



## Registration Open for Next Gen Employability Skilling Program – TECHSAKSHAM

T&P is to inform all the engineering students from **second, third and fourth year** about a Next Gen Employability Skilling Program – TECHSAKSHAM (TASK). In conjunction with Microsoft and SAP's Corporate Social Responsibility (CSR) effort, EDUNET FOUNDATION is working to improve the employability quotient of the state's young through the TECHSAKSHAM program.

The program is scheduled to commence from **04.09.2023** and is designed to benefit 240 students from circuit branches in their second, third, and final years of graduation. The program structure includes the following courses:

1. **Foundation course:** Intended for **Second and Third** -year students.
2. **Deep Dive (Advance Course):** This course offers **two tracks** for **final year** graduates.  
**Track 1:** Applied Cloud Computing for Software Development: Tools, technology, and Frameworks.  
**Track 2:** Industrial Artificial intelligence with cloud computing.
3. The training for Foundation course is **60-80 hours** (60 hours technical 20 hours Employability and Self-paced)
4. The training for deep dive is **140-160 hours** (80 hours of technical and 80 hours of Project mentoring, Employability skills, self-paced and expert volunteering)
5. Post-successful completion of the program the students enrolled in the program are given support in placement.

In the following pages, you will discover extensive data about the program and the courses it covers.

**How to Apply:** If meet the eligibility criteria and interested about this opportunity, please register at

<https://forms.gle/a1CJuGb7yk4MFunL7> by **02 August 2023**.

Sd/-  
T & P Office

## Foundation Course Curriculum

To summarize the program is delivered as follows:

S. No.	Content Type	Duration
1.	Theoretical discussion	20 hours approx.
2.	Practical/hands-on	40 hours
4.	Soft Skills and Volunteering activities	20 hours
	<b>Total Duration</b>	80 hours Approx.

### OVERVIEW OF FOUNDATION COURSE

Program for the Foundation course will be offered to the second and pre-final students pursuing engineering and other technical degree courses. This course will cover the prerequisites required for any of the streams (Artificial Intelligence, Cloud Computing, Software Development) for the final year students.

Program Vertical	Foundation Course
Core topics covered for students (in detail) and briefly for teachers	<ul style="list-style-type: none"><li>▪ Basics of working with Linux Operating System</li><li>▪ Fundamentals of Databases</li><li>▪ Basic HTML, CSS and JS</li><li>▪ Core JAVA (J2SE) Programming and Coding Skills</li><li>▪ Knowledge of Internet, Domains, and Networking</li><li>▪ Basics of Cloud Computing</li></ul>
<b>Pre-Requisites</b>	<ul style="list-style-type: none"><li>▪ Basics of working with Windows</li></ul>

### PROGRAM CONTENT FOR STUDENTS

**Broad Agenda (Students): Foundation Course**

**Duration: 60 Hours**

S.No.	Description	Hours
1	<p><b>Linux Operating System</b></p> <ul style="list-style-type: none"> <li>• Introduction of Operating System</li> <li>• Getting started with Open-Source OS</li> <li>• Linux Kernel and its distributions</li> <li>• Installation of Ubuntu</li> <li>• Linux Commands</li> <li>• Shell Scripting, SSH and SCP commands in Linux</li> <li>• Working on different text editors: nano, vi</li> <li>• Managing Linux Files and User Permissions</li> </ul>	8
2	<p><b>Introduction of Database Management System</b></p> <ul style="list-style-type: none"> <li>• Why use a database DBMS, its characteristics and Applications</li> <li>• Advantages and Disadvantages of DBMS</li> <li>• Introduction to Relational Database – MySQL</li> <li>• Structure of RDBMS and Terminology</li> <li>• Manipulating and Querying Data: Introduction to MySQL, SQL Commands, DDL, DML, DQL, CRUD operations</li> </ul>	6
3	<p><b>Building Front Face for Web</b></p> <ul style="list-style-type: none"> <li>• Understanding the WEB: Internet, Web page, Website, Web applications</li> <li>• HTML for web Layout: HTML Basic Components, List, Tables, Graphics, Multi-Media, Forms, Text formatting, Block components</li> <li>• CSS for Page Design: CSS design principles, property:values, dynamic CSS3, box model, design layout controls</li> <li>• JS for Client-side scripting: Handling HTML Events, Animations, Reading element state &amp; data, form handling and validations. Handling Cookies and Session Data</li> <li>• Building Dynamic web pages using HTML 5, CSS3 and JS</li> </ul>	14
4	<p><b>Essential of Programming Language (12 hrs.)</b></p> <ul style="list-style-type: none"> <li>• Fundamentals of open-source Tools &amp; Technology: Installation of JDK and Set up the Java Environment.</li> <li>• Writing and interpreting the first program in Java.</li> <li>• Understanding data Structure in Java.</li> <li>• Control Statements and Functions, Methods in Java.</li> <li>• Understanding and implementing OOPS Concepts.</li> <li>• Integration of database technologies with Java.</li> </ul> <p><b>Essentials of Python Programming (13 Hrs.)</b></p> <ul style="list-style-type: none"> <li>• Fundamentals of open-source Tools &amp; Technology: Installation of Anaconda and Set up the python Environment.</li> <li>• Writing and interpreting the first program in Python.</li> <li>• Understanding data Structure in Python.</li> <li>• Control Statements and Functions, Methods in Python.</li> </ul>	25

