**CENTRE FOR INNOVATION**

**HOPE (House Of Programming Expertise)**

*PEP - Placement Empowerment Programme*

**Pre-requisites and Certification Submission**

Dear Josephites,

We are so excited to announce that the Placement and Training Department of St. Joseph's Group of Institutions has initiated **HOPE** (**H**ouse **o**f **P**rogramming **E**xpertise) & *PEP - Placement Empowerment Programme* training programs. This program primarily focuses on equipping selected students based on their domain skills and aiding them to grab higher package opportunities from dream companies.

This includes various domain skills (21 Domains)

| PEPC | HOPE/PEPC | Staff Incharge | Phone No. |
|---|---|---|---|
| PEPC 1 | Artificial Intelligence and Machine Learning (AI/ML) | Dr. S.Sumathi/IT | 94861 59100 |
| PEPC 2 | CISCO CCNA Academy | Mr. Dineshkumar A/ECE | 97101 12063 |
| PEPC 3 | Cloud Computing (AWS/Azure/Google) & DevOps | Dr. M Karthi/IT | 81899 57033 |
| PEPC 4 | Cybersecurity | Ms Kalpana B N/IT | 97414 33439 |
| PEPC 5 | Data Science & Analytics | Mr SamV George | 94956 74489 |
| PEPC 6 | Full Stack Web Development ( MERN Stack) | Dr J Divya/IT | 99440 41645 |
| PEPC 7 | Full Stack Web Development ( JAVA Stack) | Dr Duraimurugan/IT | 81899 57033 |
| PEPC 8 | AR/VR | Ms. Jeyashree/PT | 93845 94225 |
| PEPC 9 | Mobile Application Development | Ms M Janani/IT | 9790701583 |
| PEPC 10 | Quantum Computing | Ms Kalpana B N/IT | 97414 33439 |
| PEPC 11 | Robotic Process Automation (UiPath) | Ms M Janani/IT | 9790701583 |
| PEPC 12 | Salesforce/ ServiceNow | Mr Ruskin Bruce A/MECH | 98438 68960 |
| PEPC 13 | UI/UX Design | Dr J Divya/IT | 99440 41645 |
| PEPC 14 | 5G/6G Technology Innovation Centre | Mr Lingeshwaran M /ECE | 96556 37665 |
| PEPC 15 | CAD and 3D Printing | Mr N Sathishkumar/MECH | 90952 35577 |
| PEPC 16 | | Dr N Thangapandiyan/MECH | 99442 47295 |
| | Electric vehicle (EV) Technology | Dr Velmurugan P/EEE | 99769 49243 |
| PEPC 17 | Embedded Systems and Internet of Things (IoT) | Mr Tamil/PT | 63690 35591 |
| PEPC 18 | Robotics and Industrial Automation | Mr V Balasubramanian/EEE | 80561 11753 |
| PEPC 19 | VLSI (Very Large-Scale Integration) Design | Dr P Latha/ECE | 99406 79382 |
| Research & Development Center | **CREST** – **C**enter for *Interdisciplinary* **R**esearch in **E**ngineering, **S**cience and **T**echnology | Dr. Karthi M/IT Ms Kalpana B N/IT | 81899 57033 |

**Mandatory Prerequisites**

**To be a part of PEP,** you should

- complete **1,000 Skillrack problems** by or before **August 29th.** Scrutiny will be strictly based on this.
- complete the **prerequisite courses and earn certificates** under your specific domain of interest

You will be allowed to choose ONE among these domains to carry out your passionate learning.

Only the students who are able to complete the prerequisites will be given the opportunity to be a part of PEPC.

**PEPC- 1**  **Artificial Intelligence and Machine Learning (AI/ML)**

**Total Students Intake:100**

**STEP 1:**

**1. Data Science Foundation Certification (1hr)- Certification Course)**

TOC - Data Science Foundation Certification | Infosys Springboard onwingspan.com)

To complete the certification all the prerequisite should be completed

**Prerequisite**

Introduction to Linear Algebra (37Min)

TOC - Introduction to Linear Algebra | Infosys Springboard (onwingspan.com)

Introduction to Data Science (3Hr 30 Min)

TOC - Introduction to Data Science | Infosys Springboard (onwingspan.com)

Python for Data Science (13 Hr 13 Min)

TOC - Python for Data Science | Infosys Springboard (onwingspan.com)

Probability and Statistics using Python (16Hr)

