



DEPARTMENT OF COMPUTER APPLICATIONS

COURSE PLAN – PART I			
Name of the programme and specialization	Master of Computer Applications		
Course Title	DISTRIBUTED TECHNOLOGY		
Course Code	CA726	No. of Credits	3
Course Code of Pre-requisite subject(s)	CA727	CA712	CA714
Session	January 2019	Section (if, applicable)	A
Name of Faculty	G.R.Gangadharan	Department	Computer Applications
Official Email	ganga@nitt.edu	Telephone No.	0431-2503737
Name of Course Coordinator(s) (if, applicable)	Dr. P.J.A.Alphonse		
Official E-mail	alphonse@nitt.edu	Telephone No.	0431-2503742
Course Type (please tick appropriately)	Core course		
Syllabus (approved in BoS)			
<p>Introduction- Different Forms of Computing - Architecture - Inter-process Communications: IPC Program Interface - Event Synchronization - Timeouts and Threading Deadlocks and Timeouts - Data Representation- Data Encoding- Text-Based Protocols Request-Response Protocols - Event Diagram - Sequence Diagram - Connection-Oriented Vs Connectionless IPC.</p> <p>Client Server Architecture – Types of Servers – Connection Oriented - Connectionless, Iterative - Concurrent and Stateful Servers. Distributed Computing: Paradigm – Architecture – Application</p> <p>Socket API and Group Communication: Background -The Socket Metaphor in IPC - The Datagram Socket API - The Stream-Mode - Socket API- Sockets With Non-blocking I/O Operations - Secure Socket API. Group Communication – Unicasting- Multicasting and its types – Java Basic Multicast API - Reliable Multicast API</p> <p>Distributed Objects : Message Passing Vs Distributed Objects - An Archetypal Distributed Object Architecture - Distributed Object Systems - Remote Procedure Calls - Remote Method Invocation: RMI Architecture, API for Java RMI, Sample RMI Application - Building an RMI Application - Testing and Debugging - Comparison of RMI And Socket APIs</p> <p>CORBA, COM and Web Services: CORBA Object Interface - Inter-ORB Protocols - Object Servers - Object Clients - CORBA Object References - CORBA Naming Service - Interoperable Naming Service - CORBA Object Services - Object Adapters - Java IDL. Web Services:SOAP-UDDI-WSDL-XML-RESTFUL WEB SERVICE</p> <p>REFERENCES:</p> <ol style="list-style-type: none"> 1. M. L. Liu, “Distributed Computing Principles and Applications”, Pearson Education 2004 2. Mark Hansen, “SOA using JAVA Web Services”, Prentice Hall 2007 3. Crichlow, “Distributed Systems: Computing over Networks”, PHI 2009 4. Tanenbaum, Sten, “Distributed Systems - Principles and Paradigms”, PHI 2006 5. Puder, “Distributed Systems Architecture - A Middleware Approach”, Science & Technology Books 2005. 6. Lynch, “Distributed Algorithms” Science & Technology Books 1996. 7. David Reilly & Michael Reilly, “Java Networking and Distributed Computing”, Addison Wesley,2002. 8. Jim Farley, “Java Distributed Computing”, O'Reilly Media; 1st edition, 1998. 			



COURSE OBJECTIVES	
To learn the various distributed objects and technologies.	
MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Explain the principles and issues in Inter Process Communication	I,II,III,V
2. Use the concepts of client/server in developing applications	I,II,III,IV,V,VII,VIII,IX,X
3. Implement IPC applications using sockets	I,II,III,V
4. Practice the distributed object technologies and use them in developing applications	III,V,VII,VIII,IX,X,XI,XII

COURSE PLAN – PART II			
COURSE OVERVIEW			
COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1 (3 Classes)	Introduction - Different Forms of Computing – Architecture - Inter-process Communications: IPC Program Interface	Chalk and Talk, PPT
2	Week 2 (3 Classes)	Event Synchronization - Timeouts and Threading Deadlocks and Timeouts - Data Representation- Data Encoding- Text-Based Protocols Request-Response Protocols	Chalk and Talk, PPT
3	Week 3 (3 Classes)	Event Diagram - Sequence Diagram - Connection-Oriented Vs Connectionless IPC	Chalk and Talk, PPT
4	Week 4 (3 Classes)	Client Server Architecture – Types of Servers – Connection Oriented - Connectionless, Iterative - Concurrent and Stateful Servers.	Chalk and Talk, PPT
5	Week 5 (3 Classes)	Distributed Computing: Paradigm – Architecture – Application	Chalk and Talk, PPT
6	Week 6 (3 Classes)	Socket API and Group Communication: Background -The Socket Metaphor in IPC - The Datagram Socket API	Chalk and Talk, PPT



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7	Week 7 (3 Classes)	The Stream-Mode - Socket API- Sockets With Non-blocking I/O Operations - Secure Socket API.	Chalk and Talk, PPT
8	Week 8 (3 Classes)	Group Communication – Unicasting- Multicasting and its types – Java Basic Multicast API - Reliable Multicast API	Chalk and Talk, PPT
9	Week 9 (3 Classes)	Distributed Objects : Message Passing Vs Distributed Objects - An Archetypal Distributed Object Architecture	Chalk and Talk, PPT
10	Week 10 (3 Classes)	Distributed Object Systems - Remote Procedure Calls - Remote Method Invocation: RMI Architecture, API for Java RMI	Chalk and Talk, PPT
11	Week 11 (3 Classes)	Sample RMI Application - Building an RMI Application - Testing and Debugging - Comparison of RMI And Socket APIs	Chalk and Talk, PPT
12	Week 12 (3 Classes)	CORBA, COM and Web Services: CORBA Object Interface - Inter-ORB Protocols - Object Servers - Object Clients	Chalk and Talk, PPT
13	Week 13 (3 Classes)	CORBA Object References - CORBA Naming Service - Interoperable Naming Service - CORBA Object Services - Object Adapters - Java IDL	Chalk and Talk, PPT
14	Week 14 (3 Classes)	Web Services : SOAP-UDDI-WSDL- XML-RESTFUL WEB SERVICE	Chalk and Talk, PPT

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test 1	6 th Week	60 Minutes	20
2	Cycle Test 2	10 th Week	60 Minutes	20
3	Assignment	9 th week	-	10
CPA	Compensation Assessment*			
4	Final Assessment *		180 Minutes	50

***mandatory; refer to guidelines on page 5**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)



- The students through the class representative may give their feedback at any time to the course coordinator which will be duly addressed.
- The students may give their feedback during class committee meetings.

COURSE POLICY (including compensation assessment to be specified)

MODE OF CORRESPONDENCE

By Email: ganga@nitt.edu

COMPENSATION ASSESSMENT POLICY

Compensation assessment will be conducted for absentees in cycle test I or cycle test II only after the submission of medical or On-Duty certificates signed by competent authority.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

FOR APPROVAL

Course Faculty 

CC- Chairperson 

HOD 



Guidelines

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.