

DON BOSCO INSTITUTE OF TECHNOLOGY, KURLA, MUMBAI

Department of Computer Engineering (Even semester, 2020-21)

SE Comps

Course Name:	EM-IV		
Course Code	CSC401		
Faculty Name:	Revathy S & Satyanarayana N		
Year	2	Sem	IV
CO Number	Course Outcome		
CSC401.1	Students will be able to Obtain Eigen values and Eigen vectors for a given square matrix		
CSC401.2	Students will be able to (i) Infer properties of Eigen values and Eigen vectors, (ii) Check if a matrix is derogatory or not (iii) Calculate conditional Probabilities using Bayes' theorem, (iv) Obtain pdf and cdf of discrete and continuous random variables		
CSC401.3	Students will be able to (i) Construct diagonal matrices using the concept of similarity, (ii) Verify Cayley- Hamilton theorem, (iii) Obtain functions of square matrices, (iv) Obtain conditional probabilities using Bayes' theorem, (v) Obtain MGF and hence obtain the mean and variance of a random variable, (vi) Obtain moments and probabilities of Binomial, Poisson and Normal distributions.		
CSC401.4	Students will be able to (i) Obtain probabilities and z-values for normal distributions, (ii) Obtain Taylor's and Laurent Series, (iii) Locate zeros and poles and find residues at poles		
CSC401.5	Students will be able to (i) Evaluate integrals using Cauchy's theorems, (ii) Use Linear and Nonlinear Programming methods to solve optimization problems		
CSC401.6	Students will be able to (i) perform tests of significance for large and small samples Chi-square test to test to check independence of attributes and 'goodness of fit', (ii) Apply Big – M method and Dual Simplex method to optimize an LPP and analyze solutions obtained		

Course Name:	AOA		
Course Code	CSC402		
Faculty Name:	Ditty Varghese		
Year	2	Sem	IV
CO Number	Course Outcome		
CSC402.1	Ability to analyze the running time and space complexity of algorithms.		
CSC402.2	Ability to describe, apply and analyze the complexity of divide and conquer strategy.		
CSC402.3	Ability to describe, apply and analyze the complexity of greedy strategy.		
CSC402.4	Ability to describe, apply and analyze the complexity of dynamic programming strategy.		
CSC402.5	Ability to explain and apply backtracking, branch and bound.		
CSC402.6	Ability to explain and apply string matching techniques.		

Course Name:	DBMS		
Course Code	CSC403		
Faculty Name:	Priya Kaul		
Year	2	Sem	IV

CO Number	Course Outcome
CSC403.1	To understand and explain the fundamentals of database management systems
CSC403.2	To design the conceptual model for any real-life problem.
CSC403.3	To convert the conceptual model to relational model and formulate relational algebra queries.
CSC403.4	To apply and formulate SQL queries to manage the database system.
CSC403.5	To analyze and improve the design of a relational database using the concepts of Normalization.
CSC403.6	To correlate the concepts of Transaction, Concurrency and Recovery Management with each other in DBMS.

Course Name:	OS		
Course Code	CSC404		
Faculty Name:	Shainila Mulla		
Year	2	Sem	IV

CO Number	Course Outcome
CSC404.1	Ability to understand role of Operating System in terms of process, memory, file and I/O management.
CSC404.2	Ability to apply and analyse the concept of a process, thread, mutual exclusion and deadlock.
CSC404.3	Ability to evaluate performance of process scheduling algorithms and IPC.
CSC404.4	Ability to apply and analyse the concepts of memory management techniques
CSC404.5	Ability to evaluate the performance of memory allocation and replacement techniques.
CSC404.6	Ability to apply and analyze different techniques of file and I/O management.

Course Name:	Microprocessor		
Course Code	CSC405		
Faculty Name:	Sejal Chopra		
Year	2	Sem	IV

CO Number	Course Outcome
CSC405.1	Ability to explain the various architectures and internal working of x86 processors.
CSC405.2	Ability to use and apply appropriate instructions to program a microprocessor to perform various tasks.
CSC405.3	Ability to describe the concept and working of Interrupts.
CSC405.4	Ability to identify and describe the functions and features of different peripheral chips.
CSC405.5	Ability to interface and design system using memory chips and peripheral chips for 16 bit 8086 microproces
CSC405.6	Ability to appraise the structural modifications of advanced processors.

