

## 1. COURSE DETAILS

<b>Programme: CSE/IT</b>	<b>Semester: V/V</b>
<b>Course: #Network Administration</b>	<b>Group: A*/A*</b>
<b>Course Code: NWA198921</b>	<b>Duration:16 Weeks</b>

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
2	4	-	-	6	3	70	20	10	70	50	-	50	200

## 3. COURSE OBJECTIVE

This Course will help the students to comprehend the fundamentals of network administration and tools. This course will also familiarize the students in details of ADS and network security.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Configure ADS and DHCP**
- **Install and use network monitoring tools**
- **Network Troubleshooting**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Identify and use various network devices, connectors, topologies, communication basics.	Remember, Understand, Apply
CO2	Implement security for network by understanding internal external threats, wired & wireless security, Kerberos, PGP, SMTP, S_MIME	Remember, Understand
CO3	Install and configure network printer, network administration ,monitoring tools	Apply
CO4	Install windows server edition n configure ADS/DHCP	Apply



## 6. COURSE CONTENTS

Sr. No.	TOPICS/ Sub-Topics	Hours	Marks	COs
1	<b>Introduction to network</b> 1.1. Network hardware 1.2 Network topology 1.3 Network media	02	06	CO1
2	<b>Network administrator</b> 2.1 Network related jobs 2.2 Network architecture/designer 2.3 Administrator responsibility 2.4 Duties of network engineer	04	10	CO1
3	<b>Network Management Models</b> 3.1 RARP, BOOTP 3.2 DHCP 3.3 DNS 3.4 Network printing 3.5 Printer sharing	06	10	CO4
4	<b>Information models and directories services</b> 4.1 Architecture 4.2 Types of directories services 4.3 LDAP, information models 4.4 ADS	04	10	CO4
5	<b>Network Administration tools</b> 5.1. Web based tools for System and network analysis-ShareEnum, NTFS Permissions Explorer, TcpView, WireShark, Look@LAN etc. 5.2. NetStat, PortScan, HostAlive, TraceRoute and Ping, Network analyzer , NetCat, win dump,Nmap	04	10	CO3
6	<b>Server and network Monitoring tool</b> 6.1. Introduction of server monitoring 6.2. Server monitoring tool 6.3. Introduction server monitoring, local server monitoring and log files, open source and proprietorships third party software /tool case studies: HP Open View and Tivoli. 6.4. Need, features ,case studies : Microsoft Network Monitor, Nagios	04	10	CO3



7	<b>Security</b> 7.1. Wired/wireless – 7.2. Firewalls : concept, design principles, limitations, trusted systems, Kerberos - concept 7.3. Security topologies – security zones, DMZ, Internet, Intranet, VLAN, security implication 7.4. Email security : Email security standards : Working principle of SMTP, PEM, PGP, S/MIME, spam	08	14	CO2
	<b>TOTAL</b>	<b>32</b>	<b>70</b>	

### 7. LIST OF PRACTICALS/ASSIGNMENTS/EXERCISES/TUTORIALS/DRAWINGS

Term Work consists of Journal containing minimum 16 experiments/assignments with approx. no. of hours required and corresponding CO attained are specified here:

Sr. No.	Title of Experiment/Assignment/Exercise/Tutorial/Drawings	Approx. Hrs required	COs
1.	Install Network Packet Tracer	02	CO1
2.	To configure WAN	04	CO1
3.	To create network cable using RJ-45 connectors	04	CO1
4.	To install a network interface card (NIC) & locate MAC address of computer.	02	CO1
5.	To perform network commands- NetStat, PortScan, HostAlive, TraceRoute and Ping, NetCat	04	CO3
6.	Installing and configuring DHCP and DNS	04	CO4
7.	Installing Windows 2003 Server	02	CO3
8.	Demonstration on installation of Active Directory	02	CO4
9.	To Create user/Group in Active Directory Service	04	CO4
10.	Demonstration on Wireshark	02	CO2
11.	Understanding Wireshark working with filters, menu options	04	CO2
12.	To install a network printer - Windows 2008	02	CO3
13.	To configure VLAN on Network packet tracer	04	CO1
14.	Demonstration on Network monitoring tool - TNM	02	CO3
15.	Demonstration on Nagios	02	CO3
16.	Installing IIS, making web server, web directory, connection via remote desktop, to know browsers	04	CO2
17.	Execution of WinDump / TCPDump, WiFiMan, SysFiles, EmailVerify, etc	04	CO3
18.	Demonstration on Kerberos	04	CO2
19.	To identify different problems of network example- no network, card problem, cable problem, IIS problem	04	CO1, CO2
20.	To implement security algorithms	04	CO2
	<b>Total</b>	<b>64</b>	



## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Teaching Plan/Tutorials
2. Minimum no of practical/assignments/drawings etc.
3. Demonstrations
4. Slides
5. Self-Learning Online Resources

## 9. LEARNING RESOURCES

Sr. No.	Title Of Book	Author	Publication
1.	The Complete Reference Networking	Craig Zacker	Tata McGraw-Hill Education
2.	Networking A Beginner's Guide	Bruce Hallberg	Tata McGraw-Hill Education
3.	Introduction to Networking	Richard A. McMohan, Sir	Tata McGraw-Hill Education
4.	Microsoft Press ,MCSE Training Kit , Networking Essential Plus	Microsoft Press Staff	Microsoft Press

## 10. WEB REFERENCES

1. <http://www.nmap.org>.
2. <http://www.tamos.com>
3. <http://www.gfi.com/blog/101-free-admin-tools>

## 11. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

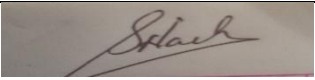

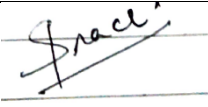
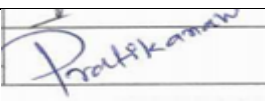
Sr. No.	TOPIC	Distribution of Theory Marks			
		R Level	U Level	A Level	Total Marks
1.	Introduction to network	2	2	2	6
2.	Network administrator	2	4	4	10
3.	Network management models	2	2	6	10
4.	Information models and directory services	2	2	6	10
5.	Network Administration tools	-	4	6	10
6.	Server and network Monitoring tool	-	4	6	10
7.	security	4	4	6	14
<b>TOTAL</b>		<b>12</b>	<b>22</b>	<b>36</b>	<b>70</b>



**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.

**12. COURSE EXPERT COMMITTEE MEMBERS**

Sr. No.		NAME	SIGNATURE
1	Internal	Mrs. Swapna Naik	
2	Internal	Mrs. Krishna Bhatt	
3	Internal	Mrs. Prachi Arora	
4	External	Mr. Pratik Kanani Asst. Professor, DJSCOE	



## 1. COURSE DETAILS

<b>Programme: Computer Engineering</b>	<b>Semester: V</b>
<b>Course: #Embedded System</b>	<b>Group: A*</b>
<b>Course Code: EMS190811</b>	<b>Duration:16 Weeks</b>

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+ D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
04	02	–	–	06	03	70	20	10	70	50	--	50	200

## 3. COURSE OBJECTIVE

The study of embedded systems is essential part of Computer Science. It deals with computer hardware with software embedded in it. This subject will enable student to develop logical thinking and use of “Firmware”. It is practical oriented subject having theoretical prerequisites of Microprocessor, Digital Techniques, Data Structures and Computer Architecture. Students will be able to develop Real Time Systems, Device drivers, use interrupt service mechanism, program timing and counting devices and develop embedded C-Programs for Microcontroller.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- Design and develop Embedded system



