CHENNAI INSTITUTE OF TECHNOLOGY

Department of Computer Science & Engineering
PG and Research Lab

Major Equipments available in the Lab

S. No.	Hardware	Specification	Quantity
1	Desktops	Intel Core i3 / 2GB RAM /250GB HDD	30 Nos.
Software			
2	C, C++, Hadoop, YARN, R Package Hbase, MongoDB		

Courses Offered

S.No.	ODD Semester	Class	No. of Sessions	EVEN Semester	Class	No. of Sessions
1	Data Structures Laboratory	I Sem M.E CSE	1	Data Analytics Laboratory	II Sem M.E CSE	1
2	Project Work Phase – I	III Sem M.E CSE	5	Project Work	IV Sem M.E CSE	9
Percentage of Lab Utilization : 60%				Percentage of Lab Utilization : 100%		

CP5161   DATA STRUCTURES LABORATORY   I Sem CSE(PG)

Objectives:

- To acquire the knowledge of using advanced tree structures.
- To learn the usage of heap structures.
- To understand the usage of graph structures and spanning trees.

Outcomes:

- Design and implement basic and advanced data structures extensively.
- Design algorithms using graph structures.
- Design and develop efficient algorithms with minimum complexity using design techniques.

List of Experiments

01. Implementation of merge sort and quick sort-analysis.

02. Implementation of a binary search tree.

03. Red-black tree implementation.

04. Heap implementation.

05. Fibonacci heap implementation.

06. Graph traversals.

07. Spanning tree implementation.

08. Shortest path algorithms (Dijkstra's algorithm, Bellmann Ford algorithm).

09. Implementation of matrix chain multiplication.

10. Activity selection and Huffman coding implementation.

CP5261 **DATA ANALYTICS LABORATORY** **II Sem CSE**(PG)

Objectives:

- To implement map reduce programs for processing big data.
- To realize storage of big data using H base, Mongo DB.
- To analyse big data using linear models.
- To analyse big data using machine learning techniques such as SVM Decision tree classification and clustering.

Outcomes:

- Process big data using Hadoop framework.
- Build and apply linear and logistic regression models.
- Perform data analysis with machine learning methods.
- Perform graphical data analysis.

List of Experiments

01. Install, configure and run Hadoop and HDFS.

02. Implement word count / frequency programs using map reduce.

03. Implement an MR program that processes a weather dataset R.

04. Implement linear and logistic regression.

05. Implement SVM / Decision tree classification techniques.

06. Implement clustering techniques.

07. Visualize data using any plotting framework.

08. Implement an application that stores big data in

   Hbase / MongoDB / Pig using Hadoop /R.