	<ul style="list-style-type: none"> <li>• Understanding and implementing OOPS Concepts.</li> <li>• Integration of database technologies with python.</li> <li>• Introduction to Python Popular Frameworks.</li> </ul>	
<b>5</b>	<p><b>Understanding the Azure Cloud:</b></p> <ul style="list-style-type: none"> <li>• Introduction to Azure Portal Cloud Services and Deployment Models</li> <li>• Getting Started with an Azure Cloud: Exploring the Azure Service offerings.</li> <li>• Fundamentals of Networking and Networking Protocols</li> <li>• Creating Custom VPC in Azure and add subnets to created VPC and deploy VM in subnets and set up communication between the VMs.</li> <li>• Market and JOB trends in Cloud</li> </ul>	<b>7</b>

**Suggested Topics for Modular Engagement Activities/Bootcamps:**

**[Hands-on session for 2-3 hours to provide either revision of foundation skills or provide add-on advance skills related to track]**

- Version Controlling with Git and GitHub
- Learn Python: Python Programming Basics
- Digital Marketing for Business
- Green Cloud Computing
- Edge Computing

## Track 1: Applied Cloud Computing for Software Development: Tools, technology, and Frameworks.

This is a comprehensive program designed to equip learners with the necessary skills and knowledge to become proficient software developers. The program covers key concepts, tools, and technologies in programming, web development, and software engineering methodologies. Through a combination of theoretical instruction, practical exercises, and real-world projects, learners will gain hands-on experience in developing software applications from inception to deployment.

### Program Benefits:

- Hands-on experience: Gain practical experience through coding exercises, projects, and real-world scenarios.
- Industry relevance: Stay up to date with current technologies, frameworks, and best practices.
- Collaboration and teamwork: Develop effective communication and collaboration skills by working on group projects and participating in code reviews.
- Portfolio development: Build a strong portfolio showcasing your software development projects to demonstrate your skills to potential employers.
- Career support: Receive guidance on job search strategies, resume writing, and interview preparation to launch your software development career.

Upon successful completion of the program, learners will have a comprehensive understanding of software development principles, be able to create functional software applications, and possess the necessary skills to pursue entry-level software development roles or further education in the field.

### Program Outline:

#	Duration
Course Content	80 Hrs
Capstone Project	25 Hrs
Boot Camp	15 Hrs
Employability Session	TBD
Self-Paced Learning	TBD
<b>Total Duration:</b>	<b>120 Hrs</b>

### Program Structure:

#### Program Duration:

The program is designed to be completed in 6 to 8 months covering around 120 hours of content and project work.