**5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -**

<b>CO No.</b>	<b>COURSE OUTCOME</b>	<b>Bloom's LEVEL</b>
CO1	Conceptualize various building blocks of 8051 Micro controller.	Remember, Understand
CO2	Implement programs for 8051 micro controller.	Understand, Apply
CO3	Design an embedded system.	Remember, Understand, Apply
CO4	Use of the Buses, Device Drivers and Interrupt mechanism used in Embedded Systems.	Understand, Apply
CO5	Solve the problems using concepts in RTOS.	Remember, Understand, Apply

**6. COURSE CONTENTS**

<b>Sr.No.</b>	<b>Topic/Sub-Topics</b>	<b>Hours</b>	<b>Marks</b>	<b>Cos</b>
<b>1</b>	<b>8051 Microcontroller Architecture</b> 1.1 Difference between Microprocessors and Microcontrollers 1.2 Introduction to 8051 microcontrollers family, Architectural block Diagram, Pin diagram and use of pins. 1.3 Functions General Purpose and Special Function Registers, 1.4 Oscillator and clock circuit, Reset circuit, I/O Port circuits, 1.5 Memory organization, Internal program and data memory, Instruction Set, Assembly level programming and Embedded C programming.	<b>10</b>	<b>12</b>	<b>CO1</b>
<b>2</b>	<b>8051 Serial and Timer/ Counter Programming</b> 2.1 Serial data input/output and associated registers. 2.2 Various modes of serial data communication, serial data, communication programs in Assembly language/ Embedded C. 2.3 Use of counter as timer, Timer/Counters and associated registers, Various modes of timer/counter operations. 2.4 Time delay programs in Assembly language/ Embedded C.	<b>10</b>	<b>12</b>	<b>CO2</b>
<b>3</b>	<b>8051 Interrupts</b> 3.1 Concept of Interrupt, interrupt versus polling, Interrupt execution Steps 3.2 Types of interrupts in 8051, interrupt control and associated registers, interrupt vectors, Interrupt execution	<b>8</b>	<b>10</b>	<b>CO2</b>



	3.3 RETI instruction, software generated interrupt 3.4 Interrupt handler subroutine for timer/counter and serial data transmission/reception in Assembly language/ Embedded C.			
<b>4</b>	<b>Introduction to embedded system</b> 4.1. Embedded systems, processors embedded into a system, Embedded hardware units & devices in a system, Embedded software in a system, Applications of embedded systems. 4.2. SOC & use of VLSI circuit design technology, IP core, FPGA, complex system design & processors. 4.3. Design process in embedded system 4.4. Formalization of system design & examples 4.5. Classification of embedded system 4.6. Skills required for an embedded system designer	<b>18</b>	<b>14</b>	<b>CO3</b>
<b>5</b>	<b>Communication buses &amp; Interrupts Servicing Mechanism</b> 5.1 Network Embedded System 5.2 Types of network embedded system- Embedded networking with CAN Bus, properties, Frame format: Extended and Standard, 5.3 I2C Bus, Arbitration process, Data Transfer in I2C, USB, Ethernet 5.4 I/O types & SPI, SCI, SI 5.5 Serial communication devices, parallel device ports, wireless devices. 5.6 Timer & counting devices, watchdog timer, real time clock 5.7 Interrupts handling Mechanism, Context switching, Latency.	<b>10</b>	<b>12</b>	<b>CO4</b>
<b>6</b>	<b>RTOS &amp; Inter-process Communication</b> 6.1 Concepts of RTOS, Functions: signal, pipe, mailbox, message. 6.2 Multitasking, Task synchronization & Mutual Exclusion, Starvation, Deadlock, Multiple processes, 6.3 Problem of sharing data by multiple tasks and routines. 6.4 Inter-process communication & embedded Linux.	<b>8</b>	<b>10</b>	<b>CO5</b>
	<b>Total</b>	<b>64</b>	<b>70</b>	





## 7. LIST OF PRACTICALS

Term Work consists of Journal containing minimum 12 experiments/assignments with approx. no of 32 hours required and corresponding CO attained are specified here:

Sr. No.	Title of Experiments	Approx. Hrs required	COs
1.	To explore various simulators used in embedded systems.	02	CO3
2.	To write sample assembly program in Keil & to observe various files created.	02	CO3
3	To write a program in Embedded C.	02	CO2
4	To perform I/O operations with 8051 Ports in Embedded C.	02	CO1
5	To perform Serial communication with 8051 in Embedded C.	02	CO2
6	To perform Timers programming with 8051 in Embedded C.	04	CO2
7	To perform Interrupt Handling programming with 8051.	02	CO2
8	To interface the 4 X 4 matrix Keyboard with 8051 using a simulator.	02	CO2
9	To interface the LCD with 8051 using simulator	02	CO2
10	To interface the ADC with 8051 using simulator	02	CO2
11	To interface real world embedded devices with 8051 mc using a simulator.	02	CO2
12	To Demonstrate various functionalities of Embedded Linux.	02	CO5
13	To demonstrate interfacing of seven-segment LED display and generate counting from 0 to 99 with fixed time delay.	02	CO2
14	To demonstrate block wise erasing of memory for micro controller using flash magic.	02	CO2
15	To demonstrate communication between two controllers using SPI in master mode. Only master will send and Slave will receive.	02	CO4
	Total	32	

## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Teaching Plan
2. Practical/assignments
3. Guest/Expert lectures
4. Slides
5. Seminar
6. Case Study
7. Self-Learning Online Resources



## 9. LEARNING RESOURCES

Sr · No.	Title Of Book	Author	Publication
1.	An Embedded Software Primer	David E. Simon	Pearson Education
2.	The 8051 Microcontroller And Embedded Systems	Muhammad Ali Mazidi	Pearson Education
3.	Programming and Customizing the 8051 Microcontroller	Mike Predko	Tata Mc graw Hill
4	Embedded Systems	Rajkamal	Tata Mc graw Hill

## 10. WEB REFERENCES

- 1 www.cis.upenn.edu
- 2 www.nptel.iitm.ac.in
3. www.embeddedindia.com
4. www.ee.hacettepe.edu.tr

## 11. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

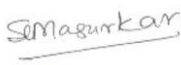
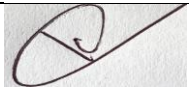


Sr. No ·	TOPIC	Distribution of Theory Marks			
		R Level	U Level	A Level	Total Marks
1.	8051 Microcontroller architecture	08	04	-	12
2.	8051 Serial and Timer/ Counter Programming	-	04	08	12
3.	8051 Interrupts	02	04	04	10
4.	Introduction to embedded system	02	04	08	14
5.	Communication buses & Interrupts Servicing Mechanism	-	06	06	12
6.	RTOS & Inter-process Communication	02	04	04	10
TOTAL		14	26	30	70

**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.



## 12. COURSE EXPERT COMMITTEE MEMBERS

Sr. No.		NAME	SIGNATURE
1	Internal	Mr. Siddhesh Masurkar	
2	Internal	Mrs. Krishna Bhatt	
3	Internal	Mrs. Sharyu Kadam	
4	External	<b>Dr. Prasad S. joshi</b> Organization: D.J.Sanghvi college of Engineering	