Course Name:	AOA Lab		
Course Code	CSL401		
Faculty Name:	Ditty Varghese		
Year	2	Sem	IV

CO Number	Course Outcome
CSL401.1	Ability to analyze the complexities of various problems in different domains
CSL401.2	Ability to prove the correctness and analyze the running time of the basic algorithms for those classic problems in v
CSL401.3	develop the efficient algorithms for the new problem with suitable designing techniques.
CSL401.4	Ability to implement the algorithms using different strategies.
CSL401.5	Ability to compare the complexity of the algorithms for specific problem.
CSL401.6	Ability to strengthen the ability to identify and apply the suitable algorithm for the given real-world problem.

Course Name:	DBMS Lab		
Course Code	CSL402		
Faculty Name:	Priya Kaul		
Year	2	Sem	IV

CO Number	Course Outcome
CSL402.1	To design and create conceptual or relational model for any the real life problem using open source software tool.
CSL402.2	To apply SQL commands on database.
CSL402.3	To apply Data Integrity and Security to protect the database from unauthorized access and manipulation.
CSL402.4	To examine effect of concurrency control on database and implement and execute subquery/complex queries.
CSL402.5	To apply views and triggers for specific task.
CSL402.6	To create database system for any real-time scenario and access the data through front end.

Course Name:	OS Lab		
Course Code	CSL403		
Faculty Name:	Shainila Mulla		
Year	2	Sem	IV

CO Number	Course Outcome
CSL403.1	Ability to Understand and execute basic operating system commands.
CSL403.2	Ability to write shell scripts and shell commands using kernel APIs.
CSL403.3	Ability to explore various system calls.
CSL403.4	Ability to implement and analyze different process scheduling algorithms
CSL403.5	Ability to implement and analyze different memory management algorithms.
CSL403.6	Ability to evaluate process management techniques and deadlock handling using CPU-OS simulator .

Course Name:	MP Lab		
Course Code	CSL404		
Faculty Name:	Sejal Chopra		
Year	2	Sem	IV

CO Number	Course Outcome
CSL404.1	Ability to explain and identify different instructions of 8086 microprocessor.
CSL404.2	Ability to use and apply appropriate instructions to program a microprocessor to perform various tasks.
CSL404.3	Ability to perform arithmetic operations using assembly language programming.
CSL404.4	Ability to write assembly code based on array operations.
CSL404.5	Ability to develop the program in mixed language.
CSL404.6	Ability to write and execute assembly code for code conversions.

Course Name:	Skill Base Lab Course: Python Programming		
Course Code	CSL405		
Faculty Name:	Sana Shaikh		
Year	2	Sem	IV

CO Number	Course Outcome
CSL405.1	Ability to develop simple programs using basic concepts in Python and Perl.
CSL405.2	Ability to demonstrate advanced concepts related to Python and Perl.
CSL405.3	Ability to use various data structures in Python.
CSL405.4	Ability to understand and apply Django framework for developing Python based web applications.
CSL405.5	Ability to design GUI based applications in Python.
CSL405.6	Ability to develop Mini projects using Python and/or Perl

Course Name:	Mini Project 1-B		
Course Code	CSM401		
Faculty Name:	Dr. Phiroz Shaikh		
Year	2	Sem	IV

CO Number	Course Outcome
CSM401.1	Identify problems based on societal /research needs and apply knowledge & skill to solve societal problems in a gro
CSM401.2	Develop interpersonal skills to work as member of a group or leader.
CSM401.3	Draw the proper inferences from available results through theoretical/ experimental/simulations.
CSM401.4	Analyze the impact of solutions in societal and environmental context for sustainable development.
CSM401.5	Use standard norms of engineering practices and Excel in written and oral communication.
CSM401.6	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.

TE Comps			
Course Name:	SE		
Course Code	CSC601		
Faculty Name:	Imran Ali Mirza		
Year	3	Sem	VI

CO Number	Course Outcome
CSC601.1	Understand and demonstrate basic knowledge in software engineering.
CSC601.2	Identify requirements, analyse and prepare models.
CSC601.3	Plan, schedule and track the progress of the projects.
CSC601.4	Understands the concepts of software design principles.
CSC601.5	Identify risks; manage the change to assure quality in software projects.
CSC601.6	Apply testing principles on software project and understand the maintenance concepts.

