DON BOSCO INSTITUTE OF TECHONOLGY, KURLA, MUMBAI

Department of Computer Engineering, (Even semester, 2017-18)

SE Comps

Course Name:	AM-IV	
Course Code	CSC401	
Faculty Name:	Revathy S.	
Year	2	**Sem**	IV

CO Number	Course Outcome
CSC401.1	**CO1:**Students will be able to Obtain Eigen values and Eigen vectors for a given square matrix
CSC401.2	**CO2:**Students will be able to Infer properties of Eigen values and Eigen vectors Check if a matrix is derogatory or not Calculate conditional Probabilities using Bayes' theorem Obtain pdf and cdf of discrete and continuous random variables
CSC401.3	**CO3:**Students will be able to Construct diagonal matrices using the concept of similarity Verify Cayley- Hamilton theorem Obtain functions of square matrices Obtain conditional probabilities using Bayes' theorem Obtain MGF and hence obtain the mean and variance of a random variable Obtain moments and probabilities of Binomial, Poisson and Normal distributions
CSC401.4	**CO4:** Students will be able to (i) Use Z-test, t- test and Chi-square test to test hypotheses (ii) Obtain Taylor's and Laurent Series (iii) Locate zeros and poles and find residues at poles
CSC401.5	**CO5:** 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	**CO6:** Students will be able to (i) Chi-square test to test to check independence of attributes and 'goodness of fit' Obtain probabilities and z-values for normal distributions (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 be familiarized with conventions/specifications such as growth functions and asymptotic notations.

CSC402.2	Ability to explain the methodology and control abstraction for Divide & Conquer, Greedy, Dynamic, Branch & Bound and Backtracking strategy.
CSC402.3	Ability to **apply** and **analyze** different programming problems using different algorithmic strategies and techniques such as divide and conquer, greedy, dynamic, backtracking and branch & bound.
CSC402.4	Ability to **analyze** the space and time complexity for different algorithms.
CSC402.5	Ability to **discuss, design** and **analyze** different string matching algorithms.
CSC402.6	Ability to identify the different categories of problem such as P, NP and NP Complete.

Course Name:	COA	
Course Code	CSC403	
Faculty Name:	Sejal Chopra	
Year	2	**Sem**	IV

CO Number	Course Outcome
CSC403.1	Ability of the student to understand and describe the basics of computer architecture.
CSC403.2	Ability to estimate the output of ALU operations for fixed or floating point representation and system performance.
CSC403.3	Ability to classify and compare pipelined and parallel processing architectures with analysis of different hazards.
CSC403.4	Ability to design,construct and manage control unit or memory system.
CSC403.5	Ability to design an optimum processor architecture executing a specific program.
CSC403.6	Ability to engage students in self-learning activity/independent activity to prepare a report on "Recent Developments in processor architecture and organization.

Course Name:	CG	
Course Code	CSC404	
Faculty Name:	Dipti Jadhav	
Year	2	**Sem**	IV

CO Number	Course Outcome
CSC404.1	Ability to explian the basics of computer graphics, different graphics systems and applications of computer graphics.
CSC404.2	Ability to explain and compare various algorithms for scan conversion and filling of basic objects and their comparative analysis.
CSC404.3	Ability to explain, 2D and 3D geometric transformations on graphics objects and their application in composite form.
CSC404.4	Extract scene with different clipping methods and its transformation to graphics display device by understaning clipping algorithms.
CSC404.5	Ability to explain projected objects to naturalize the scene in 2D viewing
CSC404.6	Ability to explainvisible surface detection techniques and illumination models.

Course Name:	OS	
Course Code	CSC405	
Faculty Name:	Shainila Mulla	
Year	2	**Sem**	IV

CO Number	Course Outcome
CSC405.1	Ability to understand,describe and explain the basics of computing resources that are managed by the operating system.
CSC405.2	Ability to analyze and apply the knowledge of process & thread management , concurrency to solve operating system design problems
CSC405.3	Ability to implement & simulate algorithms on process scheduling .
CSC405.4	Ability to analyze concepts on memory management techniques.
CSC405.5	Ability to design , compare and analyse the performance metrics of various operating systems.
CSC405.6	Ability to apply and analyze file management and I/O management.

