysis. To apply and examine n-gram language model.		
CSDL7013.3	Model linguistic phenomena with formal grammar.		
CSDL7013.4	Design, implement and analyze NLP algorithms.		
CSDL7013.5	To apply NLP techniques to design real world NLP applications such as machine translation, sentiment analysis, text summarization, information extraction, Question Answering system etc.		
CSDL7013.6	Implement proper experimental methodology for training and evaluating empirical NLP systems.		

Course Name:	Block Chain Lab		
Course Code:	CSDL7022		
Faculty Name:	Mayura		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSDL7022.1	Explain and create Cryptographic hash using merkle tree.		
CSDL7022.2	Explain and use concepts of blockchain Hyperledger		
CSDL7022.3	Utilizing wallet and transaction using Solidity		
CSDL7022.4	Design smart contract using solidity		
CSDL7022.5	Implementing ethereum blockchain using Geth		
CSDL7022.6	Demonstrate the concept of blockchain in real world application		

Course Name:	Major Project 1		
Course Code:	CSP701		
Faculty Name:	Sana Shaikh		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
CSP701.1	To develop the understanding of the problem domain through extensive review of literature.		
CSP701.2	To Identify and analyze the problem in detail to define its scope with problem specific data.		
CSP701.3	To know various techniques to be implemented for the selected problem and related technical skills through feasibility analysis.		
CSP701.4	To design solutions for real-time problems that will positively impact society and environment.		
CSP701.5	To develop clarity of presentation based on communication, teamwork and leadership skills.		
CSP701.6	To inculcate professional and ethical behavior.		

Course Name:	Data Science in Health Care (Honors)		
Course Code:	HDSC701		
Faculty Name:	Ms. Hiteshri		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
HDSC701.1	To Identify sources and structure of healthcare data		
HDSC701.2	To apply structured lifecycle approach for handling Healthcare data science projects		
HDSC701.3	Analyze the data, create models, and identify insights from Healthcare data.		
HDSC701.4	Apply various data analysis and visualization techniques for Healthcare and social media data.		
HDSC701.5	Apply various algorithms and develop models for Healthcare data science projects		
HDSC701.6	To Provide data science solutions for solving problems of Health and Social Care		

Course Name:	Data Science in Health Care Lab (Honors)		
Course Code:	HDSC701		
Faculty Name:	Ms. Hiteshri		
Year:	4	**Sem**	VII
CO Number	**Course Outcome**		
HDSC701.1	To Identify sources and structure of healthcare data		
HDSC701.2	To apply structured lifecycle approach for handling Healthcare data science projects		
HDSC701.3	Analyze the data, create models, and identify insights from Healthcare data.		
HDSC701.4	Apply various data analysis and visualization techniques for Healthcare and social media data.		
HDSC701.5	Apply various algorithms and develop models for Healthcare data science projects		
HDSC701.6	To Provide data science solutions for solving problems of Health and Social Care		