TOC - Probability and Statistics using Python | Infosys Springboard (onwingspan.com)

Probability Distribution using Python (16 Hr)

TOC - Probability Distribution using Python | Infosys Springboard (onwingspan.com)

Statistical Inference using Python (24 Hr)

TOC - Statistical Inference using Python | Infosys Springboard (onwingspan.com)

**2. Data Base for Analytics**

a. SQL 101(IBM) (3 hours)

https://cognitiveclass.ai/courses/learn-sql-relational-databases

**3. Machine Learning**

a. ML Foundation Certification (6 hr)- Learning Path    https://cognitiveclass.ai/learn/machine-learning-basics

**AND**

b. Deep learning

https://cognitiveclass.ai/learn/deep-learning/

**STEP 2:**

- **Students must identify a dataset from Kaggle.com and explain the data**
- **Upon receiving the certificate and explanation about the data is done, selected students are eligible for an allowance to join the AIML Society.**

**Total Students Intake:50**

**For St. Joseph's college of Engineering Students:**

| S.NO | COURSE NAME | LINK |
|---|---|---|
| 1 | Operating System Basics | https://www.netacad.com/courses/operating-systems-basics?courseLang=en-US&instance_id=b5606970-b4b7-4789-b5f1-daef21715112 |
| 2 | Linux Unhatched | https://www.netacad.com/courses/linux-unhatched?courseLang=en-US&instance_id=b6e43666-7b3e-4c4b-b2c7-9e8dc77fee1d |
| 3 | Networking Basics | https://www.netacad.com/courses/networking-basics?courseLang=en-US&instance_id=deec102a-cb0f-4ada-aa97-bd8a4eb42012 |

**For St. Joseph's Institute of Technology Students:**

| S.NO | COURSE NAME | LINK |
|---|---|---|
| 1 | Operating System Basics | https://www.netacad.com/courses/operating-systems-basics?courseLang=en-US&instance_id=f835f856-84f0-49c5-9686-a53afbf005b4 |
| 2 | Linux Unhatched | https://www.netacad.com/courses/linux-unhatched?courseLang=en-US&instance_id=baa4db83-5cf4-41b5-9ac9-2c3477a7b7f2 |
| 3 | Networking Basics | https://www.netacad.com/courses/networking-basics?courseLang=en-US&instance_id=eb7f9b83-6782-44f3-8424-34ddaaf9e7b4 |

**PEPC- 3**   **Cloud Computing (AWS/Azure/Google) & DevOps**

**Total Students Intake:100**

**Cloud & Devops – 50 Students**

**Cloud & AI – 50 Students**

**Step 1: [ All 3 courses are mandatory]**

## Course 1

AWS Academy Course Sem 1,2 & AWS Academy Lab [ Free for registered students and it will be activated to your registered mail id ] - 30 hours

## Course 2&3

**For St. Joseph's college of Engineering Students:**

| S.NO | COURSE NAME | LINK |
|------|-------------|------|
| 1 | Linux Unhatched | https://www.netacad.com/courses/linux-unhatched?courseLang=en-US&instance_id=b6e43666-7b3e-4c4b-b2c7-9e8dc77fee1d |
| 2 | Networking Basics | https://www.netacad.com/courses/networking-basics?courseLang=en-US&instance_id=deec102a-cb0f-4ada-aa97-bd8a4eb42012 |

**For St. Joseph's Institute of Technology Students:**

| S.NO | COURSE NAME | LINK |
|------|-------------|------|
| 1 | Linux Unhatched | https://www.netacad.com/courses/linux-unhatched?courseLang=en-US&instance_id=baa4db83-5cf4-41b5-9ac9-2c3477a7b7f2 |
| 2 | Networking Basics | https://www.netacad.com/courses/networking-basics?courseLang=en-US&instance_id=eb7f9b83-6782-44f3-8424-34ddaaf9e7b4 |

**Note: The prerequisite courses are free to enrol and get certified.**

Here's what students who meet the criteria can enjoy:

- **Certification Preparation**:
  - Access to AWS, Azure, and AWS AI Certification preparation materials with **voucher    support**.
  - Exclusive content from the AWS Advocacy Team for AWS Developer Certification Preps.
- **Become an official member** of the  AWS/AZURE/Google/IBM Cloud Club Membership:

- **Industry Exposure**:
    - Industry visits, including a visit to the Amazon campus.

- **Internship Opportunities**:
    - Internship support provided within our campus.

- **Industry Mentor Guidance**:
    - Receive guidance from industry mentors.

