

COURSE OUTCOMES**Department of IT , CAY- (Odd semester, 2021-22)**

Course Name:	Engineering Mathematics-III		
Course Code	ITC301		
Faculty Name:	Pallavi		
Year	2	Sem	III

CO Number	Course Outcome
ITC301.1	Students will be able to i) Obtain Laplace Transforms for a given standard function of 't' ii) Obtain Inverse Laplace Transforms for a given simple function of 's' iii) Define harmonic functions and Orthogonal trajectories iv) Obtain Karl Pearson's coefficient of correlation and Spearman's Rank correlation
ITC301.2	Students will be able to i) Obtain the Laplace Transforms, Inverse Laplace Transforms of combinations of standard functions using the properties of Laplace and Inverse Transforms.(2)Half-range Fourier series and Fourier sine and cosine series of periodic functions
ITC301.3	Students will be able to i) Find Cauchy – Riemann equations to verify if a function is analytic ii) To understand the basic techniques of statistics like correlation, regression, and curve fitting for data analysis, Machine learning, and AI.iii) Understand the concepts of probability and expectation for getting the spread of the data.
ITC301.4	Students will be able to i) to use Lplalce transform to solve the real integrals in engineering problems. Ii) Obtain the harmonic conjugate and orthogonal trajectories of a given family of curves iii) Apply the concept of Correlation and Regression to the engineering problems in data science, machine learning, and AI.
ITC301.5	Students will be able to i) Obtain an analytic function, given a linear combination of its real and imaginary parts
ITC301.6	Students will be able to i) Find the fitting of the curves to the given data by applying Least square method. iii) Obtain Fourier series for functions in a general interval.

Course Name:	Data Structures & Analysis		
Course Code	ITC302		
Faculty Name:	Nilesh Ghavate		
Year	2	Sem	III

CO Number	Course Outcome
ITC 302.1	Classify and Apply the concepts of stacks, queues and linked list in real life problem solving.
ITC 302.2	Classify, apply and analyze the concepts trees in real life problem solving.
ITC 302.3	Illustrate and justify the concepts of graphs in real life problem solving.

ITC 302.4	List and examine the concepts of sorting, searching techniques in real life problem solving.
ITC 302.5	Use and identify the concepts of recursion, hashing in real life problem solving.
ITC 302.6	Examine and justify different methods of stacks, queues, linked list, trees and graphs to various applications.

Course Name:	Database Management System		
Course Code	ITC303		
Faculty Name:	Shiv Negi		
Year	2	Sem	III

CO Number	Course Outcome
ITC303.1	Identify the need of Database Management System.
ITC303.2	Design conceptual model for real life applications.
ITC303.3	Create Relational Model for real life applications
ITC303.4	Formulate query using SQL commands
ITC303.5	Apply the concept of normalization to relational database design.
ITC303.6	Demonstrate the concept of transaction, concurrency and recovery.

Course Name:	Principle of Communication		
Course Code	ITC304		
Faculty Name:	Janhavi Baikerikar		
Year	2	Sem	III

CO Number	Course Outcome
ITC304.1	Describe analog and digital communication systems
ITC304.2	Differentiate types of noise, analyses the Fourier transform of time and frequency domain
ITC304.3	Design transmitter and receiver of AM, DSB, SSB and FM
ITC304.4	Describe Sampling theorem and pulse modulation systems
ITC304.5	Explain multiplexing and digital band pass modulation techniques
ITC304.6	Describe electromagnetic radiation and propagation of waves

Course Name:	Paradigms and Computer Programming Fundamentals		
Course Code	ITC305		
Faculty Name:	Anagha Shastri		
Year	2	Sem	III

CO Number	Course Outcome
ITC305.1	Understand and Compare different programming paradigms.
ITC305.2	Understand the Object Oriented Constructs and use them in program design.
ITC305.3	Understand the concepts of declarative programming paradigms through functional and logic programming.
ITC305.4	Design and Develop programs based on declarative programming paradigm using functional and/or logic programming.
ITC305.5	Understand the role of concurrency in parallel and distributed programming.
ITC305.6	Understand different application domains for use of scripting languages.

Course Name:	Data Structure Lab		
Course Code	ITL301		
Faculty Name:	Nilesh Ghavate		
Year	2	Sem	III

CO Number	Course Outcome
ITL301.1	Understand and use the basic concepts and principles of various linked lists, stacks and queues.
ITL301.2	Understand the concepts and apply the methods in basic trees.
ITL301.3	Use and identify the methods in advanced trees.
ITL301.4	Understand the concepts and apply the methods in graphs.
ITL301.5	Understand the concepts and apply the techniques of searching, hashing and sorting
ITL301.6	Illustrate and examine the methods of linked lists, stacks, queues, trees and graphs to various real time problems

Course Name:	SQL Lab		
Course Code	ITL302		
Faculty Name:	Shiv Negi		
Year	2	Sem	III

CO Number	Course Outcome
ITL302.1	Define problem statement and Construct the conceptual model for real life application.
ITL302.2	Create and populate a RDBMS using SQL.
ITL302.3	Formulate and write SQL queries for efficient information retrieval.
ITL302.4	Apply view, triggers and procedures to demonstrate specific event handling.
ITL302.5	Demonstrate database connectivity using JDBC.
ITL302.6	Demonstrate the concept of concurrent transactions.

Course Name:	Computer programming Paradigms Lab
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Course Code	ITL303		
Faculty Name:	Anagha Shastri		
Year	2	Sem	III

CO Number	Course Outcome
ITL303.1	Implement Object Oriented concepts in C++.
ITL303.2	Design and Develop solution based on declarative programming paradigm using functional and logic programming.
ITL303.3	Understand the multi threaded programs in Java and C++
ITL303.4	Understand the need and use of exception handling and garbage collection in C++ and JAVA
ITL303.5	Implement a solution to the same problem using multiple paradigms.
ITL303.6	Compare the implementations in multiple paradigms at coding and execution level.

Course Name:	Java Lab (SBL)		
Course Code	ITL304		
Faculty Name:	Tayyabali Sayyad		
Year	2	Sem	III

CO Number	Course Outcome
ITL304.1	Explain the fundamental concepts of Java Programing.
ITL304.2	Demonstrate the concepts of classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem.
ITL304.3	Demonstrate how to extend java classes and achieve reusability using Inheritance, Interface and Packages.
ITL304.4	Construct robust and faster programmed solutions to problems using concept of Multithreading, exceptions and file handling
ITL304.5	Design and develop Graphical User Interface using Abstract Window Toolkit and Swings, JavaFX framework

Course Name:	Mini Project – 1 A for Front end / backend Application using JAVA		
Course Code	ITM301		
Faculty Name:	Tayyabali Sayyad		
Year	2	Sem	III

CO Number	Course Outcome
ITL304.1	Identify problems and apply knowledge and skill to solve societal problems in a group.
ITL304.2	Develop interpersonal skills to work as member of a group or leader, and demonstrate the capabilities of self-learning in a group, which leads to life long learning.
ITL304.3	Draw the proper inferences from available results through theoretical/ experimental/simulations.
ITL304.4	Use standard norms of engineering practices, and excel in written and oral communication.
ITL304.5	Demonstrate project management principles during project work

Course Name:	Internet Programming		
Course Code	ITC501		
Faculty Name:	Vaishali K.		
Year	3	Sem	V

CO Number	Course Outcome
ITC501.1	Select protocols or technologies required for various web applications.
ITC501.2	Apply JavaScript to add functionality to web pages.
ITC501.3	Design front end application using basic React.
ITC501.4	Design front end applications using functional components of React.
ITC501.5	Design back-end applications using Node.js.
ITC501.6	Construct web based Node.js applications using Express.

Course Name:	Computer Network Security		
Course Code	ITC502		
Faculty Name:	Aruna Khubalkar		
Year	3	Sem	V

CO Number	Course Outcome
ITC502.1	Explain the fundamentals concepts of computer security and network security.
ITC502.2	Apply, Analyze and Evaluate basic cryptographic techniques using classical and block encryption methods.
ITC502.3	Identify and describe different malicious software.
ITC502.4	Describe and compare Network layer security, Transport layer security and application layer security.
ITC502.5	Explain the need of network management security and discuss the need for NAC.
ITC502.6	Explain the function of an IDS and firewall for the system security.

Course Name:	Entrepreneurship and E-business		
Course Code	ITC503		
Faculty Name:	Sunantha Krishnan		
Year	3	Sem	V

CO Number	Course Outcome
ITC503.1	Understand the concept of entrepreneurship and its close relationship with enterprise and owner-management
ITC503.2	Understand the nature of business development in the context of existing organizations and of new business start-ups
ITC503.3	Comprehended important factors for starting a new venture and business development

ITC503.4	Know issues and decisions involved in financing and resourcing a business start-up
ITC503.5	Describe various E-business Models
ITC503.6	Discuss various E-business Strategies

Course Name:	Software Engineering		
Course Code	ITC504		
Faculty Name:	Janhavi Baikerikar		
Year	3	Sem	V

CO Number	Course Outcome
ITC504.1	Understand and use basic knowledge in software engineering
ITC504.2	Identify requirements, analyze and prepare models
ITC504.3	Plan, schedule and track the progress of the projects
ITC504.4	Design & develop the software solutions for the growth of society
ITC504.5	To demonstrate and evaluate real time projects with respect to software engineering principles
ITC504.6	Apply testing and assure quality in software solution

Course Name:	Microcontroller and Embedded Programming		
Course Code	ITDO5011		
Faculty Name:	Janhavi Baikerikar		
Year	3	Sem	V

CO Number	Course Outcome
ITDO-5011.1	Introduce and discuss the embedded system concepts, architecture of embedded systems and understand the embedded development environments
ITDO-5011.2	Describe the architecture of 8051 microcontroller and write embedded programs for 8051 Microcontroller
ITDO-5011.3	Illustrate the interfacing of peripherals with 8051 microcontroller and write programs
ITDO-5011.4	Understand and apply the concepts of ARM architecture
ITDO-5011.5	Explain and Demonstrate the open source RTOS
ITDO-5011.6	Select the embedded platform and program it for real time application

Course Name:	Internet Programming Lab		
Course Code	ITL501		
Faculty Name:	Vaishali K.		
Year	3	Sem	V

CO Number	Course Outcome
ITL501.1	Identify and apply the appropriate HTML tags to develop a web page.
ITL501.2	Identify and apply the appropriate CSS tags to format data on web page.
ITL501.3	Construct responsive websites using Bootstrap.
ITL501.4	Use JavaScript to develop interactive web pages.
ITL501.5	Construct front end applications using React.
ITL501.6	Construct back end applications using Node.js/Express.

