



# FRANCIS XAVIER<sup>®</sup> ENGINEERING COLLEGE AN AUTONOMOUS INSTITUTION

Accredited BY NBA | AICTE Sponsored Margdarshan Mentor Institution  
DST-FIST Supported Institution | ISO 9001:2015 Certified  
Recognized under Section 2(f) & 12(B) of the UGC Act, 1950

f /fxengg   t /fxengg   @ /fx\_ec   in /fxengg  
/francisxavierengineeringcollege

## Department of Computer Science and Engineering

### 10<sup>TH</sup> BOARD OF STUDIES MEETING

FXEC\CSE\2023-2024\BOS-10 Minutes

Mode: Hybrid

Venue: Lab-3

Google Meet link: <https://meet.google.com/frw-kxjy-eaj>

Date & Time: 12.12.2023 & 10:00 AM

#### AGENDA

BoS/CSE 10.1: Welcome address and Opening Remarks by Chairman, Board of studies in the Department of Computer Science and Engineering

BoS/CSE 10.2: Confirmation of the Minutes of the 9<sup>th</sup> meeting of Board of studies in the department of Computer Science and Engineering held on 12.06.2023 and Action taken report of 9<sup>th</sup> meeting of Board of studies (Annexure - I)

BoS /CSE 10.3: Business brought forward by the Chairman, Board of Studies

10.3.1 Industry Supported Course

10.3.2 Cyber Security Minor Course

10.3.3 NPTEL Course

BoS / CSE 10.4: Suggestions given by the BOS Members

BoS / CSE 10.5: Any other items for discussion

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
MINUTES OF THE MEETING**

The 10<sup>th</sup> Meeting of the Board of studies of the Department of Computer Science and Engineering was held on 12<sup>th</sup> December 2023 at 10 am.

The following members were present:

1. Head of BOS  
Prof. Dr.G.Aravind Swaminathan, Professor/Head,  
Department of Computer Science and Engineering,  
Francis Xavier Engineering College,  
Tirunelveli
2. University Nominee  
**Dr.C. Senthil Kumar,**  
Associate Professor,  
Department of Computer Science and Engineering,  
Thiagarajar College of Engineering.
3. Academic Experts  
**Dr.E.Ilavarasan**  
Professor/CSE,  
Pudhucherry Technological University (Formally Pondicherry Engineering College),  
Pondicherry- 605014.  
**Dr.D Murugan**  
Professor/CSE,  
Manonmanium Sundaranar University,  
Tirunelveli-627012
4. Industrial Experts  
**Mr.Prabagar Ramamurthy**  
Head,  
Information Security Management,  
Tata Consultancy Services,  
1/G1,Sipcot,IT Park,  
Siruchery,  
Chennai -600006
5. Alumni Members  
**Mr.Abishek Stephen**  
Senior Backend Engineer,  
Turing,  
Palo Alto, California,  
USA



## 6. Internal Members

S. No	Name of the Member	Designation
1.	Dr.R.Ravi	Professor/CSE
2.	Dr.S.Balaji	Professor/CSE
3.	Dr.C.Yesubai Rubavathi	Professor/CSE
4.	Dr.Y.Harold Robinson	Professor/CSE
5.	Dr.E.Manohar	Assoc. Prof /CSE
6.	Dr.R.Tino Merlin	Assoc. Prof / CSE
7.	Mr.J.Zahariya Gabriel	AP/ CSE
8.	Mrs.P.Brundha	AP/ CSE
9.	Mrs.J.Priskilla Angel Rani	AP/ CSE
10.	Mr.K.Sivakumar	AP/ CSE
11.	Mrs.N.RajaPriya	AP/ CSE
12.	Mr.S.Malaiarasan	AP/ CSE
13.	Mrs.P.Jenifer	AP/ CSE
14.	Mrs.M.Sharon Nisha	AP/ CSE
15.	Mr.M.Mukesh krishnan	AP/ CSE
16.	Mrs.A.Muthu Lakshmi	AP/ CSE
17.	Mrs.M.Bagya Lakshmi	AP/ CSE
18.	Mrs.D.Elizabeth Paulsyah	AP/ CSE
19.	Mrs.J.Doulas	AP/ CSE
20.	Mr.N.Raghavendran	AP/ CSE
21.	Mrs.M.Mariammal	AP/ CSE
22.	Mrs.B.Diviyapriya	AP/ CSE
23.	Mrs.A. Euodial	AP/ CSE