- **AWS Cloud Captain Opportunity:**
    - Outstanding candidates will have the chance to be selected as the next AWS Cloud Captain at St.Joseph's.

**Total Students Intake:100**

● **Course 1:**

Cisco Networking Academy Course: Introduction to Cybersecurity

Duration: 06 hrs

Link: https://www.netacad.com/courses/cybersecurity

● **Course 2:**

Cisco Networking Academy Course: Ethical Hacking

Duration: 70 hrs

Link:https://www.netacad.com/courses/ethical-hacker

● **Course 3:**

Cisco Networking Academy Course: Networking Basics

Duration: 22 hrs

Link: https://www.netacad.com/courses/networking-basics

● **Course 4:**

IBM SkillsBuild Course: Cybersecurity Fundamentals

Duration: 7.5 hrs

Link: https://skillsbuild.org/college-students/cybersecurity

● **Course 5:**

Infosys Springboard Course: Linux for Beginners

Duration: 6 hrs

Link: https://infyspringboard.onwingspan.com/

**Note:** The prerequisite courses are free to enroll in and receive certification.

Here's what students who meet the criteria can enjoy:

● Preparation for CEH (Certified Ethical Hacker) Certification.

● Preparation for CompTIA Sec+ Certification.

**PEPC-5 Data Science and Analytics**

**Maximum intake: 100**

- A. **Programming for Analytics**
- 1. **Applied Data Science with Python learning path (Include python certification)**

https://cognitiveclass.ai/learn/applied-data-science-with-python

- B. **Mathematics for Analytics**
- 1. **Probability and Statistics using Python**

**TOC - Probability and Statistics using Python | Infosys Springboard (onwingspan.com)**

- C. **Data Base for Analytics**
- 1. **SQL 101(IBM) (3 hours)**

https://cognitiveclass.ai/courses/learn-sql-relational-databases

- D. **Data Engineering for Analytics**
- 1. **Hadoop**

https://cognitiveclass.ai/courses/course-v1:BigDataUniversity+BD0111EN+v1

- E. **Machine Learning**
- 1. **ML Foundation Certification (6 hr)- Learning Path https://cognitiveclass.ai/learn/machine-learning-basics**

**AND**

- 2. **Deep learning**

https://cognitiveclass.ai/learn/deep-learning/

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**Selection Process**

- 1. **Finish *certification from each* to qualify for the interview process.**
- 2. **Technical interview + Coding round.**

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**Top Reasons to Join PEP – Data Science & Analytics**

1. **Global Exposure – Present at international conferences and get published.**
2. **Certified Skills – Earn globally recognized BI tool certifications. (powerBI /Tableau /Qlik)**
3. **Real-World Projects – Work on live industry challenges.**
4. **Premium Internships – Access top internships via allied partners.**
5. **Innovation Support – Get guidance on patent filing and publishing.**

**Startup Collaboration – Build a standout profile with AI startup projects.**

**TOTAL INTAKE: 120**

**Course 1: HTML5 - The Language (13h 17m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_17739732834840810000_shared/overview**

**Course 2: Networking and Web Technology (7h 21m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01254512784165273671_shared/overview**

**Course 3: CSS3 (10h 45m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_15281000932633230000_shared/overview**

**Course 4: JavaScript (15h 34m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_18109698366332810000_shared/overview**

**Certification: Front End Web Developer Certification (1h)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013951019900878848219_shared/overview**

**(Note: Mandatory to complete courses 1 to 4 in order to take up the above certification which is proctored assessment. If failed, can take up the assessment only after 15 days.)**

**Course 5: Frontend web developer Modern HTML CSS JavaScript (12h 13m) (Free only if you access through Infosys Springboard)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01415769760627916821l/overview#iss=https://infyspringboard.onwingspan.com/auth/realms/infyspringboard**

**Course 6: Fundamentals of Java Programming (17h 50m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_014222742419963904154/overview**

**Task 1:**

**Create your own responsive website using HTML, CSS, and JS for any use case. (should not be the same websites/applications listed as capstone projects/exercises in the above courses)**

**Note:** Please take up all the courses without skipping the content. Learning time, assessment score and your learning will be evaluated during the interview process.