#	Description of the content to be covered	Duration (hrs)
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	Foundation Course	30 Hrs
1.1	<b>Getting familiar with Software development concepts</b>	2.5 Hrs
	<ul style="list-style-type: none"> <li>Understanding the need and requirement of Software development, Types of Software development (0.5 Hrs)</li> <li>Overview of SDLC, Various SDLC Models (Waterfall, iterative, prototype, spiral, agile) (1.5 Hrs)</li> <li>Architecture of Software Application (0.5 Hrs)</li> </ul>	
1.2	<b>Building Blocks of Frontend web application Development</b>	18 Hrs
	<p>Overview of frontend (HTML, CSS, JS), Dos &amp; Don't in designing (0.5 Hrs)</p> <ul style="list-style-type: none"> <li>Fundamentals of Required tools and technologies like Visual Studio Code, notepad++, Eclipse for frontend web application development.</li> </ul> <p><b>Getting started with HTML (4 Hrs)</b></p> <ul style="list-style-type: none"> <li>Difference between HTML4 &amp; HTML5</li> <li>Add structured data on Software Web Application: List, Table, Form, Media, graphics, Semantic tags</li> <li>Link HTML 5 APIs: Geolocation, Web Storage</li> </ul> <p><b>Styling with CSS (5 Hrs)</b></p> <ul style="list-style-type: none"> <li><b>Basics of CSS:</b> Selectors, Types of CSS, Box Model, CSS Properties (Colour, Background, Text, Font, Position, List style, table, pseudo-element, Transformations, Animation, and Media Queries, grid, flex).</li> </ul> <p><b>Exercise: Static/ Responsive Web Page Design using HTML &amp; CSS (layout 1, layout2) (1 Hr)</b></p> <p><b>Front end development with Java Script (6.5 Hrs)</b></p> <ul style="list-style-type: none"> <li><b>Basics of JS:</b> Types of JS, JS console, Dialog box, Operators and Functions, Control Structures, Document Object Model (DOM), Objects and Nodes, Handling DOM using JavaScript, JavaScript Events, Animation, Cookies &amp; session (3 Hrs)</li> <li><b>Advanced JS:</b> The ... Operator, For/of, Map Objects, Set Objects, Promises, JavaScript Modules, jQuery, AJAX, JSON (3.5 Hrs.)</li> </ul> <p><b>Exercise: Development of mini project (1.5 Hr)</b></p>	
<b>Boot camp</b>	<b>Developing the dynamic application using Bootstrap</b>	<b>3 Hrs.</b>
1.3	<b>Essentials of Java Programming</b>	9 Hrs
	<p><b>Required Tool: Visual Studio Code, Eclipse.</b></p> <ul style="list-style-type: none"> <li><b>Java Fundamentals:</b> Java Variables, Data Types, Java Operators, Input and Output, Java Expressions &amp; Blocks, Comment. (1 Hr.)</li> <li><b>Java Control Statements:</b> If...else, Switch Statement, For Loop, For-each Loop, While Loop, Break Statement, Continue Statement. (1 Hr.)</li> <li><b>Java Array &amp; String:</b> Arrays, Single Dimensional Arrays, Multidimensional Array, String, String Methods (1 Hr.)</li> </ul>	