Course Name:	Security Lab		
Course Code	ITL502		
Faculty Name:	Aruna Khubalkar		
Year	3	Sem	V

CO Number	Course Outcome
ITL501.1	Illustrate symmetric cryptography by implementing classical ciphers and developing a product cipher.
ITL501.2	Demonstrate Cryptographic Key management, distribution and user authentication.
ITL501.3	Discuss different network reconnaissance tools to gather information about networks.
ITL501.4	4 Use tools like sniffers, port scanners and other related tools for analyzing packets in a network.
ITL501.5	Use open-source tools to scan the network for vulnerabilities and simulate attacks.
ITL501.6	Discuss and demonstrate the network security system using open source tools.

Course Name:	DevOps Lab		
Course Code	ITL503		
Faculty Name:	Sunantha Krishnan		
Year	3	Sem	V

CO Number	Course Outcome
ITL502.1	To understand the fundamentals of DevOps engineering and be fully proficient with DevOps terminologies, concepts, benefits, and deployment options to meet your business requirements
ITL502.2	To obtain complete knowledge of the “version control system” to effectively track changes augmented with Git and GitHub
ITL502.3	To understand the importance of Jenkins to Build and deploy Software Applications on server environment
ITL502.4	To Understand the importance of Selenium and Jenkins to test Software Applications
ITL502.5	To understand concept of containerization and Analyse the Containerization of OS images and deployment of applications over Docker
ITL502.6	To Synthesize software configuration and provisioning using Ansible.

Course Name:	Advance Devops Lab		
Course Code	ITL504		
Faculty Name:	Mr. Tayyabali Sayyad		
Year	3	Sem	V

CO Number	Course Outcome
ITL503.1	To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements
ITL503.2	To deploy single and multiple container applications and manage application deployments with rollouts in Kubernetes
ITL503.3	To apply best practices for managing infrastructure as code environments and use terraform to define and deploy cloud infrastructure.
ITL503.4	To identify and remediate application vulnerabilities earlier and help integrate security in the development process using SAST Techniques.
ITL503.5	To use Continuous Monitoring Tools to resolve any system errors (low memory, unreachable server etc.) before they have any negative impact on the business productivity
ITL503.6	To engineer a composition of nano services using AWS Lambda and Step Functions with the Serverless Framework

Course Name:	Professional Communication and Ethics-II (PCE-II)		
Course Code	ITL505		
Faculty Name:	Ms. Devyani Balasra		
Year	3	Sem	V

CO Number	Course Outcome
ITL 504.1	Students will be able to relate to techniques of formal and technical writing and to principles of corporate ethics which includes knowledge of Intellectual Property Rights and ethical codes of conduct in business and corporate activities
ITL 504.2	Students will be able to explain the objectives, format and style of technical report, and technical proposal and the importance of interpersonal skills and paraphrase a technical paper
ITL 504.3	Students will be able to describe strategies for effective meetings and group discussions and techniques for effective preparation for different types of interview which includes resume writing and statement of purpose
ITL 504.4	Students will be able to apply conceptual awareness of interpersonal skills, strategies for effective meetings which includes documentation, and group discussions to complete a mock project
ITL 504.5	Students will be able to make use of the given format while drafting a technical report and a technical proposal and the techniques of effective preparation for interviews while appearing for a mock interview
ITL 504.6	Students will be able to evaluate technical reports and technical proposals using the given rubric

Course Name:	Mini Project -2A Web Based Business Model		
Course Code	ITM501		
Faculty Name:	Vaishali K.		
Year		Sem	V

CO Number	Course Outcome
ITM505.1	Identify problems based on societal /research needs.
ITM505.2	Develop interpersonal skills to work as member of a group or leader.
ITM505.3	Analyse the impact of solutions in societal and environmental context for sustainable development.
ITM505.4	Use standard norms of engineering practices
ITM505.5	Excel in written and oral communication.
ITM505.6	Demonstrate capabilities of self-learning in a group, which leads to life long learning.

Course Name:	Enterprise Network Design		
Course Code	ITC701		
Faculty Name:	Prasad Padalkar		
Year	4	Sem	VII

CO Number	Course Outcome
ITC701.1	Students would be able to gather customer requirements and APPLY a Methodology to Network Design
ITC701.2	Students will be able to SELECT appropriate Structure and Modularize the Network
ITC701.3	Students will be able to DESIGN Basic Campus and Data Center Network.
ITC701.4	Students will be able to DESIGN Remote Connectivity
ITC701.5	Students will be able to SELECT suitable Routing Protocols and IP Addressing scheme.
ITC701.6	Students will be able to COMPARE Openflow controllers and switches with other enterprise networks.

Course Name:	Infrastructure Security		
Course Code	ITC702		
Faculty Name:	Aruna Khubalkar		
Year	4	Sem	VII

CO Number	Course Outcome
ITC702.1	Understand the concept of vulnerabilities, attacks and protection mechanisms
ITC702.2	Analyze and evaluate software vulnerabilities and attacks on databases and operating systems Evaluating
ITC702.3	Explain the need for security protocols in the context of wireless communication

ITC702.4	Understand and explain various security solutions for Web and Cloud infrastructure
ITC702.5	Understand, and evaluate different attacks on Open Web Applications and Web services
ITC702.6	Design appropriate security policies to protect infrastructure components

Course Name:	Artificial Intelligence		
Course Code	ITC703		
Faculty Name:	Sunantha		
Year	4	Sem	VII

CO Number	Course Outcome
ITC703.1	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents.
ITC703.2	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
ITC703.3	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
ITC703.4	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning.
ITC703.5	Formulate and solve problems with uncertain information using Bayesian approaches.
ITC703.6	To introduce advanced topics of AI such as planning, Bayes networks, natural language processing and Cognitive Computing.

Course Name:	Soft Computing		
Course Code	ITDLO7035		
Faculty Name:	Prasad Padalkar		
Year	4	Sem	VII

CO Number	Course Outcome
ITDLO7035-1	List the facts and outline the different process carried out in fuzzy logic, ANN and Genetic Algorithm
ITDLO7035-2	Explain the concept of meta-cognitive in SC
ITDLO7035-3	Apply SC technique to solve character recognition, pattern classification regression, and similar problems
ITDLO7035-4	Survey the facts to identify the process to handel real world problems
ITDLO7035-5	Evaluate various techniques of soft computing to defend best working solution
ITDLO7035-6	Design hybrid systems to revise the principles of soft computing in various applications.

Course Name:	Mobile Application Development		
Course Code	ITDLO7032		
Faculty Name:	Nilesh		

Year	4	Sem	VII
CO Number	Course Outcome		
ITDLO7032.1	Describe Android platform, Architecture and features.		
ITDLO7032.2	Design User Interface and develop activity for Android App.		
ITDLO7032.3	Use Intent , Broadcast receivers and Internet services in Android App.		
ITDLO7032.4	Design and implement Database Application and Content providers.		
ITDLO7032.5	Use multimedia, camera and Location based services in Android App.		
ITDLO7032.6	Discuss various security issues in Android platform.		

Course Name:	Cyber Security and Laws		
Course Code	ILO7016		
Faculty Name:	Dr. Phiroj		
Year	4	Sem	VII
CO Number	Course Outcome		
ILO7016.1	Explain the concept of cyber crime and its effect on outside world.		
ILO7016.2	Explain steps involved in cybercrime		
ILO7016.3	Explain tools and methods used in cybercrime.		
ILO7016.4	Interpret and apply IT law in various legal issues		
ILO7016.5	Distinguish different aspects of cyber law		
ILO7016.6	Apply Information Security Standards compliance during software design and development		

Course Name:	Management Information System		
Course Code	ILO7013		
Faculty Name:	Ms. Priya Kaul		
Year	4	Sem	VII
CO Number	Course Outcome		
ILO7013.1	Explain how information systems transform Businesses.		
ILO7013.2	Identify the impact of information systems have on an organization.		
ILO7013.3	Describe IT infrastructure and its components and its current trends.		
ILO7013.4	Understand the principal tools and technologies for accessing information from databases to improve business performance and decision making.		
ILO7013.5	Explain how informed consent, legislation, industry self regulation and technology tools help protect data privacy.		
ILO7013.6	Identify the types of systems used for enterprise-wide knowledge management and how they provide value for businesses module.		