**Here is what students who meet the criteria delight in:**

- designing interactive dynamic web pages and personal projects personal blog, a portfolio website, or a web app that solves a specific problem
- solving Industry oriented use cases and equipping yourself with versatile skill set that involves both frontend and backend technologies
- collaborating with other newer technologies in order to compete and win Hackathons
- wonderful career opportunities since Full stack developers are in high demand in a wide range of industries and sectors, from startups to large corporations.
- passionate & responsible full stack enthusiasts will be given opportunities to lead and contribute to the Full Stack Community.

**Course 1: Java Programming Fundamentals (36h 10m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_29959473947367270000_shared/overview**

**Course 2: Java Tools (3h 16m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013001001336987648190 2_shared/overview**

**Course 3: Java Language Features (27h 9m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01254512784165273671_shared/overview**

**Course 4: Java SE 8 Features (18h 20m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_25529606976739830000_shared/overview**

**Certification: Java Developer Certification (1h)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01319338454002073626 4_shared/overview**

**Course 5: Beginning Responsive Web Development with HTML and CSS (7h 23m)**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01329515779364454448791_shared/overview**

**Note: Please take up all the courses without skipping the content. Learning time, assessment score and your learning will be evaluated during the interview process.**

**Here is what students who meet the criteria delight in:**

- **Build Responsive Frontend Interfaces using HTML, CSS, JavaScript, and modern frameworks to deliver user-friendly web applications.**

- **Develop Scalable Backend Services in Java with Spring Boot, integrating RESTful APIs and MVC architecture.**

- **Design & Manage Databases with SQL for efficient data storage, retrieval, and security.**

- **Integrate Frontend & Backend into complete full stack applications, deployable to cloud or servers.**

**Total Students Intake:30**

**What you will learn:**

- ✓ Virtual world development using game engine like unity, unreal
- ✓ AR/VR/MR application development using unity engine, unreal engine, simlab
- ✓ 3D objects design.

**Prerequisites:**

**Reference URL1:**

https://youtube.com/playlist?list=PLPV2KyIb3jR5QFsefuO2RlAgWEz6EvVi6&si=GA5Q0dt6a1VveJPN

Minimum 11 Videos

**Reference URL2:**

https://www.youtube.com/watch?v=VaJseHy_iI4&list=PLS7jk2aVN8G4b-uuf-M0_fhQjL7KEmQwU&pp=iAQB

29 Videos

**Reference URL2:**

https://www.youtube.com/watch?v=KFEb51rinwI&list=PLQk3p-aJsSWTKKmuFwnzEVaf3ovKIg1jx&pp=iAQB

6 Videos

Refer any one of the above playlist tutorial series, and create a nice game or virtual world.

This is a unity game engine tutorial. If you have knowledge in any other game engine like unreal, you can use that and design a nice virtual world.

Selection is based on the design and knowledge assessment.

**PEPC-9 Mobile Application Development**

**Total Students Intake:60**

- **Course 1:  Complete Dart Programming Language - Basic To Advanced**
  Link:https://www.udemy.com/course/complete-dart-programming-language-basic-to-advanced/?couponCode=ST10MT8624
- **Course 2:  Introduction to Dart**
  Link:  https://www.linkedin.com/learning/introduction-to-dart
- **Course 3:  Flutter Development: Introducing Flutter & the Dart Programming Language**
  Link:
  https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013817514172989440558/overview
- **Course 4: Google Flutter - Beginners**
  Link:
  https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0138420407605903361038_shared/overview
- **Course 5:  Flutter & Dart - The Complete Guide [2024 Edition]**
  Link:https://www.udemy.com/course/learn-flutter-dart-to-build-ios-android-apps/?couponCode=IND21PM

**Note: The prerequisite courses are free to enroll and get certified.**

Here's what students who meet the criteria can enjoy:

- Preparation for **Flutter Certified Application Developer** (ATC Certification).
- **Master Dart programming** from the fundamentals to advanced concepts, enabling you to build scalable, high-performance mobile applications.
- **Understand Flutter's core principles** including widgets, layouts, and state management for cross-platform development.
- **Gain practical experience** by building real-world projects for Android and iOS using Flutter and Dart.
- **Develop problem-solving skills** essential for mobile app development, including API integration and responsive UI creation.
- **Enhance employability** with industry-recognized certification upon course completion.