Course Name:	AOA Lab	

Course Code	CSL401		
Faculty Name:	Ditty Varghese		
Year	2	Sem	IV
CO Number	Course Outcome		
CSL401.1	To prove the correctness and analyze the running time of the basic algorithms for those classic problems in various domains.		
CSL401.2	To develop the efficient algorithms for the new problem by applying suitable design strategy.		
CSL401.3	To analyze the complexities of various problems in different domains.		
CSL401.4	To evaluate which algorithm strategy is better by Implementing the algorithms using different strategies		

Course Name:	CG Lab		
Course Code	CSL402		
Faculty Name:	Dipti Jadhav		
Year	2	Sem	IV

CO Number	Course Outcome
CSL402.1	Ability to implement various output primitives C/ OpenGL
CSL402.2	Ability to implement filled area primitive algorithms using C/ OpenGL
CSL402.3	Apply 2D and 3D transformations algorithms on graphical objects.
CSL402.4	Ability to implement clipping algorithms on graphical objects.
CSL402.5	Ability to implement of curve and fractal generation.
CSL402.6	Ability to create interactive graphics applications in

Course Name:	Processor Architecture Lab		
Course Code	CSL403		
Faculty Name:	Sejal Chopra		
Year	2	Sem	IV

CO Number	Course Outcome
CSL403.1	Ability to compile a code for computer operations.
CSL403.2	Ability to estimate the output of computer hardware operations using simulator.
CSL403.3	Ability to execute few programs on microprocessor kits .
CSL403.4	Ability to explain and compare various components and buses on system or compare multi-core processors.
CSL403.5	Ability to engage students in self-learning activity through a mini-project on Arduino

Course Name:	OS Lab
Course Code	CSL404
Faculty Name:	Shainila Mulla
Year	2

CO Number	Course Outcome
CSL404.1	Ability to Understand and execute basic operating system commands.
CSL404.2	Ability to write shell scripts and shell commands using kernel APIs
CSL404.3	Ability to explore various system calls.
CSL404.4	Ability to implement and analyze different process scheduling algorithms
CSL404.5	Ability to implement and analyze different memory management algorithms.
CSL404.6	Ability to evaluate process management techniques and and deadlock handling using CPUOS simulator .

Course Name:	OST Lab
Course Code	CSL405
Faculty Name:	Priya Kaul

Year		Sem	
CO Number	**Course Outcome**		
CSL405.1	To describe basic concepts in python and perl.		
CSL405.2	To demonstrate File handling operations, directories and text processing .		
CSL405.3	To develop program for data structure using built in functions in python.		
CSL405.4	To use Django web framework for developing python based web application.		
CSL405.5	To apply gui concepts in python using Tkinter		
CSL405.6	To develop simple project in Python/ Perl		

		TE Comps	

Course Name:	SE	
Course Code	CSC601	
Faculty Name:	Dr. Phiroj Shaikh	
Year	3	**Sem**	VI

CO Number	Course Outcome
CSC60.1	Understand and demonstrate basic knowledge in software engineering.
CSC60.2	Identify requirements, analyze and prepare models.
CSC60.3	Plan, schedule and track the progress of the projects.
CSC60.4	Understands the concepts of software design principles.
CSC60.5	Identify risks, manage the change to assure quality in software projects.
CSC60.6	Apply testing principles on software project and understand the maintenance concepts.

Course Name:	SPCC	
Course Code	CSC602	
Faculty Name:	Mayura Gavhane	
Year	3	**Sem**	VI

CO Number	Course Outcome
CSC602.1	Explain the basics of system programs like editors, compiler, assembler, linker, loader, interpreter, debugger
CSC602.2	Describe the various data structures and passes of assembler design.
CSC602.3	Identify the need for different features and designing of macros.
CSC602.4	Distinguish different loaders and linkers and their contribution in developing efficient user applications.
CSC602.5	Able to interpret the need of analysis and synthesis phase of Compiler.
CSC602.6	Summarize different methods of analysis and synthesis phase of compiler in terms of high execution speed and less memory usage.

Course Name:	DWM	
Course Code	CSC603	
Faculty Name:	Dr. Amiya Kumar Tripathy	
Year	3	**Sem**	VI

CO Number	Course Outcome
CSC603.1	Understand Data Warehouse fundamentals, Data Mining Principles.
CSC603.2	Design Data Warehouse with Dimensional Modelling with OLAP operations.
CSC603.3	Identify appropriate Data Mining Algori1thms to solve real world problems.
CSC603.4	Compare and Evaluate different Data Mining techniques like classification, prediction, clustering and association rule mining.
CSC603.5	Describe complex data types with respect to Spatial and Web mining.
CSC603.6	Benefit the user experiences towards Research and Innovation.