## 1. COURSE DETAILS

**Programme: Computer Engineering**  
**Course: #Python for Hardware Applications**  
**Course Code: PHA190807**

**Semester: V**  
**Group: A\***  
**Duration:16 Weeks**

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
03	02	–	–	05	03	70	20	10	70	50	50	--	200

## 3. COURSE OBJECTIVE

This course will enable students to learn Raspberry Pi which uses a variety of input/output devices based on protocols to communicate with the outside world. In this course students will learn how to use protocols with other external devices to get your IoT device to interact with the real world. Students will learn how to build more sophisticated hardware systems using Raspberry Pi expansion boards to create fun and exciting IoT devices. Students will also learn to use Python-based IDE (integrated development environments) for the Raspberry Pi and to trace and debug Python code on the device.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Use various IOT protocols in communication.**
- **Build a network of IOT enabled devices.**



**5. COURSE OUTCOMES (COs) at the end of the semester student will be able to:**

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Interface devices with Raspberry Pi board.	Remember, Understand, Apply
CO2	Conceptualize with the basic taxonomy and terminology in the Internet of things.	Remember, Understand
CO3	Apply Basic IOT protocols in wireless sensor network.	Understand, Apply
CO4	Implement IOT application using Python.	Understand, Apply

**6. COURSE CONTENTS**

Sr.No.	TOPIC Sub-Topics	Hours	Marks	COs
1	<b>Raspberry Pi</b> 1.1 Overview of Linux, Understanding Linux 1.2 File Structure, Linux Commands, Permissions 1.3 Introduction of Raspberry Pi Architecture. 1.4 Raspberry Pi specifications and features 1.5 Raspberry Pi models 1.6 Raspberry Pi vs Arduino comparison 1.7 Introduction to GPIO pins 1.8 Python library GPIO 1.9 Raspberry Pi UART 1.10 Creating NOOB card 1.11 Setting up of Raspberry Pi	9	12	CO1
2	<b>Interfacing</b> 2.1 Setting up of Raspberry Pi 2.2 Interfacing of camera module 2.3 Connecting an HDMI or DVI display 2.4 Interfacing keyboard, mouse and USB hub 2.5 Inserting and flashing SD card 2.6 Configuring I2C Bus, CAN Bus interface, SPI, SI	6	10	CO1



3	<b>Internet of Things</b> 3.1 Definition of Internet of Things (IoT) 3.2 IoT Paradigm 3.3 IoT Architecture 3.4 IoT Protocols 3.5 IoT Communication Models 3.6 IoT in Global Context 3.7 Different Areas of IoT 3.8 Trends in the Adaption of the IoT	9	13	CO2
4	<b>IOT Protocols</b> 4.1 RFID + NFC 4.2 Wireless Networks + WSN 4.3 RTLS + GPS 4.4 Agents + Multi – Agent Systems 4.5 Composition Models for the Web of Things and resources on the Web,Discovery, Search, IoT Mashups and Others. 4.6 IoT Protocols - M2M, BacNet, ModBus, Bluetooth, Wifi, ZigBee	9	12	CO3
5	<b>Wireless Sensor Networks</b> 5.1 History and Context 5.2 The Node, Connecting Nodes, Networking Nodes 5.3 Secured Communication for IoT 5.4 Networking and the Internet - IP Addressing 5.5 Protocols - MQTT, CoAP, REST Transferring data	8	12	CO3
6	<b>Applications and Use Cases</b> 6.1 Concrete Applications and Use – Cases of Web Enabled Things: Energy Management and Smart Home 6.2 Ambient Assisted Living, Intelligent Transport. 6.3 Business Cases and Issues - Agriculture, Music Therapy, Smart Home, Smart Grid Network, Wearable, Healthcare.	7	11	CO4
	<b>TOTAL</b>	<b>48</b>	<b>70</b>	



## 7. LIST OF PRACTICALS

Term Work consists of Journal containing minimum 12 experiments/assignments with approx. no of hours required and corresponding CO attained are specified here:

Sr. No.	Title of Experiments	Approx.Hrs required	COs
1.	To set up the Raspberry Pi board and configure it	02	CO1
2.	To install a Linux-based operating system and navigate the file system and managing processes.	02	CO1
3	To execute General Terminal Commands for the Raspberry Pi, File and Directory Commands, Networking Commands, System Commands	04	CO3
4	To set up a static IP Address on Raspberry Pi.	02	CO1
5	To Configure networking socket (as Client and Server) interface to transfer data across the network programmatically.	02	CO3
6	To setup raspberry WiFi on Raspberry Pi3 using USB dongle.	02	CO2
7	To set up a touch screen LCD on Raspberry Pi and program it to display Data.	02	CO1
8	To manipulate and powering an LED using GPIO pins	02	CO1
9	To control LED through a Push button	02	CO1
10	To interface Passive infrared sensor with Raspberry Pi.	02	CO1
11	To build a simple alarm using a PIR sensor.	02	CO1
12	To interface a 16x2 LCD with Raspberry Pi.	02	CO1
13	To install and set up Apache and PHP.	02	CO3
14	To turning and blinking LED on from a Web Page controls.	02	CO1
15	To develop GUI with TKinter.	02	CO4
	Total No. of Hours	32	

## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Teaching Plan
2. Practical/assignments
3. Guest/Expert lectures
4. Slides
5. Seminar
6. Case Study
7. Self-Learning Online Resources



## 9. LEARNING RESOURCES

Sr. No.	Title Of Book	Author	Publication
1.	Raspberry Pi for Dummies	Sean McManus, Mike Cook	3 <sup>rd</sup> Edition
2.	Raspberry Pi User Guide	Eben Upton, Gaeth Halfacree	4 <sup>th</sup> Edition, Wiley
3.	Learning Python with raspberry PI	Alex Bradbury, Ben Everard	Wiley
4	Internet of Things : Systems and Applications	Jamil Y. Khan, Mehmet R. Yuce	Jenny Stanford
5	Internet of Things for Architect	Perry Lea	
6	Internet of Things: A Hands-On Approach	Vijay Madisetti, Arshdeep Bahga	

## 10. WEB REFERENCES

- 1 <https://opensource.com/resources/raspberry-pi>
- 2 [https://www.w3schools.com/nodejs/nodejs\\_raspberrypi.asp](https://www.w3schools.com/nodejs/nodejs_raspberrypi.asp)
3. <https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT>
4. <https://www.techopedia.com/definition/28247/internet-of-things-iot>

## 11. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Sr. No.	TOPIC	Distribution of Theory Marks			
		R Level	U Level	A Level	Total Marks
1.	Raspberry Pi	02	04	06	12
2.	Interfacing	-	06	04	10
3.	Internet of Things	02	04	07	13
4.	IOT Protocols	04	04	04	12
5.	Wireless Sensor Networks	03	03	06	12
6.	Applications and Use Cases	02	03	06	11
<b>TOTAL</b>		<b>13</b>	<b>24</b>	<b>33</b>	<b>70</b>


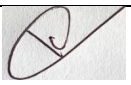

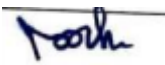
**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.