**PEPC- 10 Quantum Computing**

**Total Students Intake:20**

● **Course 1:**

IBM SkillsBuild: Quantum Enigmas

Duration: 8 hrs

**Link: https://skillsbuild.org/students/course-catalog/quantum-computing**

● **Course 2:**

Infosys Springboard: Introductory Course on Linear Algebra

Duration: 2 hrs

**Link:**

**https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013501555879**

**5018247652/overview**

● **Course 3:**

Cognitive Class: Introduction to Quantum Computing

Duration: 6 hrs

**Link: https://cognitiveclass.ai/courses/introduction-to-quantum-computing**

**Note: The prerequisite courses are free to enroll in and get certified.**

Here's what students who meet the criteria can enjoy:

● Preparation for IBM Qiskit Developer Certification.

● Apply for Qiskit Advocate and work with IBM.

## PEPC- 11 Intelligent Process Automation (RPA + Agentic AI)

**Total Students Intake:60**

**STEP 1:**

- **Introduction to Robotic Process Automation (4hrs 20mins)**

**Link: [TOC - Introduction to Robotic Process Automation | Infosys Springboard (onwingspan.com)](#)**

- **Automation Explorer (UiPath Academy)**

**Link: [https://academy.uipath.com/learning-plans/automation-explorer](https://academy.uipath.com/learning-plans/automation-explorer)**

- **Introduction to Python**

**Link:**

**[https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_012664745277808640481_shared/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_012664745277808640481_shared/overview)**

- **Proficiency in any one of the following programming languages:**

**C Programming, Java from Infosys springboard**

**Certification:**

**[TOC - Final Exam: C Programming Proficiency | Infosys Springboard (onwingspan.com)](#)**

**(or)**

**[TOC - Java Foundation Certification | Infosys Springboard (onwingspan.com)](#)**

**STEP 2:**

- **Upon receiving the certificate, selected students are eligible for an allowance to join the RPA Society.**

- **As a part of RPA Society St. Joseph's, exceptional good candidates will be chosen and given a chance for the next UiPath Student Developer Champion with the official recommendation.**

**Total Students Intake:50**

Prerequisite:

Know what's CRM is

What's Salesforce is

https://www.youtube.com/watch?v=SlhESAKF1Tk

https://www.youtube.com/watch?v=paWNBjcCNNc

Take these certifications/knowledge before to step in

Excel for Beginners: Introduction to Spreadsheet (1.5hrs)

https://www.coursera.org/projects/excel-for-beginners-introduction-to-spreadsheets

Proficiency in Java programming language:

TOC - Java Foundation Certification | Infosys Springboard (onwingspan.com)

Login | Infosys Springboard (onwingspan.com)

**Selection process:**

Students are selected based on the pre-requisite skill by examination process

**Requirement:**

Laptop to attend the classes with hands-on sessions

**Responsibility:**

On getting selected every student must be ready to take the global certification. Student will also be eligible to claim the monetary and academic benefit provided by the college on completion of the certificate.

**Total Students Intake: 50**

**Course 1:  Principles of UX/UI Design (20 hrs) (Free only if you access through Infosys Springboard)**

**Link:** https://www.coursera.org/programs/springboard-specialisation-program-b5yj9/learn/principles-of-ux-ui-design?authProvider=headstart&source=search

**Course 2: Figma Training 2022 (3h 15m)**

**Link:** https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01384208372808908812104_shared/overview

**Course 3: Beginning Responsive Web Development with HTML and CSS (7h 23m)**

**Link:** https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01329515779364454448791_shared/overview

# Capstone Project:

Complete **any one** of the following tasks of your choice applying **UX/UI Design**, **Figma**, and **Responsive Web Development**

1.  Online Coffee Shop Menu & Order Page (Design a modern, user-friendly single-page website for a coffee shop and include menu categories, prices, "order now" buttons, and responsive layout for mobile.)

2.  Mobile-First NGO Donation Page (An NGO wants more people to donate via their website, but most visitors access it from mobile devices.)

3.  Food Delivery Service Feature Showcase (A new food delivery startup wants a **"Features" page** that explains why users should choose them.)

4.  Travel Blog Landing Page (eg. A travel influencer needs a landing page to promote their upcoming **eBook on budget travel**.)

5.  Local Business Product Page (eg. A small handmade soap business wants a **single-page product showcase** for its top-selling soaps.)

**Note:** Please take up all the courses without skipping the content. Learning time, assessment score and your learning will be evaluated during the interview process.