Course Name:	CSS		
Course Code	CSC604		
Faculty Name:	Shafaque Syed		
Year	3	Sem	VI
CO Number	Course Outcome		
CSC604.1	Understand system security goals and concepts, classical encryption techniques and acquire fundamental knowledge on the concepts of modular arithmetic and number theory		
CSC604.2	Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication		
CSC604.3	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	Apply different digital signature algorithms to achieve authentication and design secure applications		
CSC604.5	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	Analyze and apply system security concept to recognize malicious code		

Course Name:	ML		
Course Code	CSDLO6021		
Faculty Name:	Dr. Phiroj Shaikh		
Year	3	Sem	VI

CO Number	Course Outcome
CSDLO6021.1	Gain knowledge about basic concepts of Machine Learning.
CSDLO6021.2	Understands the basics of deep learning concepts using ANN.
CSDLO6021.3	Understands the basics of optimization techniques.
CSDLO6021.4	Understanding machine learning with regression and trees.
CSDLO6021.5	Understanding the concepts of classification, clustering and SVM.
CSDLO6021.6	Apply Dimensionality reduction techniques.

Course Name:	ERP		
Course Code	CSDLO6023		
Faculty Name:	Shainila Mulla		
Year	3	Sem	VI

CO Number	Course Outcome
CSDLO6023.1	To visualize the basic structure of ERP and SCM
CSDLO6023.2	To analyze the implementation strategies used for ERP and SCM
CSDLO6023.3	To apply design principles for creating a web portal constituting modules of ERP and SCM
CSDLO6023.4	To simulate business processes of ERP and SCM using modern tools
CSDLO6023.5	To develop E-Commerce functionalities like E-Procurement, Shopping cart and Customer Management
CSDLO6023.6	To analyze and evaluate various Business Intelligence techniques

Course Name:	SE Lab		
Course Code	CSL601		
Faculty Name:	Dr. Phiroj Shaikh		
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 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 Use various software engineering tools.
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 software engineering concept.

Course Name:	SS Lab		
Course Code	CSL602		
Faculty Name:	Mayura Gavhane		
Year	3	**Sem**	VI

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

Course Name:	DWM Lab		
Course Code	CSL603		
Faculty Name:	Dr. Amiya Kumar Tripathy		
Year	3	**Sem**	VI

CO Number	Course Outcome
CSL603.1	Design data warehouse and perform various OLAP operations.
CSL603.2	Implement classification, prediction, clustering and association rule mining algorithms.
CSL603.3	Demonstrate classifications, prediction, clustering and association rule mining algorithms on a given set of data sample using data mining tools.
CSL603.4	Implement spatial and web mining algorithms.

Course Name:	System Security Lab		
Course Code	CSL604		
Faculty Name:	Shafaque Syed		
Year	3	**Sem**	VI

CO Number	Course Outcome
CSL604.1	Apply the knowledge of symmetric cryptography to implement simple ciphers.
CSL604.2	**Analyze** and implement public key algorithms like RSA and El Gamal.
CSL604.3	**Analyze** and **evaluate** performance of hashing algorithms.
CSL604.4	**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	**Set up** firewalls and intrusion detection systems using open source technologies and to explore email security.
CSL604.6	**Explore** various attacks like buffer-overflow, and web-application attacks.

Course Name:	Mini-Project		
Course Code	CSP605		

Faculty Name:	Dr. Phiroj Shaikh and Shainila Mulla		
Year	3	Sem	VI
CO Number	Course Outcome		
CSP605.1	Students will be able to develop effective communication skills for presentation of project related activities.		
CSP605.2	Students will be able to apply knowledge gained in technical subject of their curriculum.		
CSP605.3	Students will be able to acquire practical knowledge within the chosen area of technology for project development.		
CSP605.4	Students will be able to identify and analyze programming projects with a comprehensive and systematic approach.		
CSP605.5	Students will be able to contribute as an individual or in a team in development of technical projects.		
CSP605.6	Students will be able to formulate and handle programming projects with a comprehensive and systematic approach		

	BE Comps	

Course Name: DWM
Course Code: CPC801
Faculty Name: Priya Kaul
Year: 4 **Sem:** VIII

CO Number	Course Outcome
CPC801.1	To explain the basic principles, concepts and applications of data warehousing and data Mining
CPC801.2	To design a data warehouse for any organization using dimensional modeling and perform OLAP operations for strategic decision Making
CPC801.3	To demonstrate the appreciation of Data Mining algorithms in real time scenarios
CPC801.4	To explain Data Extraction, Transformation and Loading process in data warehousing
CPC801.5	To simulate data mining algorithms and methods using modern tools like WEKA and R.

