MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

MCA

COURSE PLAN: LABORATORY COURSE

Department:	**Data Science And Computer Applications**			
Course Name & code:	**Network Lab & MCA**			
Semester & branch:				
Name of the faculty:				
No of contact hours/week:	**L**	**T**	**P**	**C**
	0	**1**	**3**	**2**

Course Outcomes (COs)

At the end of this course, the student should be able to:		**No. of Contact Hours**	**Marks**
CO1	Implement Inter-Process Communication between Processes	12	36
CO2	Implement socket programming using C & Unix	9	28
CO3	Construct network with connecting devices-switch, hub & routers to understand the working of different topologies.	6	18
CO4	Construct networks using RIP and simulate application protocols- DHCP, HTTP & FTP	6	18
CO5			
	Total	**33**	**100**

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1						
CO2						
CO3						
CO4						
CO5						
Average Articulation Level						

ICT Tools used in delivery and assessment

Sl. No	Name of the ICT tool used	Details of how it is used

Course Outcomes (COs)/Course Learning Outcomes (CLOs) to PO, PSO, LO, BL Mapping

At the end of this course, the student should be able to:		No. of Contact Hours	Marks	Program Outcomes (PO's)	Program Specific Outcomes (PSO)	Learning Outcomes (LOs) **	BL
CO1							
CO2							
CO3							
CO4							
CO5							
	Total						

** Delete this column if not relevant.

Delivery and assessment Plan of LOs#

Learning Outcome (LO) mapped to the course		Delivery and assessment Plan
LO	LO statement	

 # Applicable to IET Accredited Programs

Assessment Plan

Components	Continuous Evaluation: Experiments/Open Ended experiments	Mini Project (Optional)	End semester Examination
Duration	3/6 Hours per week	3 months	180 Minutes
Weightage	50% / 60%	10%	40%
Typology of questions	Applying; Analysing. Evaluating.	Applying; Analysing. Evaluating. Creating	Applying; Analysing; Evaluating; Creating
Pattern	Aim, Procedure, Conduction, Analysis, Result discussion, Conclusion.	Abstract, Literature, Problem Statement, Comparative analysis, Conclusion	Answer all 5 full questions of 10 marks each. Each question may have 2 to 3 parts of 3/4/5/6/7 marks
Schedule	Weekly	To be decided by the faculty	Last week of the semester
Topics	As per syllabus	Faculty to decide	Experiments/Open ended. Individual
Mode of Conducting	Individual/Group	Individual/Group	Individual

Note: Fine tune the assessment plan as per the guidelines, issued by AD(A), notified from time to time

Lesson Plan

L No	Topics	Course Outcome Addressed
Exp 1	Review of Linux system calls: open (), close (), read (), write (), creat (), fork (), wait ().	CO1
Exp 2	Interprocess Communication using Pipes.	CO1
Exp 3	Interprocess Communication FIFOs	CO1
Exp 4	Interprocess Communication using Message Queue	CO1
Exp 5	Socket Programming - Simple TCP	CO2
Exp 6	Socket Programming - Simple UDP	CO2
Exp 7	Socket Programming – multi client	CO2
Exp 8	Construct a 3 or more-node network by connecting a hub and switch and realize the working of hub & switch (using Simulation Tool).	CO3
Exp 9	Implement different network design topologies like Bus, Star, Ring and transfer the data packet from one PC to another PC. (using Simulation Tool).	CO3

Exp 10	Connect two or more networks by configuring router, nodes with RIP protocol. Simulate the communication within and between networks. (using Simulation Tool).	CO4
Exp 11	Construct simple networks to simulate the application protocols-HTTP, FTP and DHCP. (using Simulation Tool).	CO4
Exp 12	FINAL LAB EXAM	

References:

1. W. Richard Stevens, "UNIX Network Programming Interprocess Communications", Volume 2, Second Edition, Pearson Education, 2001.
2. A Rama Satish, "UNIX Programming", SciTech Publications, 2009.
3. Douglas E Comer, David L Stevens, "Internetworking with TCP/IP-Volume III" Pearson Education, Second Edition, 2004.
4. Jesin A, Packet Tracer Network Simulator (1e), Packt Publishing, 2014.
5. Stevens R., Stephen A. R., Advanced Programming in the UNIX Environment (2e), Pearson Education, 2013.

Submitted by: Vinayak Mantoor Nirmal Kumar Nigam & Archana. H

(Signature of the faculty)

Date: 22-07-2024

Approved by: Dr. Radhika M Pai

(Signature of HOD)

Date: 22-07-2024

Faculty members teaching the course (if multiple sections exist):

Faculty	Section	Faculty	Section
Nirmal Kumar Nigam	**A**	**Vinayak Mantoor**	**B**
Archana H	**C**		