Here is what students who meet the criteria enjoy the following takeaways:

1.  User-Centric Design and Creativity

2.  Design Thinking & Contribution towards Innovation that cater to users' evolving needs

3.  In-Demand skillset to create user-friendly and visually appealing digital products.

4.  Skilled in visual design + user experience

**Total Students Intake: 80**

**List of recommended certification courses:**

**You can choose any one certification course out of the two following courses:**

**1. 5G Introductory-Level Certification - The Qualcomm Wireless**

**Academy (QWA) offers students free 5G training, the opportunity to receive a 5G certification, and the opportunity to connect with Qualcomm recruiters! This program is open to students around the world pursuing any degree.**

    5G University Program Link: https://qwa.qualcomm.com/course-catalog/5G-University-Program

    Enrollment Link: https://assets.qualcomm.com/QWA-University-Program-Registration.html

- FAQs Link: https://qwa.qualcomm.com/blogs/5G-University-Program-FAQ

- QWA's 5G University Program is an opportunity for university students to receive 5G training and certification from a world leader in wireless technology. Students may sign up for two beginner-level 5G courses to learn about the importance of 5G, how it works, and the technologies that make it possible. These courses are available to students free of charge (Add these two courses to cart and apply coupon code from QWA).

- **Two courses:**

- **Fundamentals of Cellular Communication and 5G:** A more in-depth 6-hour course covering key 5G technologies, how 5G works, and how it is changing the world.

- **5G Primer:** A 2.5-hour introductory course covering the importance of 5G and an overview of key 5G technologies

- Upon completing the courses, students may choose to sign up for our 5G Introductory-Level Certification exam, which is based on the two training courses discussed above. If students pass the exam, they will receive a Qualcomm Technologies certificate.

- Exam Registration Link: https://qwa.qualcomm.com/course-catalog/5G-Introductory-Certification

- Price: $29

- Exam consists of 30 questions. You will have 40 minutes to complete

- the exam. All questions are in a multiple-choice or true/false format.

**2. 5G for Everyone – offered by Qualcomm Wireless Academy via Coursera.**

    **Enrollment Link:** https://www.coursera.org/learn/5g-training-qualcomm?action=enroll

    Approx. 13 hours to complete (3 weeks at 4 hours a week)

    8 modules and 8 assessments

**Course Outline**

i. Overview of wireless and cellular communications.

ii. Overview of the 5G NR vision.

iii. Introduction to 5G networks and features.

iv. Discuss 5G spectrum and mm-wave.

v. Learn about Massive MIMO and its impact on wireless

technology.

vi. Discuss the evolution of the 5G radio access network (RAN).

vii. Dive into 5G private networks and industrial IoT.

viii. Overview of 5G security.

• Purchase Course for ₹2,378.

• Commit to earning a Certificate —it's a trusted, shareable way to showcase your new skills.

• Financial aid available

**Total Students Intake:60**

**Certification from any one of the following courses.**

- **Course 1. Coursera Course: Autodesk CAD/CAM/CAE for Mechanical Engineering Specialization**

  Link: https://www.coursera.org/specializations/autodesk-cad-cam-cae-mechanical-engineering?

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 2. Coursera Course: 3D Printing and Additive Manufacturing Specialization**

  Link: https://www.coursera.org/specializations/3d-printing-additive-manufacturing?action=enroll

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 3. Internshala Course: CATIA Course**

  Link: https://trainings.internshala.com/catia-course/?tracking_source=trainings-search-dropdown

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 4. Internshala Course: 3D Printing Course**

  Link: 3D Printing Course & Training - Learn 3D Printing Online (internshala.com)

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 5. Internshala Course: Learn AutoCAD 3D**

  Link: https://trainings.internshala.com/autocad-three-d-course/?tracking_source=trainings-search-dropdown

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 6. Internshala Course: Fusion 360 Course**

  Link: Fusion 360 Course: Learn Fusion 360 Online with Certification (internshala.com)

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 7. Internshala Course: SOLIDWORKS Course**

  Link: Solidworks Course & Training: Learn Solidworks Online (internshala.com)

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 8. Udemy Course: SOLIDWORKS: Become a Certified Associate Today (CSWA)**

  Link: SOLIDWORKS Certification Course: Certified Associate (CSWA) | Udemy

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Course 9. Internshala Course: Learn Creo Parametric**

  Link: https://trainings.internshala.com/creo-parametric-course/?tracking_source=trainings-search-dropdown

  *[Financial Aid Possible (or) Pay and buy the Course and get the Completion Certificate]*

- **Any other courses relevant to CAD & 3D printing from other reputed platforms like Infosys Springboard and SWAYAM -NPTEL is also considered for selection.**

**<u>Note:</u>**

- How to apply for Financial Aid: https://www.coursera.support/s/article/209819033-Apply-for-Financial-Aid-or-a-Scholarship?language=en_US

- **An interview will be conducted to assess the basic knowledge of students in completed course before joining the club.**

<mark>**Step 2:**</mark>

Students who pass the exam and interview will qualify for membership in the CAD & 3D Printing Club.