### **Members Absent – Nil**

Board of Studies Meeting started with a prayer and welcome address by Dr.G.Aravind Swaminathan, Professor/Head

### **BoS /CSE 10.1: WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES IN THE DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

The Chairman, BOS of the Computer Science and Engineering welcomed and introduced the members of 10<sup>th</sup> Board of Studies and thanked each of them for sparing their valuable time to attend the meeting.

The Chairman presented the Vision, Mission, PEO and PSO of the Department for approval to the BoS Members

### **BoS /CSE 10.2: TO CONFIRM THE MINUTES OF NINTH BOS MEETING HELD ON 12.06.2023**

The Minutes of the Ninth Board of Studies meeting held on 12.06.2023 were communicated to the members. The comments received have been incorporated and placed for confirmation. The same was approved by the 9<sup>th</sup> Academic Council Meeting.

✓ *Action Taken Report [Enclosed in Annexure I]*

### **BoS / CSE 10.3: Business brought forward by the Chairman, Board of Studies**

#### **BoS / CSE 10.3.1: TO CONFIRM AND APPROVE the Industry Supported Course (5<sup>th</sup> Semester one Professional Elective Course) for R2021 B.E Computer Science and Engineering**

The Syllabus of 5<sup>th</sup> semester one Professional Elective Course Linux System Administration was framed as Industry Supported Course and it was presented by the chairman BOS

The Course Outcomes and Mapping of CO Vs PO and CO Vs PSO was presented by the chairman BOS

✓ RESOLVED TO APPROVE the Syllabus of Industry Supported Course(Annexure - II)

#### **BoS / CSE 10.3.2: Progress of the Specialization/Minor Courses**

##### **Specialization in Cyber Security R2021**

The Specialization/ Minor Courses in Cyber Security for R2021 is conducted with 2 Theory Courses, 2 Theory cum Practical courses and one Project work with 18 credits and the enrollment details was presented by the chairman BOS

It was suggested that there should be mechanism for the students to withdraw from minor courses such as credit transfer

✓ RESOLVED TO APPROVE the Curriculum & Syllabus for R2021 Specialization in Cyber Security



### **BoS / CSE 10.3.3: TO CONFIRM AND APPROVE the NPTEL Courses**

The List of NPTEL Online Courses to be opted for the students in 6<sup>th</sup> semester instead of Professional Elective Courses in the overall curriculum were discussed

✓ RESOLVED TO APPROVE the NPTEL Courses (Annexure – III)

### **BoS / CSE 10.4: Suggestions Given by the Members**


#### **R2021 B.E Computer Science and Engineering**

- 10.4.1 In Professional Elective –I, 21CS5701 - RedHat Certified System Administration the course title can be renamed as Linux System Administration
- 10.4.2 In Professional Elective –I, 21CS5701- Linux System Administration, Unit-II and Unit-I can be swapped
- 10.4.3 In Professional Elective –I, 21CS5701- Linux System Administration, Unit-I include topic Cron Job scheduling
- 10.4.4 The Mechanisms for the students dropping from the Minor course has to be formulated




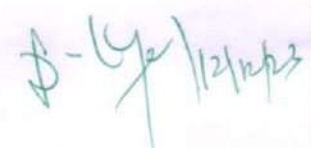
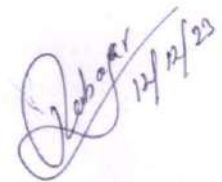

### **BoS / CSE 10.5: Any other items for discussion**

- 10.5.1 The Industry Supported Course is included as Theory cum practical in 5th Semester as one of the Professional Elective Course
- 10.5.2 It was proposed to frame the Regulation for UG/PG 2024, the framework and the syllabus for 1<sup>st</sup> and 2<sup>nd</sup> semester will be presented in the forthcoming BOS
- 10.5.3 It was proposed to upgrade the applied labs, Programming and Coding lab and Mobile Application Development from Dual core to i7 processor
- 10.5.4 The details of value added courses offered and the skill based value added courses to be offered were presented
- 10.5.5 It was decided to send the final year students to do their capstone project in the industry



