

(Breadth Engagement Model) (65 Hours)

[Both Male and Female students Students from B.Sc/8.Tech/BCA/MCA/M.Sc with computer background]

	Topics covered	Description	Duration
	Linux Operating System	<ul style="list-style-type: none">• Introduction of Operating System• Getting started with Open-Source OS• Linux Kernel and its distributions• Installation of Ubuntu• Linux Commands• Shell Scripting, SSH and SCP commands in Linux• Working on different text editors: nano, vi• Managing Linux Files and User Permissions	8
	Introduction of Database Management System	<ul style="list-style-type: none">• Why use a database DBMS, its characteristics and Applications• Advantages and Disadvantages of DBMS• Introduction to Relational Database – MySQL• Structure of RDBMS and Terminology• Manipulating and Querying Data: Introduction to MySQL, SQL Commands, DDL, DML, DQL, CRUD operations	6
	Building Front Face for Web	<ul style="list-style-type: none">• Understanding the WEB: Internet, Web page, Website, Web applications• HTML for web Layout: HTML Basic Components, List, Tables, Graphics, Multi-Media, Forms, Text formatting, Block components• CSS for Page Design: CSS design principles, property:values, dynamic CSS3, box model, design layout controls• JS for Client-side scripting: Handling HTML Events, Animations, Reading element state & data, form handling and validations. Handling Cookies and Session Data• Building Dynamic web pages using HTML 5, CSS3 and JS	14

	Introduction to JAVA Programming Language	<ul style="list-style-type: none"> • Understanding OOP concepts, JAVA Features, JVM, JRE, and JDK • Java Fundamentals: Java Variables, Data Types, Java Operators, Input and Output, Java Expressions & Blocks, Comment • Java Control Statements: If...else, Switch Statement, For Loop, For-each Loop, While Loop, Break Statement, Continue Statement • Java Arrays: Introduction to Arrays, Single Dimensional Arrays, Multidimensional Array • Java Class and Objects: Introduction to Class and Object, Methods, Constructor, Strings, Access Modifiers, this keyword, static keyword • Important Topics of OOPS Concept: Method Overriding & Method Overloading, Abstract Class, Interfaces, Package, super Keyword • Java Exception Handling: Java Errors and Exceptions, try...catch block, Multiple catch block, finally block, throw and throws Keyword • Additional Topics: Scanner Class, Wrapper Class, Type Casting, Command Line Arguments, Recursion 	25
	Understanding the Azure Cloud:	<ul style="list-style-type: none"> • Introduction to Azure Portal Cloud Services and Deployment Models • Getting Started with an Azure Cloud: Exploring the Azure Service offerings. • Fundamentals of Networking and Networking Protocols • Creating Custom VPC in Azure and add subnets to created VPC and deploy VM in subnets and set up communication between the VMs. • Market and JOB trends in Cloud 	7
	Employability Skills (20-25 Hours)		
	Introduction to English language (Its importance and effective usage)	<ul style="list-style-type: none"> • Basics of English • Parts of speech • Pronunciation • Grammar rules 	2
	Elements of Spoken English skills	<ul style="list-style-type: none"> • Greetings • Verbal and non-verbal communication • How to start a conversation • How to end a conversation • The art of saying “no” • Speaking about your work and achievements 	3
	Reading skills	Reading comprehension	1
	Listening Skills	Understanding the importance of listening skills as part of professional/ personal life	1
	Writing skills	<ul style="list-style-type: none"> • Formal & informal letter writing • Report writing 	2
	Know yourself	<ul style="list-style-type: none"> • SWOT Analysis • Self-Introduction 	1

	Resume Building & LinkedIn Profiling	<ul style="list-style-type: none"> • Resume Writing, format and layouts • LinkedIn profiling and Creating a Profile 	2
	Creative thinking	<ul style="list-style-type: none"> • Mind Mapping • Structured and Unstructured Ideas • Analytic and Research Skills 	2
	Public speaking	<ul style="list-style-type: none"> • Debates • Group discussions 	3
	Problem Solving and Critical thinking (Role plays)	<ul style="list-style-type: none"> • How to face challenges • Resolving with critical thinking • Design thinking process 	2
	Digital Footprint	<ul style="list-style-type: none"> • Online Literacy • Effective Use of Social Media 	1

Faculty Development Program(FDP) (30 Hours)

Coures Name	Topics covered	Description	Duratio n
Artificial Intelligence	Building Future with Artificial Intelligence	<ul style="list-style-type: none"> • Artificial Intelligence- The Advent & Ascent • Breakthrough AI Application- Demo • NO CODE ML- Working on Microsoft Lobe • Jump Start- Data Exploration & Analytical Modelling 	6
	Building Machine Learning Models	<ul style="list-style-type: none"> • Regression Case Study o Working with Continuous Variable Outputs • Classification Use Cases o Working with Discrete Variable Outputs 	6
	Computer Vision using Deep Neural Nets	<ul style="list-style-type: none"> • Vision Use Cases- Demo • Convolutional Neural Networks • CNN for Healthcare, a case study 	6
	Natural Language Understanding	<ul style="list-style-type: none"> • NLP Use cases- Demos • Detecting Emotional State and Generating Inferences • NLP for Text Summarization 	6
	Using Cloud tools for building AI solutions	<ul style="list-style-type: none"> • Getting started with Azure ML Studio • Build your own model- tune, test and deploy • Deployment skills- Streamlit Framework and Cloud VM Hosting 	6
Cloud Computing	The Future is Cloudy	<ul style="list-style-type: none"> • Understating Cloud Computing • Industrial Shift- What benefits we get • Cloud Deployment and Service Models • Creating Virtual Machine Servers for Application Hosting 	6
	Working with Cloud IaaS	<ul style="list-style-type: none"> • Cloud Security Use Cases • Building Secure Infrastructure from Scratch • Case Study- Auto Scaling and High Availability • Building Scalable Infrastructure for Application Hosting 	6
	Cloud For Application Development	<ul style="list-style-type: none"> • Cloud Native Applications • Azure App Services • Serverless Compute- Function APIs 	6

	Containerized Applications and Microservices	<ul style="list-style-type: none"> • Understanding Microservices Architecture • Working with Docker and Kubernetes • Hosting with Azure Container Services 	6
	Cognitive Services in Azure	<ul style="list-style-type: none"> • Understanding Cognitive Applications- Demos • Use Cases for AI applications <ul style="list-style-type: none"> o Who AM I? o I don't speak your language! • Azure Vision Services • Azure NLP Services 	6
Full Stack Web Development	Building Responsive and Interactive UI using Bootstrap	<ul style="list-style-type: none"> • Working with Bootstrapping • Integration of JQuery • Creating web template using Bootstrap and JQuery 	6
	Working with Servlets and JSP	<ul style="list-style-type: none"> • Servlet Lifecycle & Pre-Defined Objects • JSP tags and Form operations • Session and Cookies handling 	6
	Working with Databases	<ul style="list-style-type: none"> • Working with SQL database • Working with NoSQL database • Database connectivity and operations 	6
	Framework for web Applications	<ul style="list-style-type: none"> • Intro to annotations and Spring • DAO, Maven projects & configurations • Database handling using Spring Framework 	6
	Creating dynamic web application using Spring	<ul style="list-style-type: none"> • Integration of UI template • Building business logic • Database connectivity, filter queries 	6