	<ul style="list-style-type: none"> <li>• <b>Java OOPs Concepts:</b> Class and Object, Packages, Methods, Constructor, Access Modifiers, Non-Access Modifiers, Abstraction, Encapsulation, inheritance, Polymorphism, interfaces <b>(2.5 Hrs.)</b></li> <li>• <b>Java Error Handling:</b> Errors and Exceptions, try...catch block, Multiple catch block, finally block <b>(1.5 Hrs)</b></li> <li>• <b>Advanced Java:</b> Threading, Collection, Lambda, Annotation <b>(2 Hrs)</b></li> </ul>	
<b>Boot Camp</b>	<p><b>Develop Problem-Solving Skills through Data Structures and Algorithms</b></p> <ul style="list-style-type: none"> <li>• Introduction to DSA, Array and Linked List, Stack and Queue, Tree and Binary Tree, Graphs and Graph Algorithms.</li> <li>• Sorting and Searching Algorithms, Dynamic Programming, Hashing and Hash Tables.</li> </ul>	<b>4 Hrs</b>
<b>2</b>	<b>Core Courses</b>	<b>35 Hrs.</b>
<b>2.1</b>	<b>Deep Dive on Backend Development</b>	<b>10 Hrs.</b>
	<p><b>Learning Server-Side Scripting</b></p> <p><b>Required Tool for Server-Side Scripting:</b> Eclipse/intellij idea, Apache Tomcat Server</p> <ul style="list-style-type: none"> <li>• <b>Server-Side Scripting Fundamentals:</b> Need of server-side scripting, Why Java. <b>(0.5 Hrs.)</b></li> <li>• <b>Moving with Servlets:</b> Servlet Life Cycle, APIs and packages, methods of request-response, Session Tracking, Cookies <b>(2.5 Hrs.)</b></li> <li>• <b>Mastering with JSP:</b> JSP Life Cycle, JSP Scripting Elements, JSP Request and Response, EL, JSTL <b>(2.5 Hrs.)</b></li> </ul>	
	<p><b>Handling Data using Data Base Management System</b></p> <p><b>Required Tool for DBMS:</b> MySQL Database Server</p> <ul style="list-style-type: none"> <li>• <b>Familiarizing with DBMS:</b> What is DBMS, Advantages and Disadvantages of DBMS, Application of DBMS. <b>(0.5 Hrs.)</b></li> <li>• <b>Working with MySQL:</b> Characteristics of MYSQL, Schema &amp; Schema Diagram, table, Keys: Super, Candidates, Primary, Foreign, Composite <b>(1 Hrs.)</b></li> <li>• <b>CRUD Operations:</b> DDL, DML, DQL <b>(1.5 Hrs.)</b></li> <li>• <b>Connecting with Server:</b> Purpose of JDBC, Components of JDBC, Architecture of JDBC, JDBC Drivers, JDBC API : Class &amp; interface, Creating a Simple JDBC application. <b>(1.5 Hrs.)</b></li> </ul>	
<b>Bootcamp</b>	<p><b>Mastering in No Relational Database</b></p> <ul style="list-style-type: none"> <li>• Introduction to No Relational Database, MongoDB, Advantages, disadvantages, need of MongoDB,</li> <li>• Data modeling, CRUD operation, indexing, aggregation, replication.</li> </ul>	<b>4 Hrs</b>
<b>2.2</b>	<b>Building Single Page Application (SPA) using ReactJS</b>	<b>7 Hrs.</b>
	<b>Required Tool: Visual Studio Code</b>	

	<ul style="list-style-type: none"> <li>• <b>Getting Started with ReactJS:</b> ReactJS, Features, Advantages &amp; Disadvantages, Development Environment Setup <b>(1 Hrs.)</b></li> <li>• <b>React Fundamentals:</b> Components, Class &amp; Function, Prop &amp; States <b>(2 Hrs.)</b></li> <li>• <b>Advanced Guide for React:</b> Page Routing, Hooks, Apps, React Connection &amp; Deployment. <b>(4 Hrs.)</b></li> </ul>	
<b>2.3</b>	<b>Mastering in RESTful API using Spring Boot</b>	<b>16 Hrs.</b>
	<p><b>Required Tool: Eclipse/ Spring suite tool</b></p> <ul style="list-style-type: none"> <li>• <b>Getting Familiar with Restful API:</b> Restful API, needs, Characteristics, Advantages and Disadvantages, Difference between REST API and RESTful API <b>(0.5 Hr.)</b></li> <li>• <b>Moving Ahead with Spring Boot:</b> Features, Architecture, Spring IO, Methods of RESTful API (GET, POST, PUT, DELETE), Spring Boot JDBC connection, Richardson Maturity Model. <b>(13 Hrs.)</b></li> <li>• <b>RESTful Web Services Best Practices:</b> Maven Project <b>(2.5 Hrs.)</b></li> </ul>	
<b>2.4</b>	<b>Reviewing of UI/UX Principles</b>	<b>1.5 Hrs.</b>
	<ul style="list-style-type: none"> <li>• Getting Familiar with UI/UX (20 min.)</li> <li>• Five-key Principles of UX Design (Hierarchy, Consistency, Confirmation, User Control, Accessibility) (25 mins.)</li> <li>• Five key UI design Principles- (Clarity, Familiarity, User Control, Hierarchy, Flexibility) (30 mins.)</li> <li>• How Companies Are Engaging Their Users with Real-Time on UX/UI. (30 mins.)</li> </ul>	
<b>Boot Camp</b>	<b>Learning UI Design using Figma</b>	<b>3 Hrs.</b>
<b>3</b>	<b>Advanced Courses</b>	<b>15 Hrs</b>
<b>Boot Camp</b>	<p><b>Software Development Tools and Practices</b></p> <ul style="list-style-type: none"> <li>• Introduction to Software Development Tools, Version Control Systems (e.g., Git, SVN), Collaborative Development with Git</li> <li>• Code Review and Pull Requests, Continuous Integration (CI) and Continuous Deployment (CD)</li> </ul>	<b>4 Hrs.</b>
<b>3.1</b>	<b>Cloud Computing for hosting Software Applications</b>	<b>15 Hrs</b>
	<ol style="list-style-type: none"> <li>1. <b>Azure Fundamentals:</b> Understand the basic concepts and features of Azure, such as resource groups, virtual machines, storage accounts, and networking. <b>(4 Hrs.)</b></li> <li>2. <b>Azure Database Services:</b> Study Azure database services. Learn how to create and configure databases <b>(1 Hr.)</b></li> <li>3. <b>Azure App Service:</b> Learn about Azure App Service, a platform-as-a-service (PaaS) offering that allows you to host web apps. Understand how to create an App Service plan and Deploy web applications using different deployment options. Learn how to create and configure Web Apps, manage deployment slots, and use deployment options like Git, FTP etc. <b>(3 Hrs.)</b></li> <li>4. <b>Connection to Apps &amp; Database:</b> Establish connections with web apps and manage data. <b>(1 Hr.)</b></li> </ol>	



