



GOVERNMENT OF TAMILNADU
DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI
STATE PROJECT COORDINATION UNIT
(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	Raspberry Pi
Course Code	CSE/2020/025
Course Duration	60 hrs
Minimum Eligibility Criteria and Pre-requisites (if any)	ITI/10th/+2/Diploma/Graduates
Course Objectives	The course objectives is to know about downloading and installing Raspbian, the most popular operating system for Raspberry Pi. The students will learn to install applications for the device using command line and GUI tools.
Course Outcomes	At the end of the course, the students will be able to setup Raspberry Pi, Install OS and perform basic operations in it. Also they will be able access the OS remotely.
Expected Job Roles	Raspberry Pi Programmer

TEACHING AND SCHEME OF EXAMINATION

Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
CSE/2020/025	Raspberry Pi	Theory	20	10	20	3 Hours
		Practical	40	40	80	
		Total	60	50	100	

**CSE/2020/025 - RASPBERRY PI
DETAILED SYLLABUS**

UNIT NO	MODULES	NO.OF.HOURS THEORY
I	INTRODUCTION TO RASPBERRY PI	
1.1	Different Models of Raspberry Pi- Why Raspberry Pi? Peripherals of Raspberry Pi Applications of Raspberry Pi.	4
II	RASPBIAN OS	
2.1	Different Operating Systems for Raspberry pi Getting Started With Raspbian OS Bootling for the First time Installing Raspbian Connecting to the Internet The Raspberry Pi Store- Install an application from the Pi Store Raspbian repository-Updating Raspbian- Synaptic Package Manager	4
III	CONFIGURING THE SYSTEM USING RASPBIAN OS	
3.1	Configuring Users-Setting up Time Memory-Expanding File system Simple scripts - Using Raspberry Pi for Applications Web Browser Experience- Mp3 Player- Video Player- Online Video Streaming.	4
IV	TERMINAL MODE WORKING WITH OS	
4.1	Executing basic commands in terminal mode File system management	4
V	REMOTE ACCESS	
5.1	Access the Raspberry Pi remotely Enable SSH access to the Raspberry Pi Transfer files with SFTP Remote Computing Basics Connecting Raspberry Pi to a Remote Access Client	4
Total Theory Hours		20
Total Practical Hours		40
Total Hours		60

PRACTICAL (40 HOURS)

1. Familiarizing the pins and ports of Raspberry Pi.
2. Setup the Raspberry Pi
3. Format the SD card
4. Installing Raspbian OS
5. Installing an application from store
6. Expand file system in Raspbian OS
7. Change username and Password in Raspbian OS
8. Add location and set clock in Raspberry Pi.
9. Configure memory in Raspbian OS
10. Create a script to take picture in Raspbian OS
11. Execute basic terminal commands
12. Manage files and directories using commands
13. Manage devices using command
14. Configuring Remote access in Raspbian OS
15. Transfer files using SFTP in Raspbian OS

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1.	COMPUTER
2	PRINTER

SOFTWARE REQUIREMENT

S.NO	LIST OF SOFTWARE
1.	Raspberry pi

REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1.	Raspberry Pi for complete beginners	AntunPeicevic	Geek University Press
2.	The Official Raspberry Pi Beginner's Guide: How to Use Your New Computer	Gareth Halfacree	Raspberry Pi Press, Nov 2019

ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training , Certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnic.

END EXAMINATION

ALLOCATION OF MARKS

S.No	Description	Max.Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Procedure	10
	b)Execution	30
	c)Output	20
	d)Record	20
Total Marks		100

THEORY MODEL QUESTION PAPER

CSE/2020/025 - RASPBERRY PI

(Maximum Marks : 20)

(N.B: Answer any **twenty** questions)

20 x 1 = 20 Marks

1. Write different models of Raspberry Pi.
2. Name any two peripherals of Raspberry Pi.
3. Write any two applications of Raspberry Pi.
4. What is GPIO?
5. How many GPIO Pins are there in Raspberry Pi 3 Model B?
6. What do we use to connect TV to RPi?
7. How power supply is done to RPi?
8. What is the Ethernet/LAN cable used in RPi?
9. What are the parameters that are default values?
10. What is the command used for easy using of GNU screen?
11. Which instruction set architecture is used in Raspberry Pi?
12. What is the default user in Debain on Raspberry Pi?
13. What are the distributions are supported by raspberry Pi?
14. What bit processor is used in Pi 3?
15. What is the language used by Raspberry Pi?
16. What is the SoC used for the Raspberry Pi?
17. Write any two disadvantages of Raspberry Pi.
18. What is the NOOBS software all about?
19. How is Raspberry Pi used in IoT?
20. What is the purpose of unnamed-a, unnamed-r commands?
21. What is the standard form of SPI pin?
22. Which command is used to change the directory?
23. What is the purpose of the chmod command?
24. Which command shows bootup messages?
25. Which type of GPU is used in the raspberry pi B+ model?