		L	T	P	C
18CSPE603	**DISTRIBUTED AND PARALLEL COMPUTING**				
		3	0	0	3

Course Objectives:

1.	To Familiarize with the system models and the basic client server communication.
2.	To learn the architecture of Remote Procedure Call.
3.	To Illustrate the Design principles of Parallel Processing.
4.	To explain the concept of Interconnection Networks and parallel programming models.

UNIT I	**CHARACTERIZATION OF DISTRIBUTED SYSTEMS**	9	+	0

Resource sharing and the Web-System models:-Architectural models-Fundamental Models, Interposes Communication:-The API for the Internet protocols, External data representation and marshalling, Client Server communication, Group communication

UNIT II	**DISTRIBUTED OBJECTS AND REMOTE INVOCATION**	9	+	0

Communication between distributed objects, Remote Procedure call, Events and notifications. Operating System Support. The operating system layer- Protection-Processes and threads-Communication and invocation-Operating system architecture*.*

UNIT III	**SCALABILITY AND CLUSTERING**	9	+	0

Evolution of Computer Architecture – Dimensions of Scalability – Parallel Computer Models – Basic Concepts Of Clustering – Scalable Design Principles – Parallel Programming Overview – Processes, Tasks and Threads – Parallelism Issues – Interaction / Communication Issues – Semantic Issues In Parallel Programs

UNIT IV	**SYSTEM INTERCONNECTS**	9	+	0

Basics of Interconnection Networks – Network Topologies and Properties – Buses, Crossbar and Multistage Switches, Software Multithreading – Synchronization Mechanisms.

UNIT V	**PARALLEL PROGRAMMING**	9	+	0

Paradigms And Programmability – Parallel Programming Models – Shared Memory Programming

Total (L+T)= 45 Periods

Course Outcomes:		
Upon completion of this course, the students will be able to:		
CO1	:	Familiarize with the system models and the basic client server communication.
CO2	:	Explain the architecture of Remote Procedure Call.
CO3	:	Illustrate the Design principles of Parallel Processing
CO4	:	Explain the components of Interconnection Networks and parallel programming models

Text Book:

1.	George Coulouris, Jean Dollimore, Tim Kindberg- Distributed Systems Concepts and Design- AWL, Fifth Edition- 2012.(Unit I,II)
2.	Kai Hwang and Zhi.Wei Xu, "Scalable Parallel Computing", Tata McGraw-Hill, New Delhi, 2003. (Unit III - V).

Reference Books:

1.	Maarten Van Steen,Andrew & Tanenbaum-Distributed Systems: Principles and Paradigms-PrenticeHall-second edition -2007.
2.	Ross J.Anderson-Security Engineering: A Guide to building dependable distributed systems-John Wiley & Sons- second edition -2008.