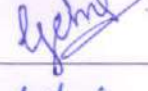
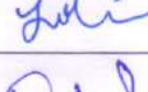
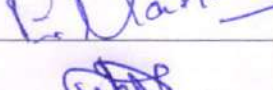
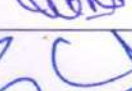

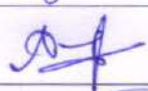
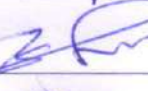


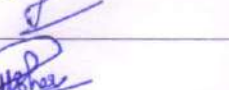

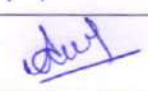

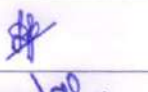
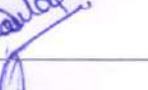

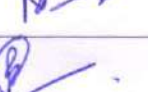
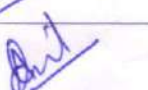
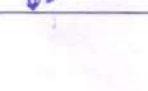


Dr.G.Aravind Swaminathan, Professor/HOD thanked all the members for their kind cooperation and the meeting came to an end.

  
15/12/2023  
**CHAIRMAN**  
**BOARD OF STUDIES**

## Attendance Sheet Table of Members:

S. No	Members as per UGC Norms	Members Nominated	Signature
1	Head of the Department concerned (Chairman)	<b>Dr.G.Aravind Swaminathan,</b> Professor/Head, Department of Computer Science and Engineering, Francis Xavier Engineering College, Tirunelveli	 12/12/2023
2	One Expert nominated by the Vice Chancellor from a panel of six recommended by the college Principal	<b>Dr.C. Senthil Kumar,</b> Associate Professor, Department of Computer Science and Engineering, Thiagarajar College of Engineering.	
3	Two experts in the subject from outside the college nominated by the Academic Council	<b>Dr.E.IIavarasan</b> Professor/CSE, Pudhucherry Technological University(Formerly Pondicherry Engineering College), Pondicherry- 605014.	
		<b>Dr.D.Murugan</b> Professor/CSE, Manonmanium Sundaranar University, Tirunelveli-627012	
4	One representative from industry/corporate sector/allied area relating to placement	<b>Mr.Prabagar Ramamurthy</b> Head, Information Security Management, Tata Consultancy Services, 1/G1,Sipcot,IT Park, Siruchery, Chennai -600006	 12/12/23
5	Meritorious aluminous nominated by the Principal	<b>Mr.Abishek Stephen</b> Senior Backend Engineer, Turing, Palo Alto, California, USA	 12/12/23



S. No	Name of the Member	Designation	Signature
1.	Dr.R.Ravi	Professor/CSE	
2.	Dr.S.Balaji	Professor/CSE	
3.	Dr.C.Yesubai Rubavathi	Professor/CSE	
4.	Dr.Y. Harold Robinson	Professor/CSE	
5.	Dr.E.Manohar	Assoc. Prof /CSE	
6.	Dr.R.Tino Merlin	Assoc. Prof / CSE	
7.	Mr.J.Zahariya Gabriel	AP/ CSE	
8.	Mrs.P.Brundha	AP/ CSE	
9.	Mrs.J.Priskilla Angel Rani	AP/ CSE	
10.	Mr.K.Sivakumar	AP/ CSE	
11.	Mrs.N.RajaPriya	AP/ CSE	
12.	Mr.S.Malaiarasan	AP/ CSE	
13.	Mrs.P.Jenifer	AP/ CSE	
14.	Mrs.M.Sharon Nisha	AP/ CSE	
15.	Mr.M.Mukesh krishnan	AP/ CSE	
16.	Mrs.A.Muthu Lakshmi	AP/ CSE	
17.	Mrs.M.Bagya Lakshmi	AP/ CSE	
18.	Mrs.D.Elizabeth Paulsyah	AP/ CSE	
19.	Mrs.J.Doulas	AP/ CSE	
20.	Mr.N.Raghavendran	AP/ CSE	
21.	Mrs.M.Mariammal	AP/ CSE	
22.	Mrs.B.Diviyapriya	AP/ CSE	
23.	Mrs.A.Euodial	AP/ CSE	