## 12. COURSE EXPERT COMMITTEE MEMBERS

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1	Internal	Mr. Siddhesh Masurkar	
2	Internal	Mrs. Krishna Bhatt	
3	Internal	Mrs. Sharyu Kadam	
4	External	Dr. Prasad S. joshi , Organization: D.J.Sanghvi college of Engineering	



## 1. COURSE DETAILS

**Programme: Computer Engineering**  
**Course: #Linux Administration**  
**Course Code: LXA190808**

**Semester: V**  
**Group: A\***  
**Duration:16 Weeks**

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
3	2	-	-	5	3	70	20	10	70	50	50	-	200

## 3. COURSE OBJECTIVE

This course is designed to provide overview of Linux Administration. Linux Operating System is widely used in industry, it is reliable, secure and flexible. Most of the Web applications, proxy server name server are developed and deployed on Linux Operated PCs.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Administer Linux system.**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Install Linux distribution /package and execute various Linux commands	Remember
CO2	Manage user/ group, access permission and disk quota	Remember, Understand
CO3	Monitor and automate tasks in Linux	Remember, Apply
CO4	Configure web server, name server, network file server and DHCP server and firewall	Remember, Apply
CO5	Configure Storage in Linux	Remember, Understand



## 6. COURSE CONTENTS

Sr.No.	TOPIC/Subtopic	Hours	Marks	Cos
1	<b>Linux Installation and file Hierarchical System</b> 1.1 Installation of Linux distribution on multi-boot , Select criteria for Linux distribution Boot Loader : GRUB / LILO 1.2 Basic Linux installation, OS installers : YaST, Anaconda, 1.3 Partitioning Hard Drive(s), Setting up Swap Space, Choosing Partitions to Format, 1.4 Linux kernel and modules , Kernel Updates 1.5 File Hierarchical system	6	8	CO1
2	<b>Software and configuration management</b> 2.1 RPM package , RPM /DNF/ YUM commands with options 2.2 Configuring DNF and DNF Repositories 2.3 Configuration Management Tools : Introduction , Benefits and Tools	4	6	CO1
3	<b>User and Group management</b> 3.1 Root Account, Ownership of files and processes, changing root user , users sudo, Creating User Accounts, Changing User Passwords ,Disabling User Accounts, Removing User Accounts 3.2 Group management and directories 3.3 Linux Password & Shadow File Formats	6	8	CO2
4	<b>Monitoring and Automation</b> 4.1 System Monitoring tools Viewing system process , Viewing block devices and File systems Viewing Hardware Information , Memory usage Viewing and Managing Log Files 4.2 Automating the task ,automated task utilities: cron, anacron, at, and batch 4.3 Bash Shell scripting , file names and permission , input output ,functions, conditional looping and bash arithmetic	8	12	CO3
5	<b>Network and Server administration</b> 5.1 Network installation ,Configuring NetworkManager , setting up Network Server administration, Starting and stopping services 5.2 Configuration name server and dhcp server and associated files 5.3 Configuring web server , proxy server and associated files 5.4 Configuring a Windows File Sharing (Samba) Server 5.5 Setting up firewall IPtables IP chain	18	26	CO4
6	<b>Storage Management</b> 6.1 Configuration NFS and related files 6.2 Redhat storage Management Stack 6.3 Logical Volume manager, purpose , hierarchy and commands	6	10	CO5
	<b>Total</b>	<b>48</b>	<b>70</b>	



## 7. LIST OF PRACTICALS/ASSIGNMENTS/EXERCISES/TUTORIALS/DRAWINGS

Term Work consists of Journal containing 12 experiments with approx.no of hours required and corresponding CO attained should be specified here.

Sr. No.	Title of Experiment/Assignment/Exercise/Tutorial/Drawings	Approx.Hrs required	Cos
1	To Install any Linux distribution and explore the FHS in Linux	2	CO1
2	To execute Linux commands	6	CO1
3	To perform various operations in software management using dnf/rpm/	2	CO1
4	To create user and group and explore the files associated with user management	2	CO2
5	To monitor processes , hardware , memory usages and log files	2	CO3
6	To automate tasks using CRON	2	CO4
7	To configure TCP/IP client and demonstrate NetworkManager	4	CO4
8	To configure the DNS and DHCP server	2	CO4
9	To Configure web server , proxy sever	2	CO4
10	To Configure a Windows File Sharing (Samba) Server	2	CO4
11	To set up firewall using IPTables	4	CO4
12	To Configure nfs server	2	CO5
	Total	<b>32</b>	

## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Teaching Plan/Tutorials
2. Minimum no of practical.
3. Guest/Expert lectures
4. Demonstrations/Simulations
5. Slides
6. Seminar/Case Study
7. Self-Learning Online Resources

## 9. LEARNING RESOURCES

Sr.No.	Title Of Book	Author	Publication
1	Red Hat Linux 9 Bible - 10	Christopher Negus	Wiley & Sons
2	Linux administration hand book-	Evi Nemeth and others	Prentice Hall Of India
3	Fedora 26 System Administrator's Guide	Stephen Wadeley Jaromír Hradílek	Red Hat Inc



## 10. WEB REFERENCES

1. <http://www.linux.org>
2. <http://www.cups.org>
3. [www.apache.org](http://www.apache.org)
4. [www.kernel.org](http://www.kernel.org)



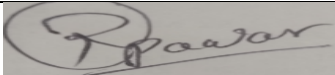

## 11. SUGGESTED SPECIFICATION TABLE

Sr. No	TOPIC	Distribution of Theory Marks			
		R Level	U Level	A Level	Total Marks
1	Linux Installation and FHS	4	4	-	8
2	Software and configuration management	4	2	-	6
3	User and Group management	4	4	-	8
4	Monitoring and Automation	-	4	8	12
5	Network and Server administration	4	6	16	26
6	Storage Management	6	4	-	10
<b>TOTAL</b>		<b>22</b>	<b>24</b>	<b>24</b>	<b>70</b>

**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.

## 12. COURSE EXPERT COMMITTEE MEMBERS

Sr. No.		NAME	SIGNATURE
1	Internal	Mr J. S. Kulkarni	
2	Internal	Mr M. R. Solankhi	
3	Internal	Mrs R. V. Pawar	
4	External	Ms. Heena Sarvaiya Manager , Morgan Stanley, Mumbai	



## 1. COURSE DETAILS

**Programme: Computer Engineering**  
**Course: #Mobile Computing**  
**Course Code: MCC190809**

**Semester : V**  
**Group : A\***  
**Duration :16 Weeks**

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
3	2	-	-	5	3	70	20	10	70	50	-	50	200

## 3. COURSE OBJECTIVE

To impart basic understanding of the wireless communication systems and to expose students to various aspects of mobile and ad-hoc networks.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Implement encryption and decryption algorithm**
- **Develop a mobile application**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Conceptualize communications basics and GSM Architecture	Remember, Understand
CO2	Configure and test mobile network and WLAN.	Remember, Understand, Apply
CO3	Apply security algorithms for encryption, decryption and authorization.	Remember, Understand, Apply
CO4	Design and develop a mobile application	Remember, Understand, Apply