Course Name:	Operations Research		
Course Code	ILO-7015		
Faculty Name:	Revathy Sundararajan		
Year	4	Sem	VII

CO Number	Course Outcome
ILO7015.1	Students will be able to solve inequalities by changing them to equalities; have an understanding of Binomial, Poisson and Normal distributi
ILO7015.2	Students will be able to define LPP and obtain basic feasible solutions; solve simple transportation problems
ILO7015.3	Students will be able to formulate LPP and solve it graphically; use simplexmethod to solve LPP
ILO7015.4	Students will be able to solve game theory and sequencing problems
ILO7015.5	Students will be able to Solve sequencing problems – using Johnson’s algorithm and dynamic programming
ILO7015.6	Students will be able to Use simulation to solve problems

Course Name:	Network Design Lab		
Course Code	ITL701		
Faculty name	Prasad		
Year	4	Sem	VII

CO Number	Course Outcome
ITL701.1	Understand the requirements of an enterprise and outline its major design areas
ITL701.2	Identify & apply high level modules for enterprise architecture and analyze them.
ITL701.3	Identify the networking devices, prepare a bill of materials and configure the devices as per the Core, Acess and Distribution layers
ITL701.4	Design the Server Farm for an enterprise network and discuss up gradations if needed.
ITL701.5	Identify and select the technology for Remote site Connectivity, suitable IP addressing plan and routing protocol for an enterprise network.
ITL701.6	Test and monitor the enterprise network using a tool

Course Name:	Advance Security Lab		
Course Code	ITL702		
Faculty name	Aruna Khubalkar		
Year	4	Sem	VII

CO Number	Course Outcome
ITL702.1	Implement and analyze program and database vulnerabilities - Buffer overflow and SQL Injection.
ITL702.2	Analyze and evaluate different security tools to secure mobile devices, web browser, wireless network and router
ITL702.3	Explore reconnaissance, attack and forensics tools in Kali Linux

ITL702.4	Test security of system using personal firewall installation
ITL702.5	Understand AAA using RADUIS / TACACS
ITL702.6	Design Authentication system

Course Name:	Intelligent System		
Course Code	ITL703		
Faculty name	Sunantha		
Year	4	Sem	VII

CO Number	Course Outcome
ITL703.1	Design the building blocks of an Intelligent Agent using PEAS representation .
ITL703.2	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
ITL703.3	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
ITL703.4	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning.
ITL703.5	Formulate and solve problems with uncertain information using Bayesian approaches.
ITL703.6	Apply concept Natural Language processing to problems leading to understanding of cognitive computing.

Course Name:	Android Apps Development Lab		
Course Code	ITL704		
Faculty name	Vaishali		
Year	4	Sem	VII

CO Number	Course Outcome
ITL704.1	Experiment on Integrated Development Environment for Android Application Development.
ITL704.2	Design and Implement User Interfaces and Layouts of Android App.
ITL704.3	Use Intents for activity and broadcasting data in Android App.
ITL704.4	Design and Implement Database Application and Content Providers.
ITL704.5	Experiment with Camera and Location Based service.
ITL704.6	Develop Android App with Security features.

Course Name:	Project -1		
Course Code	ITM705		
Faculty name	Sunantha		
Year	4	Sem	VII

CO Number	Course Outcome
ITM705.1	Discover potential research areas in the field of IT
ITM705.2	Conduct a survey of several available literature in the preferred field of study
ITM705.3	Compare and contrast the several existing solutions for research challenges
ITM705.4	Demonstrate ability to work in team and manage the conduct of the research study
ITM705.5	Formulate and propose a plan for creating a solution for the research plan identified
ITM705.6	To report and present the findings of the study conducted in the preferred domain .

COURSE OUTCOMES**Department of IT, CAY- (Even semester, 2021-22)**

Course Name:	Engineering Mathematics-IV		
Course Code	ITC401		
Faculty name	Pallavi		
Year	2	Sem	IV
CO Number	Course Outcomes		
ITC401.1	Apply the concepts of eigen values and eigen vectors to solve engineering problems		
ITC401.3	Apply the concept of Z- transformation and its inverse in engineering problems		
ITC401.2	Illustrate the use of concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.		
ITC401.4	Apply the concept of probability distribution to engineering problems & testing hypothesis of small samples using sampling theory.		
ITC401.5	Apply the concept of Linear Programming to solve the optimization problems		
ITC401.6	Use the Non-Linear Programming techniques to solve the optimization problems		

Course Name:	Computer Network and Network Design		
Course Code	ITC402		
Faculty Name:	Nilesh G		
Year	2	Sem	IV
CO Number	Course Outcome		
ITC402.1	Describe the functionalities of each layer of the models and compare the Models.		
ITC402.2	Categorize the types of transmission media and explain data link layer concepts, design issues and protocols.		
ITC402.3	Analyze the routing protocols and assign IP address to networks.		
ITC402.4	Explain the data transportation and session management issues and related protocols used for end to end delivery of data.		
ITC402.5	List the data presentation techniques and illustrate the client/server model in application layer protocols.		
ITC402.6	Use of networking concepts of IP address, Routing, and application services to design a network for an organization		

Course Name:	Operating System		
Course Code	ITC403		
Faculty Name:	Ms. Aruna Khubalkar		
Year	2	Sem	IV

CO Number	Course Outcome
ITC403.1	Understand the basic concepts related to Operating System.
ITC403.2	Describe the process management policies and illustrate scheduling of processes by CPU.
ITC403.3	Explain and apply synchronization primitives and evaluate deadlock conditions as handled by Operating System.
ITC403.4	Describe and analyze the memory allocation and management functions of Operating System.
ITC403.5	Analyze and evaluate the services provided by Operating System for storage management.
ITC403.6	Compare the functions of various special-purpose Operating Systems.

Course Name:	Automata Theory		
Course Code	ITC404		
Faculty name	Prasad Padalkar		
Year	2	Sem	IV

CO Number	Course Outcome
ITC404.1	Students will be able to list and define various machines , grammars and language
ITC404.2	Students will be able to explain the working of various machines , grammars and language
ITC404.3	Students will be apply concept of acceptor and rejector to various machines.
ITC404.4	Students will be able to analyze various machines, grammar and languages suitability to solve problem.
ITC404.5	Students will able to be select various machines, grammar and languages suitability to solve problem.
ITC404.6	Students will be able to analyze various machines, grammar and languages suitability to solve problem.

Course Name:	Computer Organization and Architecture		
Course Code	ITC405		
Faculty Name:	Janhavi B		
Year	2	Sem	IV

CO Number	Course Outcome
ITC405.1	Demonstrate the fundamentals of Digital Logic Design
ITC405.2	Describe basic organization of computer, the architecture of 8086 microprocessor and implement assembly language programming for 8086 microprocessors.
ITC405.3	Demonstrate control unit operations and conceptualize instruction level parallelism.
ITC405.4	List and Identify integers and real numbers and perform computer arithmetic operations on integers.
ITC405.5	Categorize memory organization and explain the function of each element of a memory hierarchy.
ITC405.6	Examine different methods for computer I/O mechanism.

Course Name:	Networking lab		
Course Code	ITL401		

Faculty Name:	Nilesh		
Year	2	Sem	IV
CO Number	Course Outcome		
ITL401.1	Execute and evaluate network administration commands and demonstrate their use in different network scenarios		
ITL401.2	Demonstrate the installation and configuration of network simulator.		
ITL401.3	Demonstrate and measure different network scenarios and their performance behavior.		
ITL401.4	Implement the socket programming for client server architecture.		
ITL401.5	Analyze the traffic flow of different protocols		
ITL401.6	Design a network for an organization using a network design tool		

Course Name:	Unix Lab		
Course Code	ITL402		
Faculty Name:	Tayyabali		
Year	2	Sem	IV
CO Number	Course Outcome		
ITL402.1	Understand the architecture and functioning of Unix		
ITL402.2	Identify the Unix general purpose commands		
ITL402.3	Apply Unix commands for system administrative tasks such as file system management and user management		
ITL402.4	Execute Unix commands for system administrative tasks such as process management and memory management		
ITL402.5	Implement basic shell scripts for different applications		
ITL402.6	Implement advanced scripts using awk & perl languages and grep, sed, etc. commands for performing various tasks.		

Course Name:	Microprocessor Lab		
Course Code	ITL403		
Faculty Name:	Janhavi B.		
Year	2	Sem	IV
CO Number	Course Outcome		
ITL403.1	Demonstrate various components and peripheral of computer system		
ITL403.2	Analyze and design combinational circuits		
ITL403.3	Build a program on a microprocessor using arithmetic & logical instructions of 8086		
ITL403.4	Develop the assembly level programming using 8086 loop instruction set		
ITL403.5	Write programs based on string and procedure for 8086 microprocessor.		
ITL403.6	Design interfacing of peripheral devices with 8086 microprocessor		

Course Name:	Python Lab		
Course Code	ITL404		
Faculty Name:	Shiv Negi		
Year	2	Sem	IV

CO Number	Course Outcome
ITL404.1	Understand the structure, syntax, and semantics of the Python language.
ITL404.2	Interpret advanced data types and functions in python
ITL404.3	Illustrate the concepts of object-oriented programming as used in Python
ITL404.4	Create Python applications using modules, packages, multithreading and exception handling.
ITL404.5	Gain proficiency in writing File Handling programs ,also create GUI applications and evaluate database operations in python.
ITL404.6	Design and Develop cost-effective robust applications using the latest Python trends and technologies

Course Name:	Mini Project – 1 B for Python based automation projects		
Course Code	ITM401		
Faculty Name:	Shiv Negi		
Year	2	Sem	IV

CO Number	Course Outcome
ITM401.1	Identify problems based on societal /research needs.
ITM401.2	Apply Knowledge and skill to solve societal problems in a group.
ITM401.3	Develop interpersonal skills to work as member of a group or leader.
ITM401.4	Analyse the impact of solutions in societal and environmental context for sustainable development.
ITM401.5	Use standard norms of engineering practices including written and oral technical communication.
ITM401.6	Demonstrate project management principles during project work

Course Name:	Data Mining and Business Intelligence		
Course Code	ITC601		
Faculty name	Aruna Khubalkar		
Year	3	Sem	VI

CO Number	Course Outcome
ITC601.1	Demonstrate an understanding of the importance of data warehousing and data mining and the principles of business intelligence
ITC601.2	Organize and Prepare the data needed for data mining using preprocessing techniques
ITC601.3	Perform exploratory analysis of the data to be used for mining.