	<ol style="list-style-type: none"> <li>5. <b>Scalability and Load Balancing:</b> Understand how to scale your web app to handle increasing traffic and leverage Azure Load Balancer or Azure Application Gateway to distribute traffic across multiple instances. <b>(2 hr.)</b></li> <li>6. <b>Security and Compliance:</b> Explore Azure Security Center and Azure Policy to ensure your web app meets security best practices and complies with relevant regulations. <b>(1 Hr.)</b></li> <li>7. <b>DevOps Practices:</b> Gain knowledge of continuous integration and continuous deployment (CI/CD) practices. <b>(3 Hrs.)</b></li> </ol>	
<b>4</b>	<b>Capstone Project</b>	<b>25 Hrs.</b>
	<ul style="list-style-type: none"> <li>• Apply acquired knowledge and skills to design, develop, and deploy a real-world software application.</li> <li>• Work independently or in teams, demonstrating proficiency in the full software development life cycle.</li> </ul>	

## Track 2: Industrial Artificial intelligence with cloud computing

### Program Overview:

The Hands-on AI, Cloud Computing, and Database Integration program is designed to provide participants with a comprehensive understanding of Artificial Intelligence (AI), practical experience in cloud computing environments, and the integration of databases for efficient data storage and retrieval. Through a combination of theoretical knowledge and hands-on exercises, learners will develop the skills needed to build and deploy AI models, leverage cloud platforms for scalable data processing, and effectively manage data using databases.

### Program Benefits:

- **Comprehensive Knowledge:** Participants will gain a comprehensive understanding of AI concepts, machine learning algorithms, and deep learning techniques. They will also learn about cloud computing platforms, data storage, and distributed computing, as well as database management principles and SQL querying.
- **Hands-on Experience:** The program emphasizes hands-on exercises and practical application. Participants will have ample opportunities to work on real-world datasets, build and train AI models, deploy them on cloud platforms, and integrate databases for efficient data management.
- **Cloud Computing Skills:** Participants will develop skills in setting up and managing cloud computing environments, utilizing cloud-based services for data storage and processing, and deploying AI models on cloud platforms. This will enable them to leverage the scalability and resources offered by the cloud for AI applications.
- **Database Integration:** The program covers the integration of databases with AI models, allowing participants to effectively manage and retrieve data for AI-driven applications. They will learn how to design database schemas, perform data

pipelines between AI models and databases, and leverage SQL for data manipulation.

- **Real-world Projects:** The program includes a project development component, where participants will apply their acquired knowledge and skills to develop an AI-driven project. This hands-on experience will enhance their problem-solving abilities, project management skills, and showcase their proficiency in AI, cloud computing, and database integration.
- **Practical Application:** By combining AI, cloud computing, and database management, participants will understand how these technologies work together in real-world scenarios. They will be able to tackle data-intensive challenges, scale AI models, and efficiently manage and retrieve data to derive meaningful insights.
- **Career Opportunities:** The program equips participants with sought-after skills in AI, cloud computing, and database management. This will enhance their employability and open opportunities in various industries that require data-driven decision-making, AI development, and cloud-based solutions.
- **Networking and Collaboration:** Participants will have the opportunity to interact and collaborate with fellow learners, creating a supportive learning environment. They can exchange ideas, share experiences, and establish professional connections that can be beneficial for future collaborations or career growth.
- **Industry Relevance:** The program is designed to align with industry trends and requirements. Participants will gain knowledge and skills that are currently in high demand, ensuring their competitiveness in the evolving field of AI, cloud computing, and data management.