Here's what students who meet the criteria can enjoy:

- Exclusive training on 2D and 3D modeling packages.

- Hands on training in 3D Printing machines like FDM, SLA.

- Preparation for various national and international Certifications

- Guidance and mentorship from various industrial experts.

- Mock interview from industrial professionals.

- Preparation for fetching internship in reputed companies.

- Industrial visits to various 3D printing labs.

- Ideation support for startups in CAD & 3D printing.

**Total Students Intake:50**

**CHOOSE ANY COURSE (MINIMUM COURSE DURATION SHOULD BE MORE THAN 60 HOURS)**

| ONLINE FORUM | LINK | COST |
|---|---|---|
| Electric Vehicle course from Udemy | 1.https://www.udemy.com/course/electric-and-hybrid-vehicle-engineering/ <br> 2.https://www.udemy.com/course/fundamentals-of-electric-vehicles/ <br> 3.https://www.udemy.com/course/battery-and-battery-management-system-design-simulation/?couponCode=NVDIN35 | Rs.499(Approx.) |
| Electric Vehicle course from Courseera | 1.https://www.coursera.org/learn/electric-vehicles-mobility <br> 2.https://www.coursera.org/learn/demystifying-ev-batteries-tech--management <br> 3.https://www.coursera.org/learn/maximizing-miles-enhancing-ev-range--efficiency | Rs.750(Approx.) |
| Electric Vehicle NPTEL course | 1.Related to basics and Foundations of Electric vehicle | 1.Rs.1100(Approx.) |
| | *Any certification course related to Electric Vehicle from TANSAM,Skill Lync, Great Learning, etc., | |

**\*Note: Upon receiving the certificate, selected students are eligible to join in EV Domain.**

**Total Students Intake:100**

- **Course 1: The Arduino Platform and C Programming**
  **Duration: 12 hours**
  **Link:https://www.coursera.org/learn/arduinoplatform?irclickid=2rCTQl2QAxyKUaNUNtVEr20JUkCzChXoX3ys2E0&irgwc=1&utm_medium=partners&utm_source=impact&utm_campaign=259799&utm_content=b2c**

- **Course 2: The Raspberry Pi Platform and Python Programming for the Raspberry Pi**
  **Duration: 11 hours**
  **Link:https://www.coursera.org/learn/raspberry-pi-platform?irclickid=2rCTQl2QAxyKUaNUNtVEr20JUkCzChXkX3ys2E0&irgwc=1&utm_medium=partners&utm_source=impact&utm_campaign=259799&utm_content=b2c**

- **Course 3: Cisco Networking Academy Course: Introduction to IoT and Digital Transformation**
  **Duration: 6 hrs**
  **Link: https://skillsforall.com/course/introduction-iot?courseLang=en-US**

- **Course 4: Microchip University: Advanced C Programming**
  **Duration: 3 hrs**
  **Link: https://mu.microchip.com/advanced-c-programming**

- **Course 5: Cisco Networking Academy Course: NDG Linux Essentials**
  **Duration: 15 hrs**
  **Link: https://www.netacad.com/courses/os-it/ndg-linux-essentials**

- **Course 6: Introduction to Internet of Things- IIT Bombay**
  **Duration: 14 hrs**
  **Link: https://www.coursera.org/learn/introduction-to-internet-of-things**

**Note: The prerequisite courses are free to enrol and you can apply for financial aid for certification on coursera.**
Here's what students who meet the criteria can enjoy:
- Hands on training on various embedded boards and sensors.