ITC601.4	Implement the appropriate data mining methods like classification, clustering or Frequent Pattern mining on large data sets.
ITC601.5	Define and apply metrics to measure the performance of various data mining algorithms.
ITC601.6	Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.

Course Name:	Web X.0		
Course Code	ITC602		
Faculty name	Vaishali K.		
Year	3	Sem	VI

CO Number	Course Outcome
ITC602.1	Understand the basic concepts related to web analytics and semantic web.
ITC602.2	Understand how TypeScript can help you eliminate bugs in your code and enable you to scale your code.
ITC602.3	Understand AngularJS framework and build dynamic, responsive single-page web applications.
ITC602.4	Apply MongoDB for frontend and backend connectivity using REST API.
ITC602.5	Apply Flask web development framework to build web applications with less code.
ITC602.6	Develop Rich Internet Application using proper choice of Framework.

Course Name:	Wireless Technology		
Course Code	ITC603		
Faculty name	Tayyabali Sayyad		
Year	3	Sem	VI

CO Number	Course Outcome
ITC603.1	Describe the basic concepts of Wireless Network and Wireless Generations
ITC603.2	Demonstrate and Evaluate the various Wide Area Wireless Technologies
ITC603.3	Analyze the prevalent IEEE standards used for implementation of WLAN and WMAN Technologies
ITC603.4	Appraise the importance of WPAN, WSN and Ad-hoc Networks
ITC603.5	Analyze various Wireless Network Security Standards
ITC603.6	Review the design considerations for deploying the Wireless Network Infrastructure

Course Name:	AI and DS – 1		
Course Code	ITC604		
Faculty name	Sunantha K.		
Year	3	Sem	VI

CO Number	Course Outcome
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ITC604.1	Develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents.
ITC604.2	Apply an appropriate problem-solving method and knowledge-representation scheme
ITC604.3	Develop an ability to analyse and formalize the problem (as a state space, graph, etc). They will be able to evaluate and select the appropriate search method.
ITC604.4	Apply problem solving concepts with data science and will be able to tackle them from a statistical perspective.
ITC604.5	Choose and apply appropriately from a wider range of exploratory and inferential methods for analysing data and will be able to evaluate and interpret the results contextually
ITC604.6	Understand and apply types of machine learning methods for real world problems.

Course Name:	Digital Forensics		
Course Code	ITDLO-II-6023		
Faculty name	Janhavi Baikerikar		
Year	3	Sem	VI

CO Number	Course Outcome
ITDLO-11-6023.1	Define the concept of ethical hacking and its associated applications in Information Communication Technology (ICT) world.
ITDLO-11-6023.2	Underline the need of digital forensic and role of digital evidences
ITDLO-11-6023.3	Explain the methodology of incident response and various security issues in ICT world, and identify digital forensic tools for data collection
ITDLO-11-6023.4	Recognize the importance of digital forensic duplication and various tools for analysis to achieve adequate perspectives of digital forensic investigation in various applications /devices like Windows/Unix system.
ITDLO-11-6023.5	Apply the knowledge of IDS to secure network and performing router and network analysis
ITDLO-11-6023.6	List the method to generate legal evidence and supporting investigation reports and will also be able to use various digital forensic tools

Course Name:	Business Intelligence Lab		
Course Code	ITL601		
Faculty name	Aruna Khubalkar		
Year	3	Sem	VI

CO Number	Course Outcome
ITL601.1	Identify sources of Data for mining and perform data exploration
ITL601.2	Organize and prepare the data needed for data mining algorithms in terms of attributes and class inputs, training, validating, and testing files.
ITL601.3	Implement the appropriate data mining methods like classification, clustering or association mining on large data sets using open source tools like WEKA
ITL601.4	Implement various data mining algorithms from scratch using languages like Python/ Java etc.

ITL601.5	Evaluate and compare performance of some available BI packages
ITL601.6	Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.

Course Name:	Web Lab		
Course Code	ITL602		
Faculty name	Vaishali K.		
Year	3	Sem	VI
CO Number	Course Outcome		
ITL602.1	Understand open source tools for web analytics and semantic web apps development & deployment.		
ITL602.2	Understand the basic concepts of TypeScript for designing web applications.		
ITL602.3	Implement Single Page Applications using AngularJS Framework.		
ITL602.4	Develop Rich Internet Applications using AJAX.		
ITL602.5	Create REST Web services using MongoDB.		
ITL602.6	Design web applications using Flask.		

Course Name:	Sensor Lab		
Course Code	ITL603		
Faculty name	Vaishali K.		
Year	3	Sem	VI
CO Number	Course Outcome		
ITL603.1	Differentiate between various wireless communication technologies based on the range of communication, cost, propagation delay, power and throughput.		
ITL603.2	Conduct a literature survey of sensors used in real world wireless applications.		
ITL603.3	Demonstrate the simulation of WSN using the Network Simulators (Contiki/Tinker CAD/ Cup carbon etc)		
ITL603.4	Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing		
ITL603.5	Report and present the findings of the study conducted in the preferred domain		
ITL603.6	Demonstrate the ability to work in teams and manage the conduct of the research study.		

Course Name:	MAD & PWA Lab		
Course Code	ITL604		
Faculty name	Nilesh G.		
Year	3	Sem	VI
CO Number	Course Outcome		
ITL604.1	Understand cross platform mobile application development using Flutter framework		
ITL604.2	Design and Develop interactive Flutter App by using widgets, layouts, gestures and animation		

ITL604.3	Analyze and Build production ready Flutter App by incorporating backend services and deploying on Android / iOS
ITL604.4	Understand various PWA frameworks and their requirements
ITL604.5	Design and Develop a responsive User Interface by applying PWA Design techniques
ITL604.6	Develop and Analyse PWA Features and deploy it over app hosting solutions

Course Name:	DS using Python Skill based Lab		
Course Code	ITL605		
Faculty name	Sunantha K.		
Year	3	Sem	VI

CO Number	Course Outcome
ITL604.1	Understand the concept of Data science process and associated terminologies to solve real-world problems.
ITL604.2	Analyze the data using different statistical techniques and visualize the outcome using different types of plots
ITL604.3	Analyze and apply the supervised machine learning techniques like Classification, Regression or Support Vector Machine on data for building the models of data and solve the problems.
ITL604.4	Apply the different unsupervised machine learning algorithms like Clustering, Decision Trees, Random Forests or Association to solve the problems
ITL604.5	Design and Build an application that performs exploratory data analysis using Apache Spark.
ITL604.6	Design and develop a data science application that can have data acquisition, processing, visualization and statistical analysis methods with supported machine learning technique to solve the real-world problem

Course Name:	Mini Project – 2 B Based on ML		
Course Code	ITM601		
Faculty name	Sunantha K.		
Year	3	Sem	VI

CO Number	Course Outcome
ITM605.1	Identify problems based on societal /research needs.
ITM605.2	Apply Knowledge and skill to solve societal problems in a group.
ITM605.3	Develop interpersonal skills to work as member of a group or leader.
ITM605.4	Draw the proper inferences from available results through theoretical/ experimental/simulations
ITM605.5	Analyse the impact of solutions in societal and environmental context for sustainable development
ITM605.6	Use standard norms of engineering practices
ITM605.7	Excel in written and oral communication.
ITM605.8	Demonstrate capabilities of self-learning in a group, which leads to life long learning
ITM605.9	Demonstrate project management principles during project work.

Course Name:	Big Data Analytics		
Course Code	ITC801		
Faculty name	Sunantha K.		
Year	4	Sem	VIII

CO Number	Course Outcome
ITC801.1	Explain the motivation for big data systems and identify the main sources of Big Data in the real world
ITC801.2	Demonstrate an ability to use frameworks like Hadoop, NoSQL to efficiently store retrieve and process Big Data for Analytics.
ITC801.3	Implement several Data Intensive tasks using the Map Reduce Paradigm.
ITC801.4	Apply several newer algorithms for Clustering Classifying and finding associations in Big Data
ITC801.5	Design algorithms to analyze Big data like streams, Web Graphs and Social Media data
ITC801.6	Design and implement successful Recommendation engines for enterprises

Course Name:	Internet of Everything		
Course Code	ITC802		
Faculty name	Prasad Padalkar		
Year	4	Sem	VIII

CO Number	Course Outcome
ITC802.1	Students will apply the concepts of the Internet of Things
ITC802.2	Identify the different technologies used in Internet of Things.
ITC802.3	Apply IoT to different applications in various domains
ITC802.4	Analyze and evaluate protocols used in IoT.
ITC802.5	Design and develop smart city-based applications using IoT.
ITC802.6	Analyze and evaluate the data received through sensors in IoT.

Course Name:	User Interaction Design		
Course Code	ITDLO8041		
Faculty name	Nilesh G.		
Year	4	Sem	VIII

CO Number	Course Outcome
ITDLO8041.1	Students will be able to identify and criticize bad features of interface designs.
ITDLO8041.2	Students will be able to predict good features of interface designs.
ITDLO8041.3	Students will be able to illustrate and analyze user needs and formulate user design specifications.
ITDLO8041.4	Students will be able to interpret and evaluate the data collected during the process.
ITDLO8041.5	Students will be able to evaluate designs based on theoretical frameworks and methodological approaches.