### Program Outline:

#	Duration
Course Content	80 Hrs
Capstone Project	25 Hrs
Boot Camp	15 Hrs
Employability Session	TBD
Self-Paced Learning	TBD
<b>Total Duration:</b>	<b>120 Hrs</b>

### Program Structure:

**Program Duration:** The program is designed to be completed in 6 to 8 months covering around 120 hours of content and project work.

#	Description of the content to be covered	Duration (hrs)
<b>1</b>	<b>Foundation Course</b>	<b>22 Hrs</b>
<b>1.1</b>	<b>Understanding the World of AI</b>	<b>2Hrs</b>
	<ul style="list-style-type: none"> <li>• Understanding the terms like Artificial Intelligence, Machine Learning, Deep Learning. (20 Mins)</li> </ul>	

	<ul style="list-style-type: none"> <li>• Applications of Machine Learning / Deep Learning techniques. (20 Mins)</li> <li>• Types of Data: Tabular Data, Text Data and Visual Data. (20 Mins)</li> </ul> <p>Exercise: Understanding AI with MS Demos. (1 Hr.)</p>	
<b>1.2</b>	<b>Applied Python Programming in AI</b>	<b>12 Hrs</b>
	<ul style="list-style-type: none"> <li>• Fundamentals of open-source Tools &amp; Technology: Installation of Anaconda and Set up the python Environment. (30 Mins)</li> <li>• Writing and interpreting the first program in Python. (30 Mins)</li> <li>• Understanding data Structure in Python. (2 Hrs)</li> <li>• Control Statements and Functions in Python. (4 Hrs)</li> <li>• Understanding and implementing OOPS Concepts. (3 Hrs)</li> <li>• Integration of database technologies with python. (2 Hrs)</li> </ul>	
<b>1.3</b>	<b>Data analysis with python to fuel AI applications</b>	<b>8 Hrs</b>
	<ul style="list-style-type: none"> <li>• Understanding Exploratory Data Analysis and types of EDA. (60 Mins)</li> <li>• Python packages for EDA applications: Practicing with NumPy and Pandas. (2 Hrs)</li> <li>• Practicing with Data Visualization python packages (matplotlib &amp; seaborn). (2 Hrs)</li> <li>• Understating web scraping for data gathering (1 Hr.)</li> </ul> <p><b>Hands-on exercise:</b> A Data Analysis case study using techniques of EDA. (2 Hrs)</p>	
<b>Boot Camp</b>	<b>Software Development Tools and Practices</b> <ul style="list-style-type: none"> <li>• Introduction to Software Development Tools, Version Control Systems (e.g., Git, SVN), Collaborative Development with Git</li> <li>• Code Review and Pull Requests, Continuous Integration (CI) and Continuous Deployment (CD)</li> </ul>	<b>4 Hrs.</b>
<b>2</b>	<b>Core Courses</b>	<b>35 Hrs.</b>
<b>2.1</b>	<b>Exploring and implementing popular Machine Learning Algorithms and Frameworks</b>	<b>20 Hrs.</b>
	<ul style="list-style-type: none"> <li>• Understanding Supervised, Unsupervised, semi-supervised and reinforced machine learning algorithms (1 Hr)</li> </ul> <p><b>Hands-on Exercise:</b> Implementing intelligent model using Microsoft Lobe. (1 Hr)</p> <p><b>Prerequisites for development of AI models</b></p> <ul style="list-style-type: none"> <li>• Understanding Machine Learning Pipeline. (1 Hr)</li> <li>• Necessity of data preprocessing and cleaning. (30 mins)</li> <li>• Techniques of data preprocessing and cleaning. (4.5 Hrs)</li> </ul> <p><b>Building and training ML models using popular frameworks</b></p> <ul style="list-style-type: none"> <li>• Implementing an end-to-end deployment of Machine Learning models like Linear Regression, Logistic Regression, Decision Tree/ Random Forest, Naïve Bayes, SVM, K-Means, Ensemble Algorithms. (9 Hrs)</li> </ul> <p><b>Hands-on Exercise:</b> Developing a full-fledged project using different ML algorithms and python packages from scratch. (3 Hrs)</p>	
<b>Bootcamp</b>	<b>Bootcamp on HTML, CSS, JS, Bootstrap for creating front-end AI applications.</b>	<b>4 Hrs.</b>
<b>2.2</b>	<b>Demystifying Deep Learning models, frameworks and techniques</b>	<b>15 Hrs.</b>