## Annexure - I

### Minutes of 9<sup>th</sup> Board of Studies Meeting – Action Taken Report

S.No	Suggestions	Action Plan	Reflection in the Curriculum
1.	9.4.1 In Professional Elective -II, 21CS6702 - Java Enterprise Technologies, JDK 8 to JDK 11 Versions can be used	JDK 11 version is used	Page No:261
2.	9.4.2 In Professional Elective -II, 21CS6703 - Micro Controlled Based System Design, since Raspberry Pi is in demand, we can also use Nvidia Jetson Nano kit for developing embedded products	Nvidia Jetson Nano kit for developing embedded products is used.	Page No:269
3.	9.4.3 In Professional Elective -II, 21CS6704- Wireless Network Technologies, Unit-3 4G Overview can be included in Unit-5 5G Communications can be included and also the concepts of WPA3 can be included	Included the title 4G Overview in Unit-3, and 5G Communications in Unit-5	Page No:272
4.	9.4.4 In Open Elective -III, 21CS6801- Cloud Computing Technologies, Unit II & III is to be swapped and the concepts of Docker, Container, Hypervisor, kubernetes is to be included	Unit - II is swapped as Cloud Architecture, services and storage & Unit - III as Cloud Enabling Technologies and the concepts of Docker, Container, Hypervisor, kubernetes also included	Page No:291-292
5	9.4.5 In Open Elective -III, 21CS6802 - Web Technology Unit-I, web 3.0 version is to be included and in addition to JavaScript, Nodejs is also to be included. The Concept of json is also to be included	Included web 3.0 version in unit-1, Concept of json added in unit-2 and Nodejs added in Unit-5	Page No:294



6	9.4.6 In Professional core, 21CS6602-Artificial Intelligence Practices, the concepts of Prompt Engineering and Chat GPT is to be included	Included the concepts of Prompt Engineering as Natural Language Processing and Chat GPT in Unit-4	Page No:306
7	9.4.7 In Open Elective -III, 21CS6805 - Cyber Security Essentials, the concepts of Asymmetric Encryption, Web Application Firewall (WAF) and Intrusion Prevention System(IPS) is to be added also in Unit-5 Network Time Security (NTS) is to be added	Included the concepts of Asymmetric Encryption, Web Application Firewall (WAF) and Intrusion Prevention System(IPS) in Unit-1 and Network Time Security (NTS) added in Unit-5	Page No:301 & 302
8	9.4.8 In Professional Core, 21CS7601-Cloud Computing, Unit II & III is to be swapped and the concepts of Docker, Container, Hypervisor, kubernetes is to be included. In Unit-5, include the topics of Azure cloud, AWS Cloud and Power BI	Unit - II is swapped as Cloud Architecture, services and storage, Unit - III as Cloud Enabling Technologies and the concepts of Docker, Container, Hypervisor, kubernetes and in Unit-5, the topics of Azure cloud, AWS Cloud and Power BI were included	Page No:317 & 318
9	9.4.9 In Professional Elective V, 21CS7706 - Full Stack Application Development Recent Frameworks can be used	Recent Frameworks included in Unit II as installation 18.16.1 LTS, Unit-III MongoDB 6.0.7, Unit-IV Implementing Express 4.18.1 and Unit-V Basic React 18.2.0	Page No:351 & 352
10	9.4.10 In Professional Elective VI, 21CS7708 - Information Security, In Unit-IV the old ISO 17799/BS 7799 is to be replaced with latest ISO 27001/BS, ISO 27017, ISO 27018 ,VISA International Security Model can be replaced with Payment Card Industry	In Unit-IV ISO 27001/BS, ISO 27017, ISO 27018, Payment Card Industry Data Security Standard (PCIDSS) and Intrusion Prevention System(IPS) were included	Page No:356