ITDLO8041.6	Students will be able to produce/show better techniques to improve the user interaction design Interfaces.
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Course Name:	Big Data Lab		
Course Code	ITL801		
Faculty name	Aruna Khubalkar		
Year	4	Sem	VIII
CO Number	Course Outcome		
ITC801.1	Demonstrate capability to use Big Data Frameworks like Hadoop		
ITC801.2	Program applications using tools like Hive, pig, , NO SQL and MongoDB for Big data Applicaiions		
ITC801.3	Construct scalable algorithms for large Datasets using Map Reduce techniques		
ITC801.4	Implement algorithms for Clustering, Classifying and finding associations in Big Data		
ITC801.5	Design and implement algorithms to analyze Big data like streams, Web Graphs		
ITC801.6	Apply the knowledge of Big Data gained to fully develop a BDA applications for real life		

Course Name:	Internet of Everything Lab		
Course Code	ITL802		
Faculty name	Anagha Shastri		
Year	4	Sem	VIII
CO Number	Course Outcome		
ITL802.1	Identify the requirements for the real world problems.		
ITL802.2	Conduct a survey of several available literatures in the preferred field of study.		
ITL802.3	Study and enhance software/ hardware skills related to IoT and Cloud technologies		
ITL802.4	Demonstrate and build the project successfully by hardware/sensor requirements, coding,emulating and testing.		
ITL802.5	To report and present the findings of the study conducted in the preferred domain		
ITL802.6	Demonstrate an ability to work in teams and manage the conduct of the research study.		

Course Name:	DevOps Lab		
Course Code	ITL803		
Faculty name	Tayyabali Sayyad		
Year	4	Sem	VIII
CO Number	Course Outcome		
ITL803.1	Remember the importance of DevOps tools used in software development life cycle		
ITL803.2	Understand the importance of Jenkins,which is used to build & test software Applications & Continuous integration in Devops Environment		
ITL803.3	Examine the different version control strategy		

ITL803.4	Analyze & illustrate the Containerization of OS images and deployment of applications over Dockers
ITL803.5	Summarize the importance of Software configuration Management in DevOps
ITL803.6	Synthesize the provisioning using Chef /Puppet / Ansible or Saltstack

Course Name:	R Programming Lab		
Course Code	ITL804		
Faculty name	Prasad Padalkar		
Year	4	Sem	VIII

CO Number	Course Outcome
ITL804.1	Install and use R for simple programming tasks.
ITL804.2	Extend the functionality of R by using add-on packages
ITL804.3	Extract data from files and other sources and perform various data manipulation tasks on them.
ITL804.4	Code statistical functions in R.
ITL804.5	Use R Graphics and Tables to visualize results of various statistical operations on data .
ITL804.6	Apply the knowledge of R gained to data Analytics for real life applications.

Course Name:	Project-II		
Course Code	ITM805		
Faculty name	Sunantha K		
Year	4	Sem	VIII

CO Number	Course Outcome
ITM805.1	Discover Potential Research Areas in the field of IT
ITM805.2	Conduct survey of several available literature in the preferred field of study
ITM805.3	To formulate and propose a plan for creating a solution of the research plan identified
ITM805.4	Compare & contrast the several Existing solutions for research challenge
ITM805.5	To report and present the findings of the study conducted in the preferred domain
ITM805.6	Demonstrate an ability to work in team and manage the conduct of the research study

DON BOSCO INSTITUTE OF TECHNOLOGY, KURLA, MUMBAI

CRITERIA 3.1.2	CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)
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Department of IT , CAY- (Odd semester, 2021-22)

Course Name:	Engineering Mathematics-III		
Course Code	ITC301		
Faculty Name:	Pallavi		
Year	2	Sem	III

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC301.1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ITC301.2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ITC301.3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ITC301.4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ITC301.5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ITC301.6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Course Name:	Data Structures & Analysis		
Course Code	ITC302		
Faculty Name:	Nilesh Ghavate		
Year	2	Sem	III

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC 302.1	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITC 302.2	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITC 302.3	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITC 302.4	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITC 302.5	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITC 302.6	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0

Course Name:	Database Management System		
Course Code	ITC303		
Faculty Name:	Shiv Negi		

Year	2	Sem	III													
CO-PO-PSO MAPPING																
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
ITC303.1	2	2	1	0	0	0	0	0	0	0	0	0	1	0	0	
ITC303.2	2	2	1	0	1	0	0	0	0	0	0	0	1	0	0	
ITC303.3	2	2	1	0	1	0	0	0	0	0	0	0	1	0	0	
ITC303.4	2	2	0	0	1	0	0	0	0	0	0	0	1	0	0	
ITC303.5	2	2	0	0	1	0	0	0	0	0	0	0	1	0	0	
ITC303.6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	

Course Name:	Principle of Communication															
Course Code	ITC304															
Faculty Name:	Janhavi Baikerikar															
Year	2	Sem	III													
CO-PO-PSO MAPPING																
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
ITC304.1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
ITC304.2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
ITC304.3	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
ITC304.4	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
ITC304.5	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
ITC304.6	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	

Course Name:	Paradigms and Computer Programming Fundamentals															
Course Code	ITC305															
Faculty Name:	Anagha Shastri															
Year	2	Sem	III													
CO-PO-PSO MAPPING																
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
ITC305.1	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	
ITC305.2	2	2	0	0	0	0	0	0	0	0	0	0	2	2	0	
ITC305.3	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	
ITC305.4	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	
ITC305.5	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	
ITC305.6	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	

Course Name:	Data Structure Lab		
Course Code	ITL301		
Faculty Name:	Nilesh Ghavate		
Year	2	Sem	III

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL301.1	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITL301.2	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITL301.3	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITL301.4	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITL301.5	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0
ITL301.6	2	2	0	1	0	0	0	0	0	0	0	2	1	0	0

Course Name:	SQL Lab		
Course Code	ITL302		
Faculty Name:	Shiv Negi		
Year	2	Sem	III

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL302.1	2	2	1	0	1	0	0	0	0	0	0	0	1	0	0
ITL302.2	2	2	1	0	1	0	0	0	0	0	0	0	1	0	0
ITL302.3	2	2	1	0	2	0	0	0	0	0	0	0	1	0	0
ITL302.4	2	2	1	0	2	0	0	0	0	0	0	0	1	0	0
ITL302.5	2	2	0	0	1	0	0	0	0	0	0	0	1	0	0
ITL302.6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Course Name:	Computer programming Paradigms Lab		
Course Code	ITL303		
Faculty Name:	Anagha Shastri		
Year	2	Sem	III

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL303.1	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL303.2	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0

ITL303.3	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL303.4	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL303.5	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL303.6	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0

Course Name:	Java Lab (SBL)		
Course Code	ITL304		
Faculty Name:	Tayyabali Sayyad		
Year	2	Sem	III

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL304.1	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL304.2	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL304.3	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL304.4	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL304.5	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0

Course Name:	Internet Programming		
Course Code	ITC501		
Faculty Name:	Vaishali K.		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC501.1	2	2	0	2	2	2	0	0	0	0	0	0	1	1	1
ITC501.2	2	2	0	2	2	2	0	0	0	0	0	0	1	1	1
ITC501.3	2	2	0	2	2	2	0	0	0	0	0	0	1	1	1
ITC501.4	2	2	0	2	2	2	0	0	0	0	0	0	2	1	1
ITC501.5	2	2	0	2	2	2	0	0	0	0	0	0	2	1	1
ITC501.6	2	2	0	2	2	2	0	0	0	0	0	0	2	1	1

Course Name:	Computer Network Security		
Course Code	ITC502		
Faculty Name:	Aruna Khubalkar		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC502.1	1	1											1	1	
ITC502.2	2	1	1	1									1	1	1
ITC502.3	1	1				1						1	1	1	
ITC502.4	1	1											1	1	1
ITC502.5	1	1	1	1		1							2	1	1
ITC502.6	1	1		1		1						1	1	1	

Course Name:	Entrepreneurship and E-business		
Course Code	ITC503		
Faculty Name:	Sunantha Krishnan		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC503.1	1	2	2			1	1						1	1	2
ITC503.2	1	2	2			1	1						1	1	2
ITC503.3	1	2	2			1	1						1	1	2
ITC503.4	1		2			1	1						1	1	2
ITC503.5	1		2			1	1						1	1	2
ITC503.6	1		2			1	1						1	1	2

Course Name:	Software Engineering		
Course Code	ITC504		
Faculty Name:	Janhavi Baikerikar		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC504.1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITC504.2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITC504.3	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITC504.4	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITC504.5	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITC504.6	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Course Name:	Microcontroller and Embedded Programming		
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Course Code	ITDO5011		
Faculty Name:	Janhavi Baikerikar		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITDO-5011.1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITDO-5011.2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITDO-5011.3	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITDO-5011.4	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITDO-5011.5	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITDO-5011.6	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Course Name:	Internet Programming Lab		
Course Code	ITL501		
Faculty Name:	Vaishali K.		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL501.1	2	1	0	2	2	2	0	0	0	0	0	2	2	1	1
ITL501.2	2	1	0	2	2	2	0	0	0	0	0	2	2	1	1
ITL501.3	2	1	0	2	2	2	0	0	0	0	0	2	2	1	1
ITL501.4	2	1	0	2	2	2	0	0	0	0	0	2	2	1	1
ITL501.5	2	1	0	2	2	2	0	0	0	0	0	2	2	1	1
ITL501.6	2	1	0	2	2	2	0	0	0	0	0	2	2	1	1

Course Name:	Security Lab		
Course Code	ITL502		
Faculty Name:	Aruna Khubalkar		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL502.1	2	1	1	1									2	1	1
ITL502.2	1	1	1	1									2	1	
ITL502.3	1	1		1	1								1	1	
ITL502.4	1	1		1	1							1	1	1	

