Techno College of Engineering Agartala

An Engineering College Approved by AICTE, MHRD, Govt. of India
Affiliated to Tripura University (A Central University),
Department of Electrical & Computer Engineering

List of Laboratory Experiments

Programming Laboratory							
Course Code	**Hours / Week**				**Maximum Marks**		
PC ECS 509	L	T	P	C	**CIA**	**SEE**	**Total**
	0	0	2	1	40	60	100
Number of classes: 24 hours			**Prerequisites:** Computer Organization, Basic computer programming				
Branch: ECSE			**Semester: V**				

Course overview:

The Programming Laboratory is designed to provide students with hands-on experience in writing, testing, and debugging code using high-level programming languages such as C, Python, or Java. The course emphasizes the development of logical thinking and problem-solving abilities through the implementation of algorithms and data structures. Students will gain practical skills in handling basic input/output operations, control structures, array manipulation, functions, recursion, file handling, and foundational data structures like stacks, queues, and linked lists. The lab also fosters the ability to write efficient, modular, and maintainable code.

Course objectives:

1. Develop problem-solving skills using programming languages.
2. Implement and test basic algorithms and data structures.
3. Write efficient and modular code for various computational problems.
4. Enhance debugging and code optimization techniques through practical exercises.

Course outcomes:

CO Number	CO Description	K-level
CO-1	Design and conduct experiments, to analyze and interpret results.	K-5
CO-2	Solve complex heterogeneous data intensive analytical based problems of real time scenario using state of the art hardware/software tools.	K-3
CO-3	Construct a local area network (LAN) and wide area network (WAN).	K-5
CO-4	Formulate TCP/IP for the LAN	K-5
CO-5	Install and use different system & application software's.	K-3

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Experiment No.	Experiment Description	Mapped CO(s)
Data Science Experiments		
1	Creating and displaying Data	CO-1, CO-2
2	Matrix manipulations	CO-1, CO-2
3	Creating and manipulating a List and an Array	CO-1, CO-2
4	Creating a Data Frame and Matrix-like Operations on a Data Frame	CO-1, CO-2
5	Merging two Data Frames	CO-1, CO-2
6	Applying functions to Data Frames	CO-1, CO-2
7	String Manipulations	CO-1, CO-2
8	Visualization Effects	CO-1, CO-2
9	Plotting with Layers	CO-1, CO-2
10	Histograms and Density Charts	CO-1, CO-2
11	Simple Linear Regression – Fitting, Evaluation and Visualization	CO-1, CO-2
12	Multiple Linear Regression, Lasso and Ridge Regression	CO-1, CO-2
Computer Network Experiments		
1	Study of different types of cross-wired cable and straight through cable	CO-3
2	Study of Basic network commands and network configuration commands	CO-3, CO-5
3	Study of network IP	CO-3, CO-4
4	Socket programming using Java, C or Python	CO-3, CO-5

5	Connect the computers in Local Area Network	CO-3
6	Configure a Network topology using packet tracer software	CO-3
7	Configure a Network using Distance Vector Routing protocol	CO-3
8	Configure Network using Link State Vector Routing protocol	CO-3
9	Network topology configuration of static routing using packet tracer software	CO-3
10	Routing Protocol Configuration of a network using packet tracer software (RIP etc.)	CO-3
11	Firewall Configuration to solve problems in Linux OS	CO-5
12	Practical on Server Configuration (Web Server, Mail Server, FTP Server)	CO-5