**Total Students Intake:50**

**Preliminary Course Details For Robotics And Industrial Automation Minimum Two Courses Compulsory. Any Two Courses May Be Chosen**

| S.NO. | COURSE LINK | COURSE NAME |
|---|---|---|
| 1. | https://alison.com/course/diploma-in-robotics?utm_adgroup=&utm_source=google&utm_medium=cpc&utm_campaign=Performance-Max_Tier-5_Audience-Targeting-India&gad_source=1&gclid=Cj0KCQjw9Km3BhDjARIsAGUb4nyZO3QxZcLeadx7RpIGw0QxDp-XVJ-0tIoAyCCiD_T3QM64e4bp0ZsaAvTkEALw_wcB | Diploma In Robotics |
| 2. | yaskawaacademy.myabsorb.com/#/catalog/7a792569-70b3-4484-bdc4-db62ac3451fd | Introduction To Robotics |
| 3. | https://academy.universal-robots.com/free-e-learning/e-series-e-learning/e-series-core-track/ | E-Learning Courses 12 Video Modules |

**Total Students Intake:100**

**Course 1. Free online course from Purdue University in collaboration with Intel Corporation, the University of Texas at Austin: Semiconductor Fabrication 101**

**Link:**

https://engineering.purdue.edu/online/programs/masters- degrees/semiconductors/semiconductor-fabrication-101

[Registration Procedure: youtube link]

**https://youtu.be/BEA5kcxALc4?si=9jgWBZpIyXNdsvDe**

**Course 2. Udemy Course: Verilog HDL: VLSI Hardware Design**

Comprehensive Masterclass

**Link:**

https://www.udemy.com/share/1037Sk3@l- H6genwEU6JkiuytBaZzIkEjSI4amIRr8zwgGPNgmFTHq65IscOQZ38n54-ichUtg==/

[Financial Of er Possible (or) Pay and buy the Course and get the Completion Certificate]

**Course 3. MAVEN SILICON: Free Online VLSI Design SoC**

**Certification Course**

**Link:**

https://docs.google.com/forms/d/e/1FAIpQLScc6HM8G6wXxYIY5LpYU6bHW7FJFbW

v8RXMje2XgZ4qbu6hiQ/viewform?pli=1

**[PEP- VLSI Design Course 3 will be activated to your registered mail id.]**

**Course 4. INTEL LEARNING PORTAL: Verilog HDL Basics**

**Link:**

 https://learning.intel.com/Developer/learn/courses/235/verilog-hdl-basics

**[Sign in with your Intel account to access your training or to enroll or sign up to create an Intel**

**account.]**

We invite highly motivated students who are passionate about **industry-driven, real-time R&D** to register with the **CREST** center. This is a unique opportunity to engage in collaborative research with industry leaders, government projects, and top universities in India and abroad.

## Eligibility

- Must have cleared all academic subjects with **strong academic records**.

- Excellent **coding skills** and solid understanding of **data structures**.

- **Non-CSE department students** are also welcome, provided they are ready to work in a research-oriented environment.

o A **custom syllabus** will be designed for non-CSE students.

- Strong **mathematics knowledge** and an interest in **interdisciplinary work**.

- Fast learner with the ability to **collaborate with industry and global universities**.

- Commitment to a **"learn-by-doing" model** and readiness for a **flexible, collaborative work environment**.

## Prerequisite

Registered students are required to present their **research idea (any idea)** or any **previously completed project ( any domain)** in the form of a **PowerPoint presentation**.

Selection for the CREST- R&D Centre will be based on:

- **Research interests** aligned with the center's focus areas.
- **Coding skills** and problem-solving ability.

## Benefits for Selected Students

1. **Specialized Curriculum**
   o *Basic Mathematics*

   o *Machine Learning & Deep Learning Fundamentals*

   o *Cloud Computing Concepts (including MLOps)*

   o *AWS Machine Learning Specialty Certification Preparation*

   o *Basic Frontend & Backend Development*

   o *Generative AI, AI Agents, and Automation*

   o *Security Principles*

   o *Open-source projects & real-world industry & Business use cases*

2. **Industry Collaborations**
    o Partnerships with five industries, including **Auriseg Consulting Limited** and **RBG.ai**, for joint R&D initiatives.

3. **Government Projects**
    o Two consultancy projects in progress, including a **₹10 Lakh Central Government Navy project**, starting soon under the CREST lab.
    o Selected students may join these projects based on their skills.

4. **Academic Partnerships**
    o **IIT Jammu** has shown strong interest in collaborating.
    o Work will commence once suitable candidates are selected for joint R&D projects.

5. **International Collaborations**
    o Through **WiCyS, AWS, and IBM** programs, collaborations are underway with prestigious institutions including:
        ▪ Southern Illinois University
        ▪ Eastern Kentucky University
        ▪ University of Texas
    o Selected students will have opportunities for **joint research projects** with these universities.

6. **Internships & Career Opportunities**
    o Internship offers from both **industry partners** and **IITs**.
    o High-performing interns may be offered **full-time placement offer** based on their performance.