Course Name: HMI
Course Code: CPC802
Faculty Name: Dipti Jadhav
Year: 4 **Sem:** VIII

CO Number	Course Outcome
CPC 802.1	Provide the future user interface designer with concepts and strategies for making design decisions.
CPC 802.2	Analyzing existing interface designsand user experience, and Design innovative and user friendly interfaces to impeove user experiences.
CPC 802.3	Apply HCI in their day-to-day activities.
CPC 802.4	Design application for social and technical task.

Course Name: PDS
Course Code: CPC803
Faculty Name: Nilakshi Joshi
Year: 4 **Sem:** VIII

CO Number	Course Outcome
CPC803.1	The student will understand and apply the principles and concept in analyzing and designing the parallel and distributed system.
CPC803.2	The student will explain the ways to parallelize problems.
CPC803.3	The student will understand and appreciate the challenges and opportunities faced by parallel and distributed systems.
CPC803.4	The student will Understand the middle-ware technologies such as RPC, RMI and object based middle-ware and implement them for applications.
CPC803.5	The student will improve the performance and reliability of distributed and parallel programs.
CPC803.6	The student will apply the key algorithms for coordination, communication and synchronization.

Course Name: ML
Course Code: CPE8031
Faculty Name: Kalpita Ajinkya Wagaskar

Year	4	Sem	VIII	

CO Number	Course Outcome
CPE8031.1	Sudents will be able to understand the importance of machine Learning Techniques.
CPE8031.2	Students will be able to understand and apply techniques of regression, decision tress and support vector machine.
CPE8031.3	Students will be able to understand and apply classification techniques
CPE8031.4	Students will be able to provide explanantion and solve problems using Dimensionality reduction techniques.
CPE8031.5	Students will be able to analyze and apply clustering techniques to real world problems.
CPE8031.6	Students will be able to critique and research reinforced learning techniques

Course Name:	DF	
Course Code	CPE8034	
Faculty Name:	Mayura Gavhane	
Year	4	Sem	VIII	

CO Number	Course Outcome
CPE8034.1	Describe various cyber crimes and the role digital forensics play in accordance with the various bodies of law for dealing with crimes
CPE8034.2	Apply the techniques of initial response and forensics duplication in Windows and Linux systems with duplication of hard disk.
CPE8034.3	Demonstrate the techniques of preserving and recovering electronic evidence from the system and its peripherals
CPE8034.4	Analyze the attacks on networks and recovery of the same using forensic techniques principles on given code
CPE8034.5	Summarize the techniques of system investigations using data analysis of Live Windows and Linux systems

Course Name:	BDA	
Course Code	CPE8035	
Faculty Name:	Sana Shaikh	
Year	4	Sem	VIII	

CO Number	Course Outcome
CPE8035.1	Identify challenges in big data management and inadequacy of existing technology to analyze big data.
CPE8035.2	Apply scalable algorithms based on Hadoop and Map Reduce to perform Big Data Analytics.
CPE8035.3	Use NoSQL tools to solve big data problems and apply various techniques for finding similar items in any application.
CPE8035.4	Use stream data model to provide real time analysis of big data.
CPE8035.5	Apply various methods and techniques for Clustering, fequent Itemsets and Link Analysis.
CPE8035.6	Discover information from social network graphs and Solve complex real world problems in various apllications.

Course Name:	Cloud Computing Lab	
Course Code	CPL801	
Faculty Name:	Ditty Varghese	
Year	4	Sem	VIII	

CO Number	Course Outcome

CPL801.1	Ability to understand the cloud computing architecture styles and the deployment models.
CPL801.2	Ability to **apply** the concepts of virtualization to **create** and run virtual machines.
CPL801.3	Ability to **create** RSS feeds by applying concepts of form and control validation.
CPL801.4	Ability to **create** cloud environment using owncloud.
CPL801.5	Ability to **understand** the concepts of infrastructure as a service using openstack and **apply** them on a given case study.
CPL801.6	Ability to work as part of a team to **implement** cloud based mini-projects.

Course Name:	Project -II		
Course Code	CPP802		
Faculty Name:	Shafaque Syed		
Year	4	**Sem**	VIII
CO Number	**Course Outcome**		
CPP802.1	Students will be able to convert the design into a Product/Model/Prototype and validate the results.		
CPP802.2	Students will be able to execute the project plan and monitor progress and maintain deadlines.		
CPP802.3	Students will be able to summarize the work in the form of technical documentation following ethical practices.		