## 6. COURSE CONTENTS

Sr No.	Topic/Sub-Topics	Hours	Marks	CO
1	<b>BASICS OF MOBILE COMMUNICATION SYSTEM</b> 1.1. Radio communication- spectrum, signal propagation, 1.2. First Generation, Second and Third generation of mobiles, 1.3. Block diagram of mobile system, hand off, frequency reusability, transmitting, receiving, roaming, GSM and CDMA basics.	06	10	CO1
2	<b>GSM MOBILE SYSTEMS</b> 2.1. G.S.M system architecture. 2.2. G.S.M services & features. 2.3. G.S.M radio subsystems, 2.4. G.S.M channel types. 2.5. Message & call processing in GSM, 2.6. Privacy & security in GSM. Advantages of GSM.	10	14	CO1
3	<b>MODERN WIRELESS COMMUNICATION SYSTEM</b> 3.1. 3G-W-CDMA (UMTS) (Universal mobile Telecommunication system.), 3.2. 3G CDMA 2000, 3G- TD-SCDMA (synchronous), 3.3. Wireless local loop & LMDS (local multipoint distribution) IMT 2000	08	14	CO2
4	<b>WIRELESS SECURITY ISSUES</b> 4.1. Traditional security issues, 4.2. Mobile and wireless security issues, 4.3. problems in Ad hoc network	06	10	CO3
5	<b>APPLICATION DESIGN FOR MOBILE</b> 5.1 Introduction to Mobile Operating System (Only features) - Windows CE, Symbian OS, Linux for Mobile Devices, Android. 5.2 native application development 5.2.1 Android Overview, Android Architecture, Life Cycle of Android Activity. 5.2.2 Android Tools Installation- JDK1.6, Eclipse Emulator, Android SDK Starter Package, Create Android Based simple Program like Hello Android on Emulator 5.2.3 UI components and layouts 5.2.4 designing user interface with view 5.3 hybrid application development 5.3.1 Flutter (Dart), IONIC (angular), react native.	18	22	CO4
	<b>TOTAL</b>	<b>48</b>	<b>70</b>	



## 7. LIST OF PRACTICALS

Term Work consists of Journal containing minimum 12 experiments/assignments with approx. no of hours required and corresponding CO attained are specified here:

Sr. No.	Title of Experiments/Assignment	Approx.Hrs required	COs
1.	Identify and understand different sections and components of Mobile Phone Unit and Perform Installation of SIM Card in Mobile Phone	2	CO1
2.	Observe and analyse input/output signals of different sections of mobile phone	2	CO1
3.	Perform mobile handset testing.	2	CO1
4.	Read contents of SIM card.	2	CO1
5.	Implement any mobile network using emulator	4	CO2
6.	Demonstration of authorization types for WLAN using emulator	2	CO2
7.	Setting up and configuration of access point	2	CO3
8.	Use of tools for securing data.	2	CO3
9.	Installation of Android tools: Jdk 1.5 and above, Sdk Android starter package, Eclipse emulator.	2	CO4
10.	Write a program to display "Hello" on emulator.	2	CO4
11.	Develop a program to implement frame layout, table layout and relative layout	2	CO4
12.	Develop a program to implement button, image button and toggle button	2	CO4
13.	Develop a program to implement login window using UI controls	2	CO4
14.	Develop a program to implement list view, grid view, image view and scroll view	2	CO4
15.	Prepare a report on specifications of different handsets provided by different companies.	2	CO4
	<b>TOTAL</b>	<b>32</b>	

## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Conducting lectures as per teaching plan/ scheme
2. Minimum 12 no. of practical/assignments etc
3. Guest/Expert Lecture
4. Self-Learning Online Resource





## 9. LEARNING RESOURCES

Sr. No.	Title of Book	Author	Publication
1.	Mobile Communications Education, Second Edition, 2003	Jochen Schiller, "Mobile	PHI/Pearson Education,
2.	Mobile computing - Technology, applications and service creation, Second edition	Asoke K. Talukder	Tata McGraw Hill Education
3.	Mobile Computing, Second Edition	Prashant K Patra, Sanjit K Dash	Scitech Publication
4.	Hello, Android- Introducing Google's Mobile Development Platform, Third	Ed Burnette	Shroff Publishers and Distributors (

## 10. WEB REFERENCES

1. [https://www.tutorialspoint.com/mobile\\_computing/index.htm](https://www.tutorialspoint.com/mobile_computing/index.htm)
2. <https://minigranth.com/mobile-computing/>
3. <https://www.javatpoint.com/mobile-communication-tutorial>
4. <https://developer.android.com/training/basics/firstapp>

## 11. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN



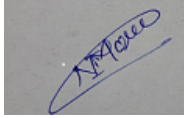

Sr. No.	TOPIC	Distribution of Theory Marks			
		R Level	U Level	A Level	Total Marks
1	Basics of mobile communication system	4	6	-	10
2	Gsm mobile systems	4	4	6	14
3	Modern wireless communication system	2	6	6	14
4	Wireless security issues	4	2	4	10
5	Application design for mobile	4	6	12	22
	<b>TOTAL</b>	<b>18</b>	<b>24</b>	<b>28</b>	<b>70</b>

**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.



## 12. COURSE EXPERT COMMITTEE MEMBERS

Sr. No.		NAME	SIGNATURE
1	Internal	Mr. Pratik Shah	
2	Internal	Mr. Pankaj Rathod	
3	Internal	Ms. Neha More	
4	External	Mr. Ashish Taldeokar Organisation: IIT, Bombay	



## 1. COURSE DETAILS

<b>Programme: Computer Engineering</b>	<b>Semester: V</b>
<b>Course: #Database Administration</b>	<b>Group: M*</b>
<b>Course Code:DBA190810</b>	<b>Duration:16 Weeks</b>

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D +T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
3	2	-	-	5	3	70	20	10	70	50	-	50	200

## 3. COURSE OBJECTIVE

In the present era it is very essential to develop and arrange data in such a way that it solves a complex problem efficiently. Data base administration is a subject which emphasizes on managing the data and this is performed by the database administrator (DBA). The position of DBA is vital since it deals with critical issues of design and management of data comprehensively

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Creation of Access privilege**
- **Management of database services**



**5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -**

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Describe the various components of the oracle database architecture.	Remember, Understand
CO2	Execute Start and shut down processes of database server and.	Understand, Apply
CO3	Manage table spaces, redo logs, Control files, data files, segments and extents	Understand, Apply
CO4	Managing users and assigning privileges and Roles	Understand, Apply

**6. COURSE CONTENTS**

Sr No.	Topic/Sub-Topics	Hours	Marks	COs
1	<b>Architectural Components</b> 1.1. Overview of Primary Components, Server and Instance 1.2. Establishing a Connection and Creating a Session 1.3. Physical Structure 1.4. Memory Structure 1.5. System Global Area, Shared Pool, Library Cache, Data Dictionary Cache, 1.6. Buffers and pools 1.7. Program Global Area, User Process, Sever Process 1.8. Background Processes 1.9. Logical Structure, Processing a SQL Statement	8	12	CO1
2	<b>Creating a Database And Managing an Instance</b> 2.1. Managing and Organizing a Database, 2.2. Creation Prerequisites 2.3. Planning Database Files Locations 2.4. Creating a Database 2.5. Operating System Environment 2.6. Initialization Parameter Files, 2.7. Starting UP a Database and Shutting Down the Database, 2.8. Shutdown Options	8	12	CO2



3	<b>Maintaining the Control File and Redo Log Files</b> 3.1. Use of control file, Multiplex and manage the control file 3.2. Using Redo Log Files, Structure of Redo Log Files, 3.3. How Redo Logs Work, Forcing Log Switches and Checkpoints	8	12	CO3
4	<b>Managing Tablespaces and Data files</b> 4.1. Database Storage Hierarchy, 4.2. Creating Tablespaces, Space Management in Tablespaces, Changing the Storage Settings, Undo Tablespace, Data files, tables, undo data and indexes logical structure of table spaces within the database, Undo Segments, types of undo segments,	10	12	CO3
5	<b>Managing Tables And Indexes</b> 5.1. Distinguish between an extended versus a restricted row id, structure of a row, creating regular and temporary tables, manage storage structures within a table, reorganize truncate, drop a table, purpose of undo data 5.2. Classification of Indexes, B-Tree Index, Bitmap Index	6	10	CO3
6	<b>Managing Users, Role And Database Objects</b> 6.1 Managing users, privileges and roles. 6.2 Creating new database users alter and drop existing database users, 6.3 Monitor information about existing users, 6.4 Classify system and object privileges, Grant and revoke privileges, 6.5 Auditing, Create, modify and controlling availability of roles, 6.6 Remove roles, user predefined roles, 6.7 Display role information from the data dictionary	8	12	CO4
		48	70	



## 7. LIST OF PRACTICALS/ASSIGNMENTS

Term Work consists of Journal containing minimum 10 experiments with approx.no of hours required and corresponding CO attained should be specified here.