Course Name:	SPCC		
Course Code	CSC602		
Faculty Name:	Ditty Varghese		
Year	3	Sem	VI

CO Number	Course Outcome
CSC602.1	Ability to explain the basics of system programs like editors, compiler, assembler, linker, loader, interpreter, debugger.
CSC602.2	Ability to describe the various data structures and passes of assembler design.
CSC602.3	Ability to identify the need for different features and designing of macros.
CSC602.4	Ability to distinguish different loaders and linkers and their contribution in developing efficient user applications.
CSC602.5	Ability to construct different parsers for given context free grammars.
CSC602.6	Ability to justify the need of synthesis phase to produce object code optimized in terms of high execution speed and

Course Name:	DWM		
Course Code	CSC603		
Faculty Name:	Kalpita Wagaskar		
Year	3	Sem	VI

CO Number	Course Outcome
CSC603.1	To define Data Warehouse fundamentals, Data Mining principles and relate web mining with real world scenarios.
CSC603.2	To illustrate the design of a Data Warehouse using dimensional modelling and demonstrate OLAP operations on the
CSC603.3	To identify and apply appropriate data mining algorithms on a given data set.
CSC603.4	To compare and contrast different data mining techniques like classification, prediction, clustering and association r
CSC603.5	To evaluate the results of data mining algorithms and infer useful information from the same.
CSC603.6	To create a solution for a real world analytics problem.

Course Name:	CSS		
Course Code	CSC604		
Faculty Name:	Shainila Mulla		
Year	3	Sem	VI

CO Number	Course Outcome
CSC604.1	Ability to understand system security goals and concepts, classical encryption techniques and acquire fundamental knowledge on the concepts of modular arithmetic and number theory.
CSC604.2	Ability to understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
CSC604.3	Ability to apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.
CSC604.4	Ability to apply different digital signature algorithms to achieve authentication and design secure applications
CSC604.5	Ability to understand network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP.
CSC604.6	Ability to analyze and apply system security concept to recognize malicious code.

Course Name:	ML		
Course Code	CSDLO6021		
Faculty Name:	Kalpita Wagaskar		
Year	3	Sem	VI

CO Number	Course Outcome
CSDLO6021.1	Gain knowledge about basic concepts of Machine Learning.
CSDLO6021.2	Identify basics of optimization techniques and neural Networks
CSDLO6021.3	Solve the problems using various machine learning techniques
CSDLO6021.4	Analyze different Machine Learning Techniques with regression and trees
CSDLO6021.5	Compare the machine learning with classification and clustering .
CSDLO6021.6	Design application using Machine Learning techniques

Course Name:	ERP		
Course Code	CSDLO6023		
Faculty Name:	Priya Kaul		
Year	3	Sem	VI

CO Number	Course Outcome
CSDLO6023.1	To visualize the basic structure of ERP
CSDLO6023.2	To identify the implementation strategies used for implementing ERP for a case study
CSDLO6023.3	To apply design principles for implementing various business modules in ERP.
CSDLO6023.4	To compare and contrast the emerging technologies for implementation of ERP.
CSDLO6023.5	To analyze security issue in ERP
CSDLO6023.6	To analyze and evaluate various Business Intelligence techniques

Course Name:	SE Lab		
Course Code	CSL601		
Faculty Name:	Prof. Imran Ali Mirza and Deepali Kayande		
Year	3	Sem	VI

CO Number	Course Outcome
CSL601.1	Students will be able to understand the software engineering concepts and prepare the problem statement & proposed solution for the selected case study.
CSL601.2	Students will be able to identify software requirement specification and formulate it for the selected case study.
CSL601.3	Students will be able to apply software engineering process model to the selected case study.
CSL601.4	Students will be able to analyze, design models and evaluate for the selected case study using UML modeling.
CSL601.5	Students will be able to Use various software engineering tools.
CSL601.6	Students will be able to implement and present a case study based on the software engineering concept.

Course Name:	SS Lab		
Course Code	CSL602		
Faculty Name:	Ditty Varghese		
Year	3	Sem	VI

CO Number	Course Outcome
CSL602.1	Ability to generate machine code by using various databases generated in pass one of two pass assembler.
CSL602.2	Ability to construct different databases of single pass macro processor.
CSL602.3	Ability to identify and validate different tokens for given high level language code.
CSL602.4	Ability to parse the given input string by constructing Top down /Bottom up parser.
CSL602.5	Ability to implement synthesis phase of compiler with code optimization techniques.
CSL602.6	Ability to explore various tools like LEX and YACC.