ITL502.5	2	1	1	1	1							1	1	1	
ITL502.6	1	1		1	1									1	

Course Name:	DevOps Lab		
Course Code	ITL503		
Faculty Name:	Sunantha Krishnan		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL503.1	2	2	2	1	3		1				1		2	2	2
ITL503.2	2	2	2	1	3		1				1		2	2	2
ITL503.3	2	2	2	1	3		1				1		2	2	2
ITL503.4	2	2	2	1	3		1				1		2	2	2
ITL503.5	2	2	2	1	3		1				1		2	2	2
ITL503.6	2	2	2	1	3		1				1		2	2	2

Course Name:	Advance Devops Lab		
Course Code	ITL504		
Faculty Name:	Mr. Tayyabali Sayyad		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL 504.1	2	2	2	2	3		1				1		2	2	2
ITL 504.2	2	2	2	2	3		1				1		2	2	2
ITL 504.3	2	2	2	2	3		1				1		2	2	2
ITL 504.4	2	2	2	2	3		1				1		2	2	2
ITL 504.5	2	2	2	2	3		1				1		2	2	2
ITL 504.6	2	2	2	2	3		1				1		2	2	2

Course Name:	Professional Communication and Ethics-II (PCE-II)		
Course Code	ITL505		
Faculty Name:	Ms. Devyani Balasra		
Year	3	Sem	V

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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ITL 505.1	0	0	0	0	0	0	0	1	0	1	0	1		1	1
ITL 505.2	0	0	0	0	0	0	0	0	0	1	0	1			
ITL 505.3	0	0	0	0	0	0	0	0	1	2	0	5			1
ITL 505.4	0	0	0	0	0	1	1	0	3	3	0	2			1
ITL505.5	0	0	0	0	0	1	1	0	1	2	0	2		2	2
ITL 505.6	0	0	0	0	0	1	1	1	1	1	0	1			
Average	0	0	0	0	0	1	1	1	1.5	1.67		1.5		1.5	1.25

Course Name:	Mini Project -2A Web Based Business Model		
Course Code	ITLM01		
Faculty Name:	Vaishali K.		
Year	3	Sem	VI

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITM505.1	2	2	0	2	2	2	2	1	2	2	2	2	2	2	2
ITM505.2	2	2	0	2	2	2	2	1	2	2	2	2	2	2	2
ITM505.3	2	2	0	2	2	2	2	1	2	2	2	2	2	2	2
ITM505.4	2	2	0	2	2	2	2	1	2	2	2	2	2	2	2
ITM505.5	2	2	0	2	2	2	2	1	2	2	2	2	2	2	2
ITM505.6	2	2	0	2	2	2	2	1	2	2	2	2	2	2	2

Course Name:	Enterprise Network Design		
Course Code	ITC701		
Faculty Name:	Prasad Padalkar		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC701.1	2	2	2	1									2	1	
ITC701.2	2	2	2	1		1							2	1	
ITC701.3	2	2	2			1	1						2	1	
ITC701.4	2	2	2			1							2	1	
ITC701.5	2	2	2	1		1							2	1	
ITC701.6	2	2	1	1									2	1	

Course Name:	Infrastructure Security		
Course Code	ITC702		

Faculty Name:	Aruna Khubalkar		
Year	4	Sem	VII

CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC702.1	1	1											1		
ITC702.2	2	1	1	1								1	2	1	1
ITC702.3	1	1										1	1	1	
ITC702.4	2	1	1	1								1	2	1	1
ITC702.5	1	1										1	1		
ITC702.6	1	1		1								1	1		

Course Name:	Artificial Intelligence		
Course Code	ITC703		
Faculty Name:	Sunantha K		
Year	4	Sem	VII

CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC703.1	3	3	3	2									2	2	0
ITC703.2	3	3	3	2	2	2							2	2	1
ITC703.3	3	3	3	2	2	2	1		1	1	1	1	2	2	1
ITC703.4				2	2	1	1	1	1	1	1	1	0	2	1
ITC703.5	3	3	3	2	2	2	1		1	1	1	1	2	2	1
ITC703.6	1	1	1									1	1	0	0

Course Name:	Soft Computing		
Course Code	ITDLO7035		
Faculty Name:	Prasad Padalkar		
Year	4	Sem	VII

CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITDLO7035-1	3	2	2	2	2		1	1	1	1		1	2	1	1
ITDLO7035-2	2	2	2	2	1								2	1	1
ITDLO7035-3	2	2	2	2	1								2	1	1
ITDLO7035-4	2	2	2	2	1								2	1	1
ITDLO7035-5	2	2	2	2	1								2	1	1
ITDLO7035-6	2	2	2	2	1								2	1	1

Course Name:	Mobile Application Development		
Course Code	ITDLO7032		
Faculty Name:	Nilesh G		
Year	1	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITDLO7032.1	1	0	0	1	1	0	0	1	1	1	0	0	1	1	0
ITDLO7032.2	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITDLO7032.3	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITDLO7032.4	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITDLO7032.5	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITDLO7032.6	2	2	2	2	2	0	0	2	2	0	2	0	2	2	2

Course Name:	Cyber Security and Laws		
Course Code	ITC7016		
Faculty name	Dr. Phiroj		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC7016.1	1	1	1										1	1	
ITC7016.2	1	2	1			1							1	1	
ITC7016.3	1	1	1			1	1						1	1	1
ITC7016.4	2	2	1			1							1	1	
ITC7016.5	2	2	1	1		1							1	1	
ITC7016.6	2	2	1	1									1	1	

Course Name:	Management Information System		
Course Code	ILO7013		
Faculty name	Ms. Priya Kaul		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ILO7013.1									2	3	2			2	
ILO7013.2							2	2						2	

ILO7013.3				2	2								2	
ILO7013.4			2										3	2
ILO7013.5								3					2	
ILO7013.6				2										2

Course Name:	Operations Research		
Course Code	ILO 7015		
Faculty name	Dr. Revathy Sundararajan		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ILO7015.1	1	1													
ILO7015.2	2	1													
ILO7015.3	2	2													
ILO7015.4	2	2	1	1											
ILO7015.5	2	2		1											
ILO7015.6	2	2		1	1										

Course Name:	Network Design Lab		
Course Code	ITL701		
Faculty name	Prasad Padalkar		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL701.1	2	2													
ITL701.2	2	2													
ITL701.3	2	2													
ITL701.4	2	2	2	1									2	2	2
ITL701.5	2	2		1											
ITL701.6	2	2	2										1	1	1

Course Name:	Advanced Security Lab		
Course Code	ITL702		
Faculty name	Aruna Khubalkar		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL702.1	1	1		1					1				1		1
ITL702.2	1	1		1	1				1				1	1	1
ITL702.3	1	1			2				1			1	1	1	1
ITL702.4	1	1	1										1	1	1
ITL702.5	1	1			1								2	1	2
ITL702.6	1	1	1	1					1				1	1	1

Course Name:	Intelligence System Lab		
Course Code	ITL703		
Faculty name	Sunantha		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC703.1	3	3	3	2									2	2	0
ITC703.2	3	3	3	2	2	2							2	2	1
ITC703.3	3	3	3	2	2	2	1		1	1	1	1	2	2	1
ITC703.4				2	2	1	1	1	1	1	1	1	0	2	1
ITC703.5	3	3	3	2	2	2	1		1	1	1	1	2	2	1
ITC703.6	1	1	1									1	1	0	0
	2	2	2	2	1	1	1	0	1	1	1	1	2	2	1

Course Name:	Android Apps Development Lab		
Course Code	ITL704		
Faculty name	Nilesh		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL704.1	1	0	0	1	1	0	0	1	1	1	0	0	1	1	0
ITL704.2	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL704.3	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL704.4	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL704.5	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL704.6	2	2	2	2	2	0	0	2	2	0	2	0	2	2	2

Course Name:	Project-I		
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Course Code	ITM705		
Faculty name	Sunantha K		
Year	4	Sem	VII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITM705.1	1	3	3	2	1	1	1	1				1	3	1	3
ITM705.2	1	1	3	2	1	1	1	1				1	1	2	1
ITM705.3	2	2	3	2	1	1	1	1				1	1	2	1
ITM705.4	1	1	1	1	1	3	3	3				1	1	1	1
ITM705.5	2	1	2	3	1	1	1	1	2	1	1	1	3	3	3
ITM705.6	1	1	2	2	2	2	3	2	1	2	1	2	1	1	1

Department of IT, CAY- (Even semester, 2021-22)

Course Name:	Applied Mathematics – IV		
Course Code	ITC401		
Faculty name	Pallavi Mahadik		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC401.1	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--
ITC401.2	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--
ITC401.3	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--
ITC401.4	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--
ITC401.5	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--
ITC401.6	1	1	--	--	--	--	--	--	1	--	--	--	--	--	--

Course Name:	Computer Network and Network Design		
Course Code	ITC402		
Faculty Name:	Nilesh G.		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC402.1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1
ITC402.2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
ITC402.3	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0
ITC402.4	3	3	3	0	0	0	0	0	0	0	0	0	3	3	0
ITC402.5	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0
ITC402.6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Course Name:	Operating system		
Course Code	ITC403		
Faculty Name:	Aruna Khubalkar		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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ITC403.1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ITC403.2	2	2	2	0	0	0	0	0	0	0	0	0	2	2	0
ITC403.3	2	2	2	0	0	0	0	0	0	0	0	0	2	2	0
ITC403.4	2	2	2	0	0	0	0	0	0	0	0	0	2	2	0
ITC403.5	2	2	2	0	0	0	0	0	0	0	0	0	2	2	0
ITC403.6	2	2	2	2	0	0	0	0	0	0	0	0	2	2	1