Sr. No.	Title of Experiment/Assignment/Exercise/Tutorial/Drawings	Approx.Hrs required	Cos
1.	Create a database and database configuration.	2	CO1
2.	Starting up and shutting down database with SQL Plus	2	CO2
3.	Starting up and shutting down and, viewing parameters list using database manager.	2	CO2
4.	Use GUI manager to create after and drop a table space.	2	CO3
5.	Use SQL Plus command prompt/GUI interface to create users and assign roles and grant permissions table space	2	CO4
6.	Create and undo table space with database control and monitor undo with SQL plus	4	CO3
7.	Create view with predefined conditions using GUI interface	2	CO4
8	Create Index using GUI interface	2	CO3
9.	Create and configure table space for database.	2	CO3
10.	Create and undo table space with database control and monitor undo with GUI interface.	4	CO3
11.	Multiplex the redo log and translation the database to archive log mode	4	CO3
12.	Run a whole database backup and back up the control file	4	CO3
	<b>TOTAL</b>	32	

## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Conducting lectures as per teaching plan/ scheme
2. Minimum no of practical/assignments etc
- 3 . Guest/Expert Lecture
4. Self-Learning Online Resources



## 9. LEARNING RESOURCES

Sr.No.	Title Of Book	Author	Publication
1	Database System Concepts	Korth	TMH
2	Oracle 9I Database: Fundamentals	Rama Velpuri	Oracle Press
3	Database Systems Design, Implementation and Management,	Peter Rob and Carlos Coronel	Thomson Learning-Course Technology, Seventh Edition
4	Database Principles, Programming and Performance	Patrick O'Neil and Elizabeth O'Neil	Harcourt Asia Pte. Ltd., First Edition.

## 10. WEB REFERENCES

- 1) Oracle9i Database Administrator's Guide Release 2 (9.2)  
[https://docs.oracle.com/cd/B10501\\_01/server.920/a96521/toc.htm](https://docs.oracle.com/cd/B10501_01/server.920/a96521/toc.htm)
- 2) <https://www.oracletutorial.com/oracle-administration/oracle-database-architecture/>

## 11. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN




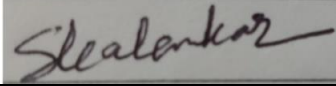
Sr No	TOPIC	Distribution of Theory marks			
		R Level	U Level	A Level	Total Marks
1	Architectural Components	4	8	-	12
2	Creating a Database And Managing an Instance	4	4	4	12
3	Maintaining the Control File And Redo Log Files	4	4	4	12
4	Managing Tablespaces and Data files	4	4	4	12
5	Managing Tables And Indexes	2	4	4	10
6	Managing Users, Role And Database Objects	4	4	4	12
	<b>Total</b>	<b>22</b>	<b>28</b>	<b>20</b>	<b>70</b>

**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.



## 12. COURSE EXPERT COMMITTEE MEMBERS

Sr. No.		NAME	SIGNATURE
1	Internal	Mr. Abhijit Dongaonkar	
2	Internal	Mrs. Geetha.S	
3	Internal	Mr Pankaj rathod	
4	External	Mr. Samip Kalamkar Database Architect	





## 1. COURSE DETAILS

<b>Programme: CSE/IT</b>	<b>Semester: V/V</b>
<b>Course: Web Development using PHP</b>	<b>Group: A/A*</b>
<b>Course Code: PHP198922</b>	<b>Duration:16 Weeks</b>

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
2	4	-	-	6	-	-	-	-	-	50	50	-	100

## 3. COURSE OBJECTIVE

PHP is an open source, easy to learn, flexible, well documented, wide community supported and most popular server-side scripting language used to build dynamic websites. It has very simple database integration with a wide range of drivers. This course intends to teach the students the concepts of web development with PHP.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Develop web application using PHP**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Use fundamentals, conditional statements, loops, arrays, strings and function in a PHP script.	Remember, Understand, Apply
CO2	Implement Object Oriented Programming concepts of PHP	Remember, Understand, Apply
CO3	Write dynamic web pages by handling forms with cookies, sessions and database.	Remember, Understand
CO4	Build a web application using WordPress and PHP.	Remember, Understand, Apply



## 6. COURSE CONTENTS

Sr. No	Topics/Sub-Topics	Hours	COs
1	<p><b>PHP Basics</b></p> <p><b>1.1 Introduction:</b> History of PHP ,PHP Features, role of client and server, Apache Application Server, PHP Installation with XAMPP and configuring php.ini, Helloworld PHP script</p> <p><b>1.2 Fundamentals:</b> Keywords, Identifiers, Variables, Constants Data Types, Type Conversion, Operators and Expressions, Strings, Comments</p> <p><b>1.3 Conditional Statements:</b> if, if...else, nested if, else if ladder, switch...case</p> <p><b>1.4 Loops:</b> for, while, do...while</p> <p><b>1.5 Functions:</b> Defining a user defined function, passing and returning parameters, Call by value and Call by reference</p>	5	CO1
2	<p><b>Arrays and Strings</b></p> <p><b>2.1 Arrays:</b> Anatomy of an Array, Creating index based and Associative array, Accessing array Element Looping with Index based array, Looping with associative array using each( ) and foreach( ), Some useful Library functions</p> <p><b>2.2 Strings:</b> Creating and accessing String, Searching &amp; Replacing String, Formatting String, String Related Library function</p>	3	CO1
3	<p><b>Object Oriented Programming Concepts</b></p> <p><b>3.1</b> Declaring a class and objects, The new keyword, constructor, Destructor,</p> <p><b>3.2</b> Access method and properties using \$this variable, Public ,private, protected properties and methods, Static properties and functions, Class constant</p> <p><b>3.3</b> Inheritance &amp; code reusability, Polymorphism, Parent:: &amp; self:: keyword, Instance of operator, Abstract method and class, Interface, final keyword</p> <p><b>3.4</b> Exception Handling: Error handling, Exception Handling, try-catch-throw, Filters</p>	6	CO2
4	<p><b>Handling Html Form With PHP</b></p> <p><b>4.1</b> Form Handling: Accessing Form controls from web page using \$_GET , \$_POST , \$_REQUEST methods, include, include_once, require, require_once</p> <p><b>4.2</b> Cookies: Cookies, Start a PHP Cookies, Cookie variables,</p> <p><b>4.3</b> modify Cookie, destroy Cookie</p> <p><b>4.4</b> Session: Introduction to sessions, Start a PHP session, session variables, modify session, destroy session</p> <p><b>4.5</b> Sending Email through PHP</p>	6	CO3