Course Name:	DWM Lab		
Course Code	CSL603		
Faculty Name:	Kalpita Wagaskar, Priya Kaul, Sejal Chopra		
Year	3	Sem	VI
CO Number	Course Outcome		
CSL603.1	To design Star Schema and Snowflake schemas for a given problem statement.		
CSL603.2	To implement OLAP operations like Slice, Dice, Drill down, Rollup, pivot for a given problem statement.		
CSL603.3	To distinguish between working of Data mining approaches when applied a given data set and analyze the variations by changing input parameters.		
CSL603.4	To compare the working of Data Mining approaches – classification, clustering, and association mining using modern		
CSL603.5	To simulate working of Spatial Clustering algorithms using programming language.		
CSL603.6	To adapt page ranking and HITS algorithm for a given scenario(for a web page).		

Course Name:	System Security Lab		
Course Code	CSL604		
Faculty Name:	Shainila Mulla		
Year	3	Sem	VI
CO Number	Course Outcome		
CSL604.1	Ability to apply the knowledge of symmetric cryptography to implement simple ciphers.		
CSL604.2	Ability to analyze and implement public key algorithms like RSA and El Gamal.		
CSL604.3	Ability to analyze and evaluate performance of hashing algorithms.		
CSL604.4	Ability to explore the different network reconnaissance tools to gather information about networks and use tools like sniffers, port scanners and other related tools for analyzing packets in a network.		
CSL604.5	To set up firewalls and intrusion detection systems using open source technologies and to explore email security		
CSL604.6	To explore various attacks like buffer-overflow, and web-application attacks.		

Course Name:	Mini-Project		
Course Code	CSP605		
Faculty Name:	Kalpita Wagaskar and Priya Kaul		
Year	3	Sem	VI
CO Number	Course Outcome		
CSP605.1	To acquire practical knowledge within the chosen area of technology for project development.		
CSP605.2	To identify, analyze the problems within an organization		
CSP605.3	To formulate and handle programming projects with a comprehensive and systematic approach		
CSP605.4	To contribute as an individual or in a team in development of technical projects		
CSP605.5	To explore project management tools		
CSP605.6	To develop effective communication skills for presentation of project related activities		

BE Comps			
Course Name:	HMI		
Course Code	CSC801		
Faculty Name:	Dipti Jadhav		
Year	4	Sem	VIII
CO Number	Course Outcome		
CSC801.1	Ability to know concepts and strategies for making design decisions.		
CSC801.2	Ability to understand the importance of human psychology in designing good interfaces.		
CSC801.3	Apply Interactive Design process in real world applications		
CSC801.4	Analyzing existing interface designs and user experience		
CSC801.5	Ability to Evaluate UI design and justify		
CSC801.6	Ability to do research in Machine Interaction Design and generate redesign ideas.		

Course Name:	DC		
Course Code	CSC802		
Faculty Name:	Dr. Amiya Kumar Tripathy		
Year	4	Sem	VIII

CO Number	Course Outcome
CSC802.1	Understand the basic elements and concepts related to distributed system Technologies
CSC802.2	Illustrate the middleware technologies that support distributed applications such as RPC, RMI and Object based mi
CSC802.3	Analyze the various techniques used for clock synchronization and mutual exclusion
CSC802.4	Demonstrate the concepts of Resource and Process management and synchronization algorithms
CSC802.5	Demonstrate the concepts of Consistency and Replication Management
CSC802.6	Apply Distributed File System to analyze various file systems towards building large-scale distributed applications

Course Name:	HPC		
Course Code	CSDLO8011		
Faculty Name:	Sejal Chopra		
Year	4	Sem	VIII

CO Number	Course Outcome
CSDLO8011.1	To identify the different applications and differentiate between various levels and architectural models of HPC.
CSDLO8011.2	To associate different performance measure with real time system and explain the concepts of parallel algorithm de
CSDLO8011.3	To apply and solve performance problems of communication cost and system performance and demonstrate the use of load balancing
CSDLO8011.4	To compare and contrast the mapping techniques and interaction overheads and analyze the performance measures and its impact on HPC systems
CSDLO8011.5	To assess different pipelines and evaluate the performance measures of real time systems
CSDLO8011.6	To construct a hypothetical pipeline and analyze the performance and develop high end program using HPC concepts