Course Name:	Automata Theory		
Course Code	ITC404		
Faculty name	Prasad Padalkar		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC404.1	3	3	3												
ITC404.2	3	3	3												
ITC404.3	3	3	3												
ITC404.4	2	2	2												
ITC404.5	1	1	1												
ITC404.6	1	1	1												

Course Name:	Computer Organization and Architecture		
Course Code	ITC405		
Faculty Name:	Janhavi B.		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC405.1	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0
ITC405.2	3	3	3	0	3	0	0	0	0	3	0	0	3	0	0
ITC405.3	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0
ITC405.4	3	3	3	0	0	0	0	0	0	0	0	0	3	0	0
ITC405.5	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0
SEITC404.6	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0

Course Name:	Networking lab		
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Course Code	ITL401		
Faculty Name:	Nilesh G.		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL401.1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1
ITL401.2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
ITL401.3	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0
ITL401.4	3	3	3	0	0	0	0	0	0	0	0	0	3	3	0
ITL401.5	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0
ITL401.6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Course Name:	Unix Lab		
Course Code	ITL402		
Faculty Name:	Tayyabali		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL402.1	3	0	0	0	3	0	0	0	0	0	0	0	3	3	3
ITL402.2	3	0	0	0	3	0	0	0	0	0	0	0	3	3	3
ITL402.3	3	0	0	0	3	0	0	0	0	0	0	0	3	3	3
ITL402.4	3	0	0	0	3	0	0	0	0	0	0	0	3	3	3
ITL402.5	3	0	0	0	3	0	0	0	0	0	0	0	3	3	3
ITL402.6	3	0	0	0	3	0	0	0	0	0	0	0	3	3	3

Course Name:	Microprocessor Lab		
Course Code	ITL403		
Faculty Name:	Janhavi B.		
Year	2	Sem	IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL403.1	2	2	2	0	2	0	0	0	0	2	0	0	2	0	2
ITL403.2	2	2	2	0	2	0	0	0	0	2	0	0	2	0	2
ITL403.3	2	2	2	0	2	0	0	0	0	2	0	0	2	0	2
ITL403.4	2	2	2	0	2	0	0	0	0	2	0	0	2	0	2
ITL403.5	2	2	2	0	2	0	0	0	0	2	0	0	2	0	2

ITL403.6	2	2	2	0	2	0	0	0	0	2	0	0	2	0	2
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Course Name:	Python Lab	
Course Code	ITL404	
Faculty Name:	Shiv Negi	
Year	2	Sem IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL404.1	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1
ITL404.2	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1
ITL404.3	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1
ITL404.4	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1
ITL404.5	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1
ITL404.6	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1

Course Name:	Mini Project – 1 B for Python based automation projects	
Course Code	ITM401	
Faculty Name:	Shiv Negi	
Year	2	Sem IV

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL404.1	2	2	0	2	0	0	0	0	0	0	0	0	1	1	1
ITL404.2	2	2	2	1	1	0	0	0	0	0	0	0	1	1	1
ITL404.3	2	2	2	1	1	0	0	0	2	0	0	0	1	1	1
ITL404.4	2	2	2	1	1	0	2	0	0	0	0	0	0	0	0
ITL404.5	2	2	2	1	1	0	0	1	0	1	0	0	1	1	1
ITL404.6	2	2	2	1	1	0	0	0	0	0	2	0	0	0	0

Course Name:	Data Mining & Business Intelligence	
Course Code	ITC601	
Faculty Name:	Aruna Khubalkar	
Year	3	Sem VI

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC601.1	2	2											2	1	2
ITC601.2	2	1	1	2	1								1	1	1
ITC601.3	2	1	1	1	1								1	1	1
ITC601.4	2	2	2	2	1								2	1	2
ITC601.5	2	2	2	2	1								1		1
ITC601.6	2	2	2	2	1							1	2	2	2

Course Name:	Web X.0		
Course Code	ITC602		
Faculty name	Vaishali K.		
Year	3	Sem	VI

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC602.1	2	2		1	1						2	1	2	2	2
ITC602.2	2	2		1	1						2	1	2	2	2
ITC602.3	2	2		1	1						2	1	2	2	2
ITC602.4	2	2		1	1						2	1	2	2	2
ITC602.5	2	2		1	1						2	1	2	2	2
ITC602.6	2	2		1	1						2	1	2	2	2

Course Name:	Wireless Technology		
Course Code	ITC603		
Faculty name	Tayyabali Sayyad		
Year	3	Sem	VI

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC603.1	3	2	2	0	3	0	0	0	0	0	0	2	2	2	2
ITC603.2	2	2	2	0	3	0	0	0	0	0	0	2	2	2	2
ITC603.3	2	2	2	0	3	0	0	0	0	0	0	2	2	2	2
ITC603.4	2	2	2	0	3	0	0	0	0	0	0	2	2	2	2
ITC603.5	2	2	2	0	3	0	0	0	0	0	0	2	2	2	2
ITC603.6	2	2	2	0	3	0	0	0	0	0	0	2	2	2	2
	2	2	2	0	3	0	0	0	0	0	0	2	1.5	2	1

Course Name:	AI and DS – 1														
Course Code	ITC604														
Faculty name	Sunantha K.														
Year	3	Sem	VI												
CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC604.1	3	3	3	3											
ITC604.2	3	3	3	1									2	2	1
ITC604.3	3	3	3	3									2	2	1
ITC604.4	3	3	3										2	2	1
ITC604.5	2	2	3										2	2	
ITC604.6	1	1	1										2	2	

Course Name:	Digital Forensiics														
Course Code	ITDLO-II-6023														
Faculty Name:	Janhavi Baikerikar														
Year	T.E	Sem	VI												
CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITDLO-11-6023.1	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3
ITDLO-11-6023.2	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3
ITDLO-11-6023.3	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3
ITDLO-11-6023.4	3	3	0	0	0	0	0	0	0	0	0	0	3	0	3
ITDLO-11-6023.5	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3
ITDLO-11-6023.6	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3

Course Name:	Business Intelligence Lab														
Course Code	ITL601														
Faculty Name:	Aruna Khubalkar														
Year	3	Sem	VI												
CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL601.1	2	2		1	1								2	1	2
ITL601.2	2	2	1	2	1								1	1	1

ITL601.3	2	2	1	1	2								2	1	2
ITL601.4	1	1	2	2	1								2		2
ITL601.5	2	2	1	2	2								1	1	1
ITL601.6	2	2	2	2	2				2	2	1	1	2	2	2

Course Name:	Web Lab		
Course Code	ITL602		
Faculty Name:	Vaishali K.		
Year	1	Sem	

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL602.1	2	2	0	1	2	0	0	0	0	0	0	2	2	1	1
ITL602.2	2	2	0	1	2	0	0	0	0	0	0	2	2	1	1
ITL602.3	2	2	0	1	2	0	0	0	0	0	0	2	2	1	1
ITL602.4	2	2	0	1	2	0	0	0	0	0	0	2	2	1	1
ITL602.5	2	2	0	1	2	0	0	0	0	0	0	2	2	1	1
ITL602.6	2	2	0	1	2	0	0	0	0	0	0	2	2	1	1

Course Name:	Sensor Lab		
Course Code	ITL603		
Faculty Name:	Vaishali K.		
Year	3	Sem	VI

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL603.1	2	2	0	2	1	1	0	0	0	0	0	2	2	1	1
ITL603.2	2	2	0	2	1	1	0	0	0	0	0	2	2	1	1
ITL603.3	2	2	0	2	1	1	0	0	0	0	0	2	2	1	1
ITL603.4	2	2	0	2	1	1	0	0	0	0	0	2	2	1	1
ITL603.5	2	2	0	2	1	1	0	0	0	0	0	2	2	1	1
ITL603.6	2	2	0	2	1	1	0	0	0	0	0	2	2	1	1

Course Name:	MAD & PWA Lab		
Course Code	ITCL604		
Faculty name	Nilesh G.		
Year	3	Sem	

CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL604.1	1	0	0	1	1	0	0	1	1	1	0	0	1	1	0
ITL604.2	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL604.3	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL604.4	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL604.5	3	3	3	0	3	3	0	0	3	0	0	0	3	3	0
ITL604.6	2	2	2	2	2	0	0	2	2	0	2	0	2	2	2

Course Name:	DS using Python Skill based Lab		
Course Code	ITL605		
Faculty name	Sunantha K.		
Year	3	Sem	VI

CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITM605.1	3										1	1	1	1	
ITM605.2	3	3	3	3							1	1	1	1	
ITM605.3	3	3	3								1	1	1	1	
ITM605.4	3	3	3	3	2	1	2	1			1	1	1	1	
ITM605.5	3	3	3	3	2	1	2	1			1	1	2	2	1
ITM605.6	3	3	3	3	2	1	2	1			1	1	2	2	1

Course Name:	Mini Project – 2 B Based on ML		
Course Code	ITM601		
Faculty name	Sunantha K.		
Year	3	Sem	VI

CO-PO-PSO MAPPING															
CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITM605.1	3	3	3								1	1	2	2	1
ITM605.2	3	3	3	3	3	3	2	1			1	1	2	2	1
ITM605.3	3	3	3	3	3	3	2	1			1	1	2	2	1
ITM605.4	3	3	3	3	3	3	2	1			1	1	2	2	1
ITM605.5	3	3	3	3	3	3	2	1			1	1	2	2	1
ITM605.6	3	3	3	3	3	3	2	1			1	1	2	2	1