	Data Security Standard (PCIDSS), Intrusion Prevention System(IPS) can be added in Logical Design		
11	9.4.11 In Open Elective IV, 21CS7805 - Cyber Forensics, the syllabus is to be revised to litter manner	Cyber Forensics, the syllabus is revised	Page No:375 & 376
12	9.4.12 In Practical Courses, 21CS7611- Cloud Computing Laboratory, Windows 10 or 11 Version is to be installed. Installation of Docker from Dockerhub and creating Containers using Dockers and uploading the containers in cloud is to be done. Also Replace Private Cloud with Secure Cloud.	Included Windows 10 or 11 Version in exp no.1, Installation of Docker from Dockerhub and creating Containers using Dockers and uploading the containers in cloud are included in ex.no.3 and Private Cloud with Secure Cloud is replaced in ex.no.5	Page No:378



## Annexure - II

21CS5701	Linux System Administration	L	T	P	C
		2	0	2	3
<b>Preamble</b>					
This course Red Hat Certified System Administrator (RHCSA) has proven the skills and knowledge required in Red Hat Enterprise Linux environments. Red Hat Certified System Administrator (RHCSA) is able to perform the following tasks: Understand and use essential tools for handling files, directories, command-line environments, and documentation. Create simple shell scripts.					
<b>Prerequisites for the course</b>					
<ul style="list-style-type: none"> <li>21CS4604- Operating System Concepts</li> </ul>					
<b>Objectives</b>					
<ul style="list-style-type: none"> <li>To introduce the key role of an Linux Operating system</li> <li>To Emphasize the importance of Server Management concepts of an Enterprise Linux Operating system</li> <li>To Realize the significance of Software repositories and management</li> <li>To understand the commands for processes, files and its operations.</li> <li>To insist the File system Management of a Linux Operating system</li> <li>Comprehend the need of Security vulnerability and explore the Containerized platform offered by the Linux Operating system</li> </ul>					
<b>UNIT I</b>	<b>MANAGING USER, GROUP ACCOUNTS AND FILES</b>	<b>6</b>			
Manage Local Users and Groups - Describe User and Group Concepts- Gain Superuser Access- Manage Local User Accounts- Manage Local Users and Groups- Manage Local User Accounts- Managing user password- Control Access to Files- Manage File System Permissions from the Command Line- Manage Default Permissions and File Access- Cron Job scheduling					
<b>SUGGESTED ACTIVITIES:</b>					
<ul style="list-style-type: none"> <li>Quiz: Describe Linux File System Hierarchy Concepts</li> </ul>					
<b>SUGGESTED EVALUATION METHODS:</b>					
<ul style="list-style-type: none"> <li>Assessments with MCQ</li> </ul>					
<b>UNIT II</b>	<b>SSH AND SHELL</b>	<b>6</b>			
Introduction - Access Systems and Obtaining Support- Edit Text Files from the Shell Prompt- Configure SSH Key-based Authentication- Detect and Resolve Issues with Red Hat Insights-manage Files from the Command Line -Describe Linux File System Hierarchy Concepts - Make Links Between Files- Match File Names with Shell Expansions					
<b>SUGGESTED ACTIVITIES:</b>					
<ul style="list-style-type: none"> <li>Quiz: Describe User and Group Concepts</li> </ul>					
<b>SUGGESTED EVALUATION METHODS:</b>					
<ul style="list-style-type: none"> <li>Assignment on Local and Global user, user accounts and File system permission</li> </ul>					
<b>UNIT III</b>	<b>SECURITY IN LINUX</b>	<b>6</b>			
Manage SELinux Security- Change the SELinux Enforcement Mode- Control SELinux File Contexts- Adjust SELinux - Policy with Booleans- Tune System Performance- Kill Processes - Monitor Process Activity- Adjust Tuning Profiles - Influence Process Scheduling - Schedule Future Tasks - Schedule Recurring User Jobs - Manage Temporary Files.					
<b>SUGGESTED ACTIVITIES:</b>					
<ul style="list-style-type: none"> <li>Activity of securing the file</li> <li>Working with files, process and scheduling.</li> </ul>					