Course Name:	NLP		
Course Code	CSDLO8012		
Faculty Name:	Phiroj Shaikh		
Year	4	Sem	VIII

CO Number	Course Outcome
CSDLO8012.1	Locate and retrieve the knowledge of natural languages to step ahead for automated processing natural language t
CSDLO8012.2	Understand & contrast basics of word level analysis concept and techniques.
CSDLO8012.3	Articulate and implement syntax analysis of natural language text with various methodologies.
CSDLO8012.4	Categorize and illustrate semantic analysis of natural language text with various constructs.
CSDLO8012.5	Assess pragmatic analysis with discourse and reference resolution.
CSDLO8012.6	Build real world NLP applications such as machine translation, text categorization, text summarization, information e

Course Name:	PM		
Course Code	ILO8021		
Faculty Name:	Deepali Kayande		
Year	4	Sem	VIII

CO Number	Course Outcome
ILO8021.1	Remember the definitions and concepts related to project management foundation at various stages.
ILO8021.2	Understanding the principles, processes, different tools and techniques of project management.
ILO8021.3	Apply the risk management plan, project procurement, contract management and analyse the role of stakeholders
ILO8021.4	Analyze the learning and understand techniques for Project planning, scheduling and Execution Control.
ILO8021.5	Evaluate Project Progress with PMIS and techniques like earned value management and control ratios
ILO8021.6	Create WBS, budget and time schedules for projects and learn to apply various monitoring and control techniques that are practiced in Industries.

Course Name:	HMI LAB		
Course Code	CSL801		
Faculty Name:	Dipti Jadhav		
Year	4	Sem	VIII

CO Number	Course Outcome
CSL801.1	Ability to know concepts and strategies for making design decisions.
CSL801.2	Ability to understand the importance of human psychology and abilities in designing good interfaces (Virtual Lab)
CSL801.3	Apply HMI in their day-to-day activities
CSL801.4	Ability to criticize existing interface designs, and improve them
CSL801.5	Ability to Evaluate UI design and generating redesigning ideas
CSL801.6	Design prototype for social and technical task.

Course Name:	DC LAB		
Course Code	CSL802		
Faculty Name:	Dr. Amiya Kumar Tripathy and Sejal Chopra		
Year	4	Sem	VIII

CO Number	Course Outcome
CSL802.1	Demonstrate basic knowledge of the elements and concepts related to distributed system Technologies
CSL802.2	Apply the middleware technologies that support distributed applications such as RPC, RMI and Object based midd
CSL802.3	Analyze and implement techniques used for clock synchronization and mutual exclusion
CSL802.4	Demonstrate the Resource and Process management Process in DS
CSL802.5	Demonstrate the concepts of Consistency and Replication Management
CSL802.6	Design and implement application programs on distributed systems.

Course Name:	CCL		
Course Code	CSL803		
Faculty Name:	Deepali Kayande and Sana Shaikh		
Year	4	Sem	VIII
CO Number	Course Outcome		
CSL803.1	To understand different types of virtualization and increase resource utilization.		
CSL803.2	To demonstrate on demand application delivery over the web.		
CSL803.3	To apply and demonstrate various service models.		
CSL803.4	To analyze security issues on cloud		
CSL803.5	To develop real world web applications and deploy on commercial cloud.		
CSL803.6	To Build a private cloud using open source technologies.		

Course Name:	and Computational Lab-II (NLP)		
Course Code	CSL804		
Faculty Name:	Chopra		
Year	4	Sem	VIII
CO Number	Course Outcome		
CSL804.1	To realize the basic techniques to build operational system		
CSL804.2	To understand the various programming constructs and tools used		
CSL804.3	To understand and use libraries and analyze the program flow		
CSL804.4	To apply the tools and constructs on complex problems		
CSL804.5	To Design and analyze a problem statement for solving real life problem		
CSL804.6	To implement and evaluate the design with respect to performance measures of the system designed		

Course Name:	Major Project-II		
Course Code	CSP805		
Faculty Name:	Ditty Varghese		
Year	4	Sem	VIII
CO Number	Course Outcome		
CSP805.1	Students will be able to convert the design into a Product/Model/Prototype and validate the results.		
CSP805.2	Students will be able to execute the project plan and monitor progress and maintain deadlines.		
CSP805.3	Students will be able to summarize the work in the form of technical documentation following ethical practices.		