ITM605.7	3	3	3	3	3	3	2	1			1	1	2	2	1
ITM605.8	3	3	3	3	3	3	2	1			1	1	2	2	1
ITM605.9	3	3	3	3	3	3	2	1			1	1	2	2	1

Course Name:	Big Data Analytics		
Course Code	ITC801		
Faculty name	Sunantha K.		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC801.1	3	3	3	3	3	3	2	1			1	1	2	2	1
ITC801.2	3	3	3	3	3	3	2	1			1	1	2	2	1
ITC801.3	3	3	3	3	3	3	2	1			1	1	2	2	1
ITC801.4	3	3	3	3	3	3	2	1			1	1	2	2	1
ITC801.5	3	3	3	3	3	3	2	1			1	1	2	2	1
ITC801.6	3	3	3	3	3	3	2	1			1	1	2	2	1
	3	3	3	3	3	3	2	1	0	0	1	1	2	2	1

Course Name:	Internet of Everything		
Course Code	ITC802		
Faculty name	Prasad		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITC802.1	2	2	2	1									2	2	1
ITC802.2	2	2	2	1									2	2	1
ITC802.3	2	2	2	1									2	2	1
ITC802.4	2	2	2	1									2	2	1
ITC802.5		2	2	1									2	2	1
ITC802.6			2	1									2	2	1

Course Name:	User Interaction Design		
Course Code	ITDLO8041		
Faculty name	Nilesh G.		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITDLO8041.1	2	2	2	2	0	2	0	2	2	0	2	2	2	2	0
ITDLO8041.2	3	3	3	3	3	3	0	0	3	0	3	0	3	3	0
ITDLO8041.3	2	2	2	2	0	2	0	0	2	0	2	0	2	2	2
ITDLO8041.4	3	3	3	3	0	3	0	0	3	0	3	0	3	3	0
ITDLO8041.5	3	3	3	3	0	3	0	0	3	0	3	0	3	3	3
ITDLO8041.6	3	3	3	3	3	3	0	0	3	3	3	0	2	2	2

Course Name:	Big Data Lab		
Course Code	ITL801		
Faculty name	Aruna Khubalkar		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL801.1	3	3	1	3	1	1	1	1	1	2		2			
ITL801.2	3	3	1			1	1	1	1	2	1	2	2		
ITL801.3	3	3	1	3	1	1	1	1	1	2	1	2		2	2
ITL801.4	3	3	1	3	1	1	1	1	1	2	1	2	2		
ITL801.5	3		1	3	1	1	1	1	1	2	1	2		2	2
ITL801.6	3		1	1	1	1	1	1			1	2		2	2

Course Name:	Internet of Everything Lab		
Course Code	ITL802		
Faculty name	Anagha Shastri		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL802.1	2	2	2	1									2	2	1
ITL802.2	2	2	2	1									2	2	1
ITL802.3	2	2	2	1									2	2	1
ITL802.4	2	2	2	1									2	2	1
ITL802.5		2	2	1									2	2	1
ITL802.6			2	1									2	2	1

Course Name:	DevOps Lab		
Course Code	ITL803		
Faculty Name:	Tayyabali Sayyad		
Year	B.E	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL803.1	3	3	2		3							2	3	3	3
ITL803.2	3	3	2	3	3							2	3	3	3
ITL803.3	3	3	2	3	3							2	3	3	3
ITL803.4	3	3	2	3	3							2	3	3	3
ITL803.5	3	3	2	3	3							2	3	3	3
ITL803.6	3	3	2	3	3							2	3	3	3

Course Name:	R Programming Lab		
Course Code	ITL804		
Faculty Name:	Prasad Padalkar		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITL804.1	2	2	2	1									2	2	1
ITL804.2	2	2	2	1									2	2	1
ITL804.3	2	2	2	1									2	2	1
ITL804.4	2	2	2	1									2	2	1
ITL804.5		2	2	1									2	2	1
ITL804.6			2	1									2	2	1

Course Name:	Project-II		
Course Code	ITM805		
Faculty Name:	Sunantha K		
Year	4	Sem	VIII

CO-PO-PSO MAPPING

CO Number	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ITM805.1	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2

CO-PO-PSO mapping

ITM805.2	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2
ITM805.3	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2
ITM805.4	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2
ITM805.5	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2
ITM805.6	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2

Department of IT , CAY- (Odd semester, 2021-22)

<i>PO Attainment</i>										
Subject Name	Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
Engineering Mathematics-III	ITC301	2.917	2.917		2.917	2.917	2.917		2.917	2.917
Data Structures & Analysis	ITC302									
Database Management System	ITC303									
Principle of Communication	ITC304	2	0	0	0	0	0	0	0	0
Paradigms and Computer Programming Fundamentals	ITC305									
Data Structure Lab	ITL301									
SQL Lab	ITL302									
Computer programming Paradigms Lab	ITL303									
Java Lab (SBL)	ITL304									
Mini Project – 1 A	ITM301									
Internet Programming	ITC501	2.25	2.25	0	2.25	2.25	2.25	0	0	0
Computer Network Security	ITC502	2.21	2.21	2.21	2.21	0	2.21	0	0	0
Entrepreneurship and E-business	ITC503									
Software Engineering	ITC504	3	0	0	0	0	0	0	0	0
Microcontroller and Embedded Programming	ITDLO501 1 (Department Level Optional Course-I)	3	0	0	0	0	0	0	0	0
IP Lab	ITL501	2.2	2.2	0	2.2	2.2	2.2	0	0	0
Security Lab	ITL502	1.1	1.1	1.1	1.1	1.1	0	0	0	0
DevOPs Lab	ITL503									
Advance DevOPs Lab	ITL504									
Professional Communication & Ethics-II (PCE-II)	ITL505						3.00	3.00	3.00	3.00
Mini Project – 2 A Web Based Business Model	ITM501	2.2	2.2	0	2.2	2.2	2.2	2.2	2.2	2.2

Department of IT, CAY- (Even semester, 2021-22)

PO Attainment										
Subject Name	Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
Engineering Mathematics – IV	ITC401									
Computer Network and Network Design	ITC402									
Operating system	ITC403	2.17	2.17	2.17	2.17	0	0	0	0	0
Automata Theory	ITC404	2.14	2.14	2.14	0	0	0	0	0	0
Computer organization & Architecture	ITC405	3	0	0	0	0	0	0	0	0
Networking lab	ITL401									
Unix Lab	ITL402	2	0	0	0	2	0	0	0	0
Microprocessor Lab	ITL403	2	2	2	0	2	0	0	0	0
Python Lab (SBL)	ITL404									
Mini Project – 1 B	ITM401									
Data Mining & Business Intelligence	ITC601	2.170	2.170	2.170	2.170	2.170	0.000	0.000	0.000	0.000
Web X.0	ITC602	2.23	2.23	0	2.23	2.23	0	0	0	0
Wireless Technology	ITC603	2.5	2.5	2.6	2	0	0	0	0	0
AI and DS – 1	ITC604	2.25	2.25	2.6	2.1	0	0	0	0	0
Digital Forensics	ITDLO-II-6023	3	0.5	0	0	0	0	0	0	0
BI Lab	ITL601									
Web Lab	ITL602	2.2	2.2	0	2.2	2.2	2.2	0	0	0
Sensor Lab	ITL603	2.1	2.1		2.1	2.1	2.1			
MAD & PWA Lab	ITL604									
DS using Python Skill based Lab	ITL605	2.4	2.4	2.4	2.4	1.6	0.8	1.6	0.8	0
Mini Project – 2 B Based on ML	ITM601	2.4	2.4	2.4	2.4	1.6	0.8	1.6	0.8	0
Big Data Analytics	ITC801	2.9	2.9	2.9	2.9	2.9	2.9	1.45	0.9	0
Internet of Everything	ITC802									
User Interaction Design	ITDLO8041									
Big Data Lab	ITL801									
Internet of Everything Lab	ITL802	2	1.7	1.7	1					
DevOps Lab	ITL803									
R Programming Lab	ITL804	2	2	2	1					
Project-II	ITM805	3	3	3	3	3	2	2	2	1



PO10	PO11	PO12	PSO1	PSO2	PSO3
2.917	2.917	2.917	0	0	0
0	0	0	1	0	0
0	0	0	2.25	2.25	2.25
0	0	2.21	2.21	2.21	2.21
0	0	0	1	0	0
0	0	0	1	0	0
0	0	2.2	2.2	2.2	2.2
0	0	1.1	1.1	1.1	1.1
3.00	3.00		3.00	3.00	3.00
2.2	2.2	2.2	2.2	2.2	2.2

Devyani

			2	1	
0	0	3	3	3	3
0	0	0	2	1	1
1		1	2	1	1
			1.5	1.5	1.5
0	0	2.2	2.2	2.2	2.2
0	0	0	2.4	2.4	1.2



PO10	PO11	PO12	PSO1	PSO2	PSO3
0	0	0	2.17	2.17	2.17
0	0	0	0	0	0
0	0	0	3	0	0
0	0	0	3	3	3
2	0	0	2	0	2
0.000	0.000	2.170	2.17	2.17	2.17
0	2.23	2.23	2.23	2.23	2.23
0	0	0	2	1	1
0	0	0	1.8	1.8	0.9
0	0	0	3	0	3
0	0	2.2	2.2	2.2	2.2
		2.1	2.1	2.1	2.1
0	0.8	0.8	1	1	0.8
0	0.8	0.8	1	1	0.8
0	0.9	0.9	1.45	1.45	0.9
			1	1	1
			1	1	1
1	2	2	3	3	2

Program Specific Outcomes (PSO)

IT engineering graduates will have

PSO1. An ability to use and apply current technical concepts and practices in the cor

PSO2. An ability to identify and analyze user needs and take them into account in th

PSO3. An ability to effectively integrate IT-based solutions into the user environmen

e information technologies.

ie selection, creation, evaluation and administration of computer-based systems inlin

t.

ie with the best practices