

Branch Name:	Information Technology
Program Code:	ET105
Course Title:	Distributed Computing Practical
Course Code:	2ET1050601P
Pre-requisite Course:	Operating System, Computer Network, Data Structure and Algorithm,

Course Objectives: This course content enables to understand importance of Distributed Computing, The work of Operating System is different in the distributed environment. Student should understand Message passing, RPC, Synchronization, Load Balancing. Migration of processes, Deadlock management etc in distributed environment.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	-	-	2	2	-	-	-	-	10	25	10	25	50

Course Contents:

Sr.No

Practical Exercise

1. Study of rpcgen protocol compiler.
2. Write a program to subtract two numbers using rpcgen utility under LINUX using command-line arguments.
3. Write a program to implement stateful server.
4. Write the Programs for Thread Programming in JAVA.
5. Write a program of simple calculator using Java RMI.
6. Write a program in Java to create thread safe counter using synchronized class methods
7. Implement concurrent client-server application in LINUX.
8. Study of Web Service Programming
9. Study of open source key management tool.

Reference Books:

1. Distributed Computing, Sunita Mahajan and Seema Shah, Oxford University Press, 2010
2. Distributed Systems: Principles and Paradigms, 2007, Taunenbaum
3. Distributed Systems: Concepts and Design, G. Coulouris, J. Dollimore, and T. Kindberg, 2012, Pearson Education
4. Distributed Computing, Fundamentals, Simulations and Advanced topics, 2nd Edition, 2006, Hagit Attiya and Jennifer Welch, Wiley India

E-Resource / Web Links:

1. en.wikipedia.org/wiki/message_passing
2. <http://www.cs.rutgers.edu/~pxk/rutgers/notes/clocks/index.html>
3. <https://www.cs.uic.edu/~ajayk/DCS-Book>
4. <http://nptel.ac.in/courses/106106107/>

Course Learning Outcomes (CLO):

Course Outcomes	Description	Bloom's Taxonomy Level
COL1	Understand distributed systems, Know various types of transparencies which Distributed OS should provide	1.Remembering 2.Understanding
COL2	Understand and analyse Message passing models and Understand RPC and implement it using manual or automatic stub generation	1.Remembering 4. Analyze 5. Creating
COL3	Know synchronization issues ,Analyze various election algorithms, Analyze various consistency and replication protocols and methods	2. Understanding 4. Analyze
COL4	Recognize security threats and apply cryptography methods for security in Distributed Computing	1.Remembering 3. Applying 2.Understanding
COL-5	Understand various types of Distributed Computing	1.Remembering 2.Understanding

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	M	M	M		L						L		M			
CLO2	L	H	H										M	L	M	
CLO3		H	H	H	H						M		M	H		
CLO4	H				M										H	
CLO5		M	M	L										H	H	

H: High, M: Medium, L: Low