5	<b>Database Connectivity with MySQL</b> <b>5.1</b> Working with MySQL Admin: Working with PHP My Admin ,Types Data Type, Creating Database & Tables, Dropping Database & Tables, Adding Fields <b>5.2</b> MySQL Connection: Establishing Connection with MySQL, Create table and Insert data to the table from PHP application, Retrieve ,Update and delete data from MYSQL table and display it in PHP page <b>5.3</b> PHP web Application: Developing a PHP web application, Deploying and Hosting a PHP Application on a server.	6	CO3
6	<b>WordPress</b> <b>6.1</b> Installing WordPress, folder structure, creating custom pages-posts-categories and tags, uploading media, template hierarchy, Choosing, Installing and activating plugins, Themes, <b>6.2</b> WordPress hooks: actions and filters, Implementing custom home, category and posts page, Fetching data from Database using custom queries (Querying Posts) , The WordPress Loop	6	CO4
<b>TOTAL</b>		<b>32</b>	

## 7. LIST OF PRACTICALS/ASSIGNMENTS/EXERCISES/TUTORIALS/DRAWINGS

Term Work consists of Journal containing minimum 10 experiments/assignments with approx. no of hours required and corresponding CO attained are specified here:

Sr.No.	Title/Aim	Approx. Hrs required	COs
01	To Install and Set up XAMPP to run a HelloWorld PHP script	2	CO1
02	To develop user defined functions in PHP	2	CO1
03	To manipulate arrays and strings	2	CO1
04	To implement Inheritance and handle Exceptions in PHP	6	CO2
05	To extract form fields from an HTML form using \$_GET, \$_POST, \$_REQUEST methods.	4	CO3
06	To create, modify and destroy cookies in PHP	4	CO3
07	To manage sessions in PHP	6	CO3
08	To send an Email using PHP script.	2	CO3
09	To check login of a user using MySQL database connection.	4	CO3
10	To update MySQL database through Signup/Registration process.	4	CO3
11	To develop a web application and to deploy it on the web server. (Case Study)	4	CO3
12	To install WordPress and exploring WordPress admin through creating custom pages, posts, categories, tags and themes.	4	CO4
13	To work with WordPress plugins, hooks, database custom queries and loop	8	CO4
14	Mini Project	12	CO1 to CO4
<b>Total</b>		<b>64</b>	



## 8. IMPLEMENTATION STRATEGY (PLANNING)

- 1) Teaching Plan/Tutorials
- 2) Minimum no of practical/assignments/drawings etc.
- 3) Guest/Expert lectures
- 4) Demonstrations/Simulations
- 5) Slides
- 6) Group discussions
- 7) Self-Learning Online Resources





## 9. LEARNING RESOURCES

Sr. No.	Title Of Book	Author	Publication
1.	The Joy of PHP	Alan Forbes	Plum Island Publishing LLC
2.	PHP: A Beginner's Guide	Vikram Vaswani	McGraw-Hill Education
3.	Learning PHP, MySQL & JavaScript with j Query, CSS & HTML	Robin Nixon	O'Reilly
4.	Building Web Apps with WordPress	Brian Messe Lehner and Jason Coleman	O'Reilly

## 10. WEB REFERENCES

1. <https://www.guru99.com/php-tutorials.html>
2. <https://www.phptpoint.com/php-tutorial/>
3. <https://www.javatpoint.com/php-tutorial>
4. <https://www.tutorialspoint.com/php/index.htm>

## 11. COURSE EXPERT COMMITTEE MEMBERS

Sr. No.		NAME	SIGNATURE
1	Internal	Mr.Manish R.Solanki	
2	Internal	Ms. Priti P. Bokariya	
3	Internal	Mr Pratik H. Shah	
4.	External	Mr. Sandeepraj Bhandari, SRES DBOI, Pune	



## 1. COURSE DETAILS

<b>Programme: Computer Engineering</b>	<b>Semester: V</b>
<b>Course: Software Development Methodologies</b>	<b>Group: M</b>
<b>Course Code: SDM190812</b>	<b>Duration:16 Weeks</b>

## 2 TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Dra wing Hrs D	Tutorial Hrs T	Credits (L+P+ D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
2	4	-	-	6	3	70	20	10	70	25	-	25	150

## 3. COURSE OBJECTIVE

Students will learn and apply the concepts of software requirement analysis and design. They will examine various software development methodologies and processes and employ these methods in a development team environment.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Develop a system by applying core software engineering practices**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Write steps of SDLC and identify roles of System Analyst	Remember, understand
CO2	Evaluate software development methodologies.	Understand, Apply
CO3	Use tools for project Management	Remember, understand, Apply
CO4	Classify different Documentations in Software Development environment.	Remember, understand



## 6. COURSE CONTENTS

Sr No.	Topic/Sub-Topics	Hours	Marks	CO
1	<b>Introduction to System Development Life Cycle</b> 1.1 Introduction: Definition of a System, Types of Systems 1.2 Types of information: operational, tactical, strategic 1.3 Need of information systems 1.4 Requirements of information at different levels of management Phases of SDLC	5	14	CO1
2	<b>Role of systems analyst in SDLC</b> 2.1 Attributes of a systems analyst 2.2 Roles of System Analyst 2.3 Task performed by System Analyst	4	8	CO1
3	<b>Software Development Methodologies</b> 3.1 Software Development Methodologies, 3.2 Strengths and weaknesses of waterfall model 3.3 Agile software development methods 3.4 Agile manifesto and principles, agile framework, scrum 3.5 Differentiate between the waterfall and agile software development methods	5	10	CO2
4	<b>Software Project Management</b> 4.1 Significance of software project management 4.2 Different project management tools 4.3 Work break down structure and advantages	6	14	CO3
5.	<b>Preliminary Survey, Feasibility study and SRS</b> 5.1 Preliminary Survey, Feasibility study and SRS contents 5.2 Preliminary Survey Report 5.3 Feasibility study Report 5.4 The Decision-making Body 5.5 Contents of SRS with a case study	6	12	CO1
6	<b>System Design and Documentation</b> 6.1 System Design Specifications 6.2 Detailed design Specifications 6.3 Introduction to Documentation 6.4 Design documentation 6.5 User Documentation for Training, operations Documentation 6.6 User Reference Documentation	6	12	CO4
	<b>Total</b>	<b>32</b>	<b>70</b>	



## 7. LIST OF PRACTICALS/ASSIGNMENTS/EXERCISES/TUTORIALS/DRAWINGS

Term Work consists of Journal containing minimum 10 experiments/assignments with approx. no of hours required and corresponding CO attained are specified here:

Sr. No.	Title of Assignment	Approx.Hrs required	COs
1	Construct DFD for online food ordering system	4	CO1
2	Construct ER Diagram for Employee Management system	4	CO1
3	Construct Structure chart for an Electronic Mail Server	4	CO1
4	Develop SRS using online documentation tool	4	CO4
5	Develop Gantt chart to track the progress of the project.	6	CO3
6	Develop Pert chart for designing a web site	6	CO3
7	Design and Develop Student Enrollment System through traditional model	8	CO2
8	Design Payroll System through agile model	6	CO2
9	Develop Payroll System through agile model	6	CO3
10	Design and develop a Product Management system using SCRUM tool	6	CO2
11	Design and develop a Product Management system using JIRA tool	6	CO1,2,3
12	Create operation Documentation using documentation tool	4	CO4
	<b>TOTAL</b>	<b>64</b>	

