

Programme Name : Artificial Intelligence and Machine Learning/Computer Engineering/Information Technology

Programme Code : AN/CO/ IT

Course Code	Course Title	Course Abbr.	Semester
7R603	Workshop Practice	WPC	FIRST

I. RATIONALE

A diploma engineer in his/her professional life works in a typical business environment where s/he interacts with computers, peripherals and related devices and instruments. They must be able to use and maintain this equipment's authentically. Diploma pass out must be able to use and maintain these system peripherals authentically. They must also possess basic skills of assembling desktop computers, interfacing with peripheral devices, installing new devices and carry out basic preventive and breakdown maintenance. Hence, this course is designed to develop these vital skills in them through various workshop-based activities.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

The aim of this course is to help the student to attain the following industry identified outcomes through various teaching learning experiences: **Perform simple maintenance operations on computer system, peripherals and network with small LAN setup.**

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

CO1 - Carry-out elementary level maintenance of a PC.

CO2 - Create partitions and format hard disk drive.

CO3 - Install and configure Operating system.

CO4 - Configure different types of peripheral devices

CO5 - Setup Small Local Area Network and use diagnostic software for fault finding in Computer system

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme											
				Actual Contact Hrs. / Week			SLH	NLH		Paper Duration	Theory				Based on LL & TSL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
							Max	Min							Max	Min	Max	Min	Max	Min	
7R603	Workshop Practice	WPC	SEC	-	-	4	-	4	2		-	-	-	-	50	20	50@	20	-	-	100

Total IKS Hrs for Sem. : 0 Hrs

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH- Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - SelfLearning Assessment

Legends: @ Internal Assessment, # External Assessment, *# On Line Examination, @\$ Internal Online ExaminationNote :

1. FA-TH represents average of two Progressive tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that course.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Not Applicable

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Identify desktop/laptop by its type and verify its specifications LLO 1.2 Identify type of server and verify its Specification	1*	Desktop/laptop/server type identification and its specification	2	CO1
LLO 2.1 Open PC Panel and Identify Components LLO 2.2 Clean inside PC - Boards and Slots	2	Identification and cleaning of Components	2	CO1
LLO 3.1 Undertake Preventive Maintenance of PC using vacuum cleaner and simple tools	3	Preventive Maintenance of PC	2	CO1
LLO 4.1 Connect/disconnect various components of the motherboard for performing disassembling and assembling of computer system.	4*	Assembling and disassembling of PC	4	CO1
LLO 5.1 Configure different BIOS settings in computer system	5*	Perform BIOS settings	2	CO1
LLO 6.1 Partition and manage hard disk LLO 6.2 Format hard drives with different file systems.	6*	Manage a Hard disk	4	CO2
LLO 7.1 Prepare of bootable pen drive.	7*	Preparing a bootable device	2	CO3
LLO 8.1 Install Operating System – Windows family (such as Windows 10, 11)	8*	Installation of Windows Operating System	2	CO3
LLO 9.1 Install Operating System – Unix family (such as Linux/Ubuntu/Centos)	9*	Installation of Unix family Operating System	2	CO3
LLO 10.1 Install two operating systems (Windows and Linux) on same machine.	10	Installation of dual operating systems	2	CO3
LLO 11.1 Manage computer services (Printer, Power, and Storage Services)	11*	Managing various computer services	2	CO4
LLO 12.1 Clean peripheral devices and connect it to computer	12	Peripheral devices cleaning	2	CO4
LLO 13.1 Install local printer by applying various types of configuration settings LLO 13.1 Remove and mount cartridge, troubleshoot paper jam	13*	Installation of local and Network printer	2	CO4
LLO 14.1 Share the printer, devices, folders on a network	14*	Share devices, files and folders	4	CO4
LLO 15.1 Install and configure scanner	15	Installation of scanner	2	CO4
LLO 16.1 Set and configure monitor/display, Speaker, Microphone and LCD Projector	16	Set Input/output devices	2	CO4
LLO 17.1 Prepare and test crossover and straight cable, CAT5, CAT6 Cable, using connector, crimping tools, splicer	17*	Make CAT5, CAT6 Cable	4	CO5