**SUGGESTED EVALUATION METHODS:**

Assignment on files and process

<b>UNIT IV</b>	<b>SOFTWARE REPOSITORIES AND FILE SYSTEMS</b>	<b>6</b>
----------------	---	----------

Install and Update Software Packages - Register Systems for Red Hat Support - Register Systems for Red Hat Support- Install and Update Software Packages with DNF - Enable DNF Software Repositories - Manage Basic Storage - Add Partitions, File Systems, and Persistent Mounts- Manage Storage Stack - Create and Extend Logical Volumes - Manage Layered Storage- Identify Automatically Started System Processes- Control System Services- Reset the Root Password- Repair File System Issues at Boot.

**SUGGESTED ACTIVITIES:**

- Team projects can be given as demo
- Quiz: Register Systems

**SUGGESTED EVALUATION METHODS:**

- MCQ assessment
- Assignment on " Working with repositories and File system concepts".

<b>UNIT V</b>	<b>CONTAINERS AND FIREWALLS</b>	<b>6</b>
---------------	---------------------------------	----------

Analyze and Store Logs - Describe System Log Architecture- Review Syslog Files- Review System Journal Entries- Preserve the System Journal - Maintain Accurate Time-Manage Networking- Validate Network Configuration -Configure Networking from the Command Line -Edit Network Configuration Files-Access Network-Attached Storage -Manage Server Firewalls -Container Concepts -Deploy Containers -Manage Containers as System Services.

**SUGGESTED ACTIVITIES:**

- Need for organization wide standards adoption of firewalls.
- Learning software tools.

**SUGGESTED EVALUATION METHODS:**

- Working with containers and firewalls.
- Assignment on selection of appropriate containers for any software development.

<b>Total Periods</b>	<b>30 +30 Lab</b>
----------------------	-------------------

**Suggestive Assessment Methods**

<b>Continuous Assessment Test &amp; FAT (20 Marks)</b>	<b>Lab Components Assessments (30 Marks)</b>	<b>End Semester Exams (50 Marks)</b>
DESCRIPTIVE QUESTIONS	1.CONDUCT OF EXPERIMENTS 2. MODEL EXAM	DESCRIPTIVE QUESTIONS

**Course Outcomes****Upon completion of the course, the students will be able to:**

C01: Understand the need of a Linux Operating system, basic commands and process management funtions.

C02: Apply the concept creating user and group account.

C03: Understand the commands for working with process and file system in linux.

C04: Apply the File system concepts and significance of Software repositories and management.

C05: Apply the concept of containers for different applications.

**Text Books**

1. Rhcsa Red Hat Enterprise Linux 8: Training and Exam Preparation Guide sa Red Hat Enterprise Linux 8: Training and Exam Preparation Guide ,ASGHAR GHORI,first Edition.

**Reference Books**

nil

**Web Resources**

- [www.redhat.com](http://www.redhat.com)



- <https://www.youtube.com/watch?v=TmrS7FhaaRA&list=PLlr7wO747mNrUoTuXhZ0REJw3hL4oWvLm>

### CO Vs PO Mapping and CO Vs PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	2	2	2	2	2				2		2	3	
2	2	3	3	2	3	2							2	3	
3	2	2	2	2	2	2	2		2		1	1	2	3	
4	2	2	3	2	2		2		2		2		2	3	
5	2	2	2	2	2	2	2		2		1	1	2	3	

### BLOOMS LEVEL ASSESSMENT PATTERN

BLOOMS CATEGORY	CAT 1	CAT 2	FAT 1	FAT 2	END SEM EXAM
REMEMBER	20	10	5	5	10
UNDERSTAND	40	20	10	10	20
APPLY	40	50	5	5	50
ANALYZE		20	5	5	20
EVALUATE					
CREATE					

