



**Semester – IV**

**Unique Course Number: CSC401**

**Course Name: Engineering Mathematics-IV**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSC4011	Apply the concepts of eigenvalues and eigenvectors in engineering problems.
CSC4012	Use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.
CSC4013	Apply the concept of Z- transformation and inverse in engineering problems.
CSC4014	Use the concept of probability distribution and sampling theory to engineering problems.
CSC4015	Apply the concept of Linear Programming Problems to optimization.
CSC4016	Solve Non-Linear Programming Problems for optimization of engineering problems.

**Unique Course Number: CSC402**

**Course Name: Analysis of Algorithm**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSC4021	Analyse the running time and space complexity of algorithms.
CSC4022	Analyse the complexity of divide and conquer strategy.
CSC4023	Analyse the complexity of greedy strategy.
CSC4024	Analyse the complexity of dynamic programming strategy.
CSC4025	Apply backtracking, branch and bound and string matching techniques to deal with some hard problems.
CSC4026	Describe the classes P, NP and NP-Complete

**Unique Course Number: CSC403**

**Course Name: Database Management System**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSC403	Describe the fundamentals of a database systems
CSC4032	Describe the concept of transaction, concurrency and recovery.
CSC4033	Explain different database Models and Apply different rules for conversion of conceptual model to relational model
CSC4034	Solve database queries using relational algebra and SQL.
CSC4035	Construct ER and EER diagram for the real life problems.
CSC4036	Explain and apply different constraints on Database Design.

**Unique Course Number: CSC404**

**Course Name: Operating System**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSC4041	Explain the objectives, functions and structure of OS
CSC4042	Apply the concept of process management and evaluate performance of process scheduling algorithms.
CSC4043	Apply the concept of synchronizations and deadlocks
CSC4044	Evaluate the performance of Memory allocation and replacement policies
CSC4045	Explain the concept of file management
CSC4046	Apply concepts of IO management and analyze techniques of disk scheduling



**Unique Course Number: CSC405**

**Course Name: Microprocessor**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSC4051	Describe Architecture and Working of x86 processor.
CSC4052	Design the program in Assembly and Higher Level Languages for intel x86.
CSC4053	Elaborate Execution of Interrupts.
CSC4054	Apply the concepts for interfacing 8086 processor with peripherals.
CSC4055	Analyze the architecture of intel 80386 processor
CSC4056	Apply basics of microprocessor to infer Pentium

**Unique Course Number: CSL401**

**Course Name: Analysis of Algorithm Lab**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSL4011	Analyse the Complexities Of Various Problems in different domains.
CSL4012	Prove the correctness and analyse the running time of the basic algorithms for those classic problems in various domains.
CSL4013	Develop The Efficient algorithms for the new problem with suitable designing techniques.
CSL4014	Implement The Algorithms Using Different Strategies.
CSL4015	Analyse the Complexities Of Various Problems in different domains.
CSL4016	Prove the correctness and analyse the running time of the basic algorithms for those classic problems in various domains.

**Unique Course Number: CSL402**

**Course Name: Database Management System Lab**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSL4021	Construct ER and EER diagram for the real life problem with software tool.
CSL4022	Apply different rules for Creating and updating database and tables with different DDL and DML statements.
CSL4023	Apply integrity constraints and provide security to data.
CSL4024	Construct simple and Complex SQL queries
CSL4025	Apply triggers and procedures for specific module/task
CSL4026	Illustrate Handling of concurrent transactions and access data through front end (using JDBC ODBC connectivity.)

**Unique Course Number: CSL403**

**Course Name: Operating System Lab**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSL4031	Execute and Implement basic Operating system commands
CSL4032	Implement Shell scripts, System Calls and APIC wrt Linux
CSL4033	Implement various process scheduling algorithms and evaluate their performance
CSL4034	Implement and analyze concepts of synchronization and deadlocks.
CSL4035	Implement various Memory Management techniques and evaluate the performance.
CSL4036	Demonstrate and analyze concepts of file management and IO management techniques.



**Unique Course Number: CSL404 Course Name: Microprocessor Lab**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSL4041	Implement interactive program using interrupts
CSL4042	Use machine control group of instructions in an assembly language program
CSL4043	Use string and arithmetic instructions for assembly language programming
CSL4044	Write mixed language program for arithmetic operations
CSL4045	Apply architectural knowledge to interface different peripherals with 8086
CSL4046	Use basic concepts of 8086 in learning advance peripherals

**Unique Course Number: CSL405 Course Name: Skill Base Lab Course: Python Programming**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSL4051	Demonstrate basic concepts in Python
CSL4052	Illustrate file handling and Database handling in Python
CSL4053	Build user defined packages and modules in Python
CSL4054	Demonstrate two way communication between client and server using Socket Programming in Python
CSL4055	Demonstrate concept of Multithreading, Numpy and Pandas
CSL4056	Develop python based web applications

**Unique Course Number: CSM401 Course Name: Mini Project 1-B**

Unique CO Number	Course Outcome (CO) Statement
	Students will be able to,
CSM4011	Identify problems based on societal / research needs & Analyze the impact of solutions in societal and environmental context for sustainable development.
CSM4012	Apply Knowledge and skill to solve societal problems in a group.
CSM4013	Develop Interpersonal Skill to Work as a member of a group or a leader, which leads to lifelong learning.
CSM4014	Draw the proper inferences from available results through theoretical/experimental/simulations.
CSM4015	Excel in written and oral communication.
CSM4015	Demonstrate Project Management Principle during project work and standard norms of engineering practices