## 8. IMPLEMENTATION STRATEGY (PLANNING)

1. Conducting lectures as per teaching plan/ scheme
2. Minimum no of practical/assignments etc
- 3 .Guest/Expert Lecture
4. Self-Learning Online Resources



## 9. LEARNING RESOURCES

Sr. No.	Title Of Book	Author	Publication
1	The Analysis, Design and Implementation of Information systems	Henry C. Lucas. Jr.	Mogran – Hill Book Company
2	Systems analysis & Design	Elias m Avad	Galgotia Publications Pvt. Ltd
3	Introducing Systems Analysis & Design, Vol. 1 & 2 prepared by NCC (National Centre for Computing)	U.K.G.L. Simons	Galgotia Publications Pvt. Ltd
4.	Software Engineering : A practitioners approach	Pressman Roger	Tata Mc Graw Hill
5.	An Integrated Approach to software Engineering	Jalota Pankaj	Narosa Publication

## 10. WEB REFERENCES

- 1 <http://www.rspa.com>
- 2 [www.nptel.iitk.ac.in](http://www.nptel.iitk.ac.in)
- 3 [www.ddegjust.ac.in/studymaterial/pgdca/ms-04.pdf](http://www.ddegjust.ac.in/studymaterial/pgdca/ms-04.pdf)
- 4 [www.cba.edu](http://www.cba.edu)
5. <http://ww.idc-online.com/resources/technical-references/information-technology-technical-references.html>
6. [http:// www.minigranth.com/software-engineering-tutorial/case-tools/](http://www.minigranth.com/software-engineering-tutorial/case-tools/)
7. <https://www.atlassian.com/software/jira/guides/>

## 11. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Sr. No.	TOPIC	Distribution of Theory Marks			
		R Level	U Level	A Level	Total Marks
1.	Introduction to System Development Life Cycle	4	6	4	14
2.	Role of systems analyst in SDLC	2	4	2	8
3.	Software Development Methodologies	2	4	4	10
4.	Software Project Management	2	6	6	14
5.	Preliminary Survey, Feasibility study and SRS	4	4	4	12
6.	System Design and Documentation	4	4	4	12
<b>TOTAL</b>		<b>18</b>	<b>28</b>	<b>24</b>	<b>70</b>



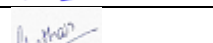
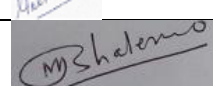




**R Remembering, U Understanding, A Applying, (Bloom's revised taxonomy levels)**

NOTE: This specification table provides general guidelines to assist students for their learning and to teachers to teach and assess students with respect to attainment of Cos. The actual distribution of marks at different taxonomy levels (R, U, A) in the question paper may vary from above table.

**12. COURSE EXPERT COMMITTEE MEMBERS**

Sr. No.		NAME	SIGNATURE
1	Internal	Mrs. Radhika Patwardhan	
2	Internal	Mr. M.R. Solanki	
3	Internal	Mrs. Geetha S	
4	External	Mr. Bhalerao Moreshwar H. (Government Polytechnic, Vikramgad)	



## 1. COURSE DETAILS

**Programme: CSE**

**Course: Technical Writing and Tools**

**Course Code: TWT190813**

**Semester: V**

**Group: A**

**Duration: 16 Weeks**

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
-	2	-	-	2	-	-	-	-	-	50	-	-	50

## 3. COURSE OBJECTIVE

In the era of digital explosion conveying knowledge to diverse audiences is very much essential. Online technical content writing and presentation skills have become an integral part of technical communication. This course focuses on software tools used for technical writing such as reports, presentations and online content creation.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Develop soft skills for technical professionals using software tools.**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Create technical documents	Remember, apply
CO2	Create interactive presentations	Apply
CO3	Use open source software for detecting plagiarism	Remember, apply
CO4	Create digital content	Remember, apply



## 6 LISTOF PRACTICALS/ASSIGNMENTS/EXERCISES/TUTORIALS/DRAWINGS

Term Work consists of Journal containing minimum 10 experiments/assignments with approx. no of hours required and corresponding CO attained are specified here:

Sr. No.	Title of Assignment	Approx.Hrs required	COs
1	Assignment on basic concept of technical communication	2	CO2
2	Survey of a technical document and comparison of technical and nontechnical attributes	2	CO1
3	Assignment on technical writing	2	CO1
4	Installation of LATEX software	2	CO1
5	Create a Latex Document Structure	2	CO1
6	Typesetting Text in a LATEX document	4	CO1
7	Insertion of tables and figures in a LATEX document	4	CO1
8	Create Bibliography and Citations in a LATEX document	4	CO1
9	Create an interactive presentation using LATEX	4	CO2
10	Checking of plagiarism using online software tools	4	CO3
11	Use of technical illustrator software	2	CO4
	<b>TOTAL</b>	<b>32</b>	


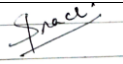

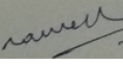
## 7. IMPLEMENTATION STRATEGY (PLANNING)

1. Conducting lectures as per teaching plan/ scheme
2. Minimum no of practical/assignments etc.
- 3 .Guest/Expert Lecture
4. Self-Learning Online Resources

## 8. WEB REFERENCES

1. <https://techwhirl.com>
2. <https://www.questionpro.com>
3. <https://www.latex-project.org/>
4. <https://www.grammarly.com/plagiarism-checker>
5. <https://exelearning.org/>

## 9. COURSE EXPERT COMMITTEE MEMBERS

Sr. No.		NAME	SIGNATURE
1	Internal	Mr. Janardan Kulkarni	
2	Internal	Mrs. Prachi Arora	
3	Internal	Mrs. Geetha S.	
4	External	Dr. Ramesh Vulavala, Retd. Professor, Dept of chemical Engg, D.J.S. College of Engineering	



## 1. COURSE DETAILS

<b>Programme: CSE/IT</b>	<b>Semester: V/V</b>
<b>Course: IT Innovative Project &amp; Practices</b>	<b>Group: A</b>
<b>Course Code: IPP198923</b>	<b>Duration:16 Weeks</b>

## 2. TEACHING AND EXAMINATION SCHEME

Scheme of Instructions and Periods per Week					Examination Scheme and Maximum Marks								
Theory Hrs L	Practical Hrs P	Drawing Hrs D	Tutorial Hrs T	Credits (L+P+D+T)	Theory Paper Duration and marks(ESE)		SSL	TA	TH	TW	PR	OR	TOTAL
					Hours	Marks							
-	2	-	-	2	-	-	-	-	-	50	-	-	50

## 3. COURSE OBJECTIVE

Today the I.T field is growing rapidly. The use of latest Mobile devices and websites /apps has created curiosity and interest in students to explore emerging domain / technology. This course allow students to identify reliable web resources and domain, cleansing the data and present the report for the project implementation.

## 4. SKILL COMPETENCY

The aim of this course is to help the students to attain the following industry identified competency through various teaching learning experiences:

- **Identify the domain and technologies useful for project implementation.**

## 5. COURSE OUTCOMES (COs) at the end of the semester student will be able to: -

CO No.	COURSE OUTCOME	Bloom's LEVEL
CO1	Select the latest domain / technologies and understand the topic	Remember
CO2	Write report on the topic	Remember, Understand
CO3	Prepare the presentation and deliver the seminar	Remember, Apply
CO4	Prepare for the project implementation	Remember, Apply