S.NO	NAME OF EXPERIMENTS	CO
Do the following exercises given in the list:		
<b>Suggested List of Applications</b>		
<ol style="list-style-type: none"> <li>1. Edit Text Files from the Shell Prompt</li> <li>2. Configure SSH Key-based Authentication</li> <li>3. Gain Superuser Access and Manage Local Group Accounts &amp; Manage User Passwords</li> <li>4. Manage File System Permissions from the Command Line and Manage Default Permissions and File Access</li> <li>5. Change the SELinux Enforcement Mode and Control SELinux File Contexts</li> <li>6. Influence Process Scheduling and Schedule Recurring User Jobs and Manage Temporary Files</li> <li>7. Install and Update Software Packages with DNF and Mount and Unmount File Systems</li> <li>8. Add Partitions, File Systems, and Persistent Mounts and Manage Swap Space</li> <li>9. Create and Extend Logical Volumes and Manage Layered Storage</li> <li>10. Review Syslog Files and Review System Journal Entries</li> </ol>		



### Annexure - III

#### LIST OF NPTEL COURSES

#### LIST OF NPTEL COURSES - 2023-2024 EVEN

S.NO	COURSE CODE	COURSE NAME	DURATION (WEEKS)	COURSE STARTS	EXAM DATE	URL
1	noc24-cs04	Privacy and Security in Online Social Media	12 Weeks	Jan 22, 2024	Apr 28, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs04/preview">https://onlinecourses.nptel.ac.in/noc24_cs04/preview</a>
2	noc24-cs05	Basics of Computational Complexity	12 Weeks	Jan 22, 2024	Apr 21, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs05/preview">https://onlinecourses.nptel.ac.in/noc24_cs05/preview</a>
3	noc24-cs06	Advanced Computer Architecture	12 Weeks	Jan 22, 2024	Apr 28, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs06/preview">https://onlinecourses.nptel.ac.in/noc24_cs06/preview</a>
4	noc24-cs11	Advanced Computer Networks	12 Weeks	Jan 22, 2024	Apr 20, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs11/preview">https://onlinecourses.nptel.ac.in/noc24_cs11/preview</a>
5	noc24-cs12	Affective Computing	12 Weeks	Jan 22, 2024	Apr 20, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs12/preview">https://onlinecourses.nptel.ac.in/noc24_cs12/preview</a>
6	noc24-cs15	Blockchain and its Applications	12 Weeks	Jan 22, 2024	Apr 27, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs15/preview">https://onlinecourses.nptel.ac.in/noc24_cs15/preview</a>
7	noc24-cs20	Data Analytics with Python	12 Weeks	Jan 22, 2024	Apr 27, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs20/preview">https://onlinecourses.nptel.ac.in/noc24_cs20/preview</a>
8	noc24-cs30	GPU Architectures And Programming	12 Weeks	Jan 22, 2024	Apr 27, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs30/preview">https://onlinecourses.nptel.ac.in/noc24_cs30/preview</a>
9	noc24-cs25	Embedded Systems Design	12 Weeks	Jan 22, 2024	Apr 20, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs25/preview">https://onlinecourses.nptel.ac.in/noc24_cs25/preview</a>
10	noc24-cs34	Introduction To Industry 4.0 And Industrial Internet Of Things	12 Weeks	Jan 22, 2024	Apr 21, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs34/preview">https://onlinecourses.nptel.ac.in/noc24_cs34/preview</a>



11	noc24-cs39	Natural Language Processing	12 Weeks	Jan 22, 2024	Apr 28, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs39/preview">https://onlinecourses.nptel.ac.in/noc24_cs39/preview</a>
12	noc24-cs44	Programming in Modern C++	12 Weeks	Jan 22, 2024	Apr 27, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs44/preview">https://onlinecourses.nptel.ac.in/noc24_cs44/preview</a>
13	noc24-cs59	Deep Learning - IIT Ropar	12 Weeks	Jan 22, 2024	Apr 28, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs59/preview">https://onlinecourses.nptel.ac.in/noc24_cs59/preview</a>
14	noc24-cs65	Business Intelligence & Analytics	12 Weeks	Jan 22, 2024	Apr 27, 2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs65/preview">https://onlinecourses.nptel.ac.in/noc24_cs65/preview</a>

**Department of Computer Science and Engineering**  
**SCREEN SHOTS & GEO TAG PHOTOS**

Venue: Lab-3

Date & Time: 12.12.2023 & 10:00 AM