	<p><b>Building and training DL models using popular frameworks</b></p> <ul style="list-style-type: none"> <li>• Introduction to Multi-Layer Perceptron. (1 Hr)</li> <li>• Comparing machine learning and deep learning. Shallow vs Deep Neural Network. (1 Hr)</li> <li>• Exploring different DL algorithms and frameworks/libraries (TensorFlow). (1 Hr)</li> <li>• Implementing an end-to-end deployment of Deep Learning models Multi-layer Perceptron, CNN, RNN, LSTM, BiLSTM. (9 Hrs)</li> </ul> <p><b>Hands-on Exercises:</b> Developing a full-fledged project using different DL algorithms and python packages from scratch. (3 Hrs)</p>	
<b>Bootcamp</b>	<b>Bootcamp on Database technologies and integration with python.</b>	<b>3 Hrs.</b>
<b>3</b>	<b>Advanced Courses</b>	<b>23 Hrs.</b>
<b>3.1</b>	<b>Good Practices of Monitoring and Optimization of AI Models</b>	<b>3 Hrs</b>
	<ul style="list-style-type: none"> <li>• Hyperparameter tuning and model optimization.(1 Hr)</li> <li>• Underfitting, overfitting, best fitting. (0.5 Hr)</li> <li>• Gradient Descent Algorithm and other optimization techniques like Regularization, Dropout, Early Stopping, Data augmentation, Activation functions. (1.5)</li> </ul>	
<b>3.2</b>	<b>Cloud Computing for Development and Deployment of AI Applications</b>	<b>18 Hrs</b>
	<p><b>Azure Fundamentals: (2 Hrs.)</b></p> <ul style="list-style-type: none"> <li>• Understand the basic concepts and features of Azure, such as resource groups, virtual machines, storage accounts, and networking.</li> </ul> <p><b>Azure Database Services and Data Lake: (4 Hrs.)</b></p> <ul style="list-style-type: none"> <li>• Implement database concepts in Azure, Integrating databases with AI models for efficient data storage and retrieval.</li> </ul> <p><b>Azure Machine Learning: (4 Hrs.)</b></p> <ul style="list-style-type: none"> <li>• Implement AI models and algorithms of machine learning using Azure ML Studio.</li> </ul> <p><b>Azure Cognitive Services: (4 Hrs.)</b></p> <ul style="list-style-type: none"> <li>• Using Cognitive services like text analysis, vision, language, speech services of creation of responsive AI models.</li> </ul> <p><b>Azure OpenAI Services: (4 Hrs.)</b></p> <ul style="list-style-type: none"> <li>• Utilizing the open AI services to create intelligent regenerative models.</li> </ul>	
<b>3.3</b>	<b>Real-World Applications and Case Studies</b>	<b>2 Hrs</b>
	<ul style="list-style-type: none"> <li>• Examining real-world use cases and success stories of regenerative AI and responsive AI.</li> <li>• Discussing the ethical considerations and challenges associated with these AI approaches.</li> <li>• Highlighting best practices and lessons learned from industry implementations.</li> </ul>	
<b>Boot Camp</b>	<b>Develop Problem-Solving Skills through Data Structures and Algorithms</b>	<b>4 Hrs.</b>
	<ul style="list-style-type: none"> <li>• Introduction to DSA, Array and Linked List, Stack and Queue, Tree and Binary Tree, Graphs and Graph Algorithms</li> </ul>	

	<ul style="list-style-type: none"> <li>• Sorting and Searching Algorithms, Dynamic Programming, Hashing and Hash Tables.</li> </ul>	
<b>4</b>	<b>Capstone Project</b>	<b>25 Hrs.</b>
	<ul style="list-style-type: none"> <li>• Apply acquired knowledge and skills to design, develop, and deploy a real-world software application.</li> <li>• Work independently or in teams, demonstrating proficiency in the full software development life cycle.</li> </ul>	