LLO 18.1 Connect/disconnect LAN Cable, External Hard disk, Modem, LCD/DLP Projector	18*	Connect devices to external port	2	CO5
LLO 19.1 Connect Modem, Hub/Switches/routers and verify the connection	19	Connect Networking devices	2	CO5
LLO 20.1 Connect two Switches/Hubs using normal and uplink port	20*	Connection of Switches/Hubs	2	CO5
LLO 21.1 Configure devices to setup Wi-Fi environment	21*	Setup Wi-Fi environment	2	CO5
LLO 22.1 Create a small wired network environment	22	Setup wired network environment	4	CO5
LLO 23.1 Set and configure blue tooth based wireless mouse, keyboard and other devices	23	Setup wireless I/O devices	2	CO5
LLO 24.1 Use diagnostic software for PC fault finding	24	Fault diagnostics	2	CO5
LLO 25.1 Install Antivirus and Configure various settings	25*	Anti-viruses installation	2	CO5

Note: A suggestive list of LLOs is given the above table. A judicial mix of minimum 20 LLOs needs to be performed out of 25. The LLOs which marked as “*” are compulsory, so that the students reach the ‘Precision Level’ of Dave’s ‘Psychomotor Domain Taxonomy’ as generally required by the industry.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Not Applicable

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Computer system with all necessary components like: motherboard, random access memory (RAM), read-only memory (ROM), Graphics cards, sound cards, internal hard disk drives, DVD drive, network interface card	1.1 to 25.1
2	LCD/DLP Projector (Epson EB-X49 XGA Projector Brightness: 3600lm with HDMI Port (Optional Wi-Fi)).	15.1
3	Modems, hubs, switches, Router	16.1
4	Wi-Fi set-up with access point and repeater	19.1
5	Bluetooth based wireless mouse and keyboard or any other device	21.1
6	Cat5/Cat6 cable, with RJ 45 Connectors, LAN tester	17.1
7	Fiber optic cable with SC, ST, LC Connectors	20.1
8	Laser Printer	14.1
9	Scanner	15.1
10	Hub/Switches/Routers	19.1
11	Fault finding software, antivirus	22.1, 23.1, 25.1

12	Operating System, Hard Disk	6.1,7.1,8.1,9.1
13	Computer Maintenance kit	2.1 to 22.1
14	External Hard Disk (500 GB/1 TB)	15.1
15	Light vacuum cleaner, approx. 200 watts with brushes and accessories	2.1,3.1,9.1

IX. SUGGESTED FOR WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Not Applicable

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Continuous assessment based on cognitive, psychomotor, and affective domain related performance indicators

Summative Assessment (Assessment of Learning)

- End Semester examination, Lab. Performance, viva voce: Command line tasks, script writing, troubleshooting exercises, etc.

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO1	3	2	-	-	-	-	-	3	-
CO2	-	-	1	1	-	-	2	3	-
CO3	-	-	-	1	-	-	3	3	-
CO4	-	2	-	2	3	-	-	3	-
CO5	-	3	3	3	-	3	-	3	-

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher
1	James, K. L.	The computer hardware installation, interfacing, troubleshooting and maintenance	PHI Learning, New Delhi, 2014 ISBN: 978-81-203-4798-4
2	Minasi, Mark	The Complete PC Upgrade And maintenance Guide	BPB Publication, New Delhi ISBN: 978-81-265-0627-9
3	Kadam, Sachin	Computer Architecture and Maintenance Vol.1	Shroff Publication, Mumbai ISBN: 978-9350230244

4	Craig Zacker, John Rourke	The Complete Reference PC Hardware	Mc Graw Hill Education ISBN-13: 978-0070436060
5	James K. Lathrop, Daniel J. Leach	Computer Hardware: Installation, Interfacing, Troubleshooting and Maintenance	Prentice Hall, ISBN: 9780131632410

XIII. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	http://www.ciscopress.com/articles/article.asp?p=2086239&seqNum=4 Essential Introduction to Computer	Reading material about computer Lab Procedure and tool use
2	http://www.instructables.com/id/Computer-Assembly/	Reading material about Computer assembly
3	http://www.liutilities.com/how-to/operate-a-laptop-computer/	Article about How To Operate a Laptop Computer
4	https://video.search.yahoo.com/search/video?fr=mcafee&ei=UTF-8&p=hardware+maintenance+and+troubleshooting	Video about Trouble Shooting of Computer
5	geeksforgeeks.org/how-to-set-up-a-LAN-network	Reading material about Process to set a LAN
6	https://www.youtube.com/watch?v=cc2fyg-B5WE	Video about setting a LAN