DevOps Training Lession Plan

Week -1 Linux	Theory Session	Lab session	Lab Assignments
Day-1	Introduction to the training Programme, discussion of the lesson plan, Assignments, Introduction to Devops and Cloud		
Day-2	Introduction to Linux and Linux Flavours, history and terminals	Practice of Basic Linux Commands and getting familiar with terminal	1. Use the terminal to login as root, install the nginx server. Is the server running?
Day-3	Basic commands, Navigation in Linux, Compressing and Decompressing files	Practice on Linux advanced commands and compression techniques	1. Navigate to the users home folder, take a backup of the home file in a tar file name it as today's date, copy the archive into the users root directory and unzip the contents
Day-4	Installing and enabling packages, Boot, reboot, and shut down a system safely, log into root account, ~ and . operators, Manage and configure Virtual Machines, SSH	Practice questions and assignments on VM and SSH	1. Create a VM using KVM and virt manager. SSH into the VM from your terminal.
Day-5	Bash Shell Scripting Overview, Practice Problems on Scripts, operators, variables, storing and using values, conditionals	Practice questions and assignments on Script and operators	1. Write a bash script to add two numbers. 2. Write a bash script to take user input to install for different sofwares and based on the input install the particuar software.
Day-6		Understanding the string manipulation commands	1. Shell Script to send Automatic Mail Alert when RAM Memory gets Low 2 Write a script to define a cronjob that takes backup of the users home folder and saves it as an archive file with todays date. The archive should be taken everyday at 12 PM.
Week -2 AWS and Cloud	**Theory Session**	**Lab session**	**Lab Assignments**
Day-7	Introduction to Cloud, Use of Virtualization, Cloud models, AWS, Services	Understanding the AWS provider and console Create a free tier AWS account	Doubt Clearing Sessions for Day-1 to Day-6
Day-8	AWS Accounts - The Basics, MFA, Adding an IAM Admin - GENERAL ACCOUNT	Create IAM keys and set up AWS CLI	1. Creating an IAM user and assign security groups to the user. Enable MFA for the IAM user.
Day-9	AWS Services and their uses Simple Storage Service (S3) Basics First S3 Bucket CloudFormation (CFN) Basics Simple Automation With CFN CloudWatch (CW) Basics	First EC2 Instance (DEMO)	1. Practice of AWS CLI commands for EC2 and S3.
Day-10	IAM accounts, users, roles, IAM Identity Policie	Understanding and creating IAM users and policis	2. Create an IAM user and assign him access to EC2, S3 and administrator access.
Day-11	AWS EC2: AWS AMI and catalogue, key-pair instance type, region, EBS volume and	Creation of VM instances and bukcets	1. Practice the EC2 CLI commands
Day-12	Assignment 1 Using Scripts to create and delete AWS Infrastructure		1. Write a bash script to create AWS infrastructure. On executing the script it will create a t2.micro EC2 instance and a S3 bucket. The script should also delete the resources after creation
Week -3 AWS Networking	**Theory Session**	**Lab session**	**Lab Assignments**
Day-13	AWS S3, Object storage, S3 Object Storage Classes ACL, Public and Private buckets S3 Access Points		1. Practice the S3 CLI commands
Day-14	Automation of EC2 and S3 using bash scripting	Practice Questions on EC2 and S3 CLI commands	
Day-15	Theoritical concepts of AWS VPC and Subnets, IG, RT	Understanding the concept of VPC	1.From the AWS console create a VPC attach a public subnet to it. Create an Internet gateway and add a Routing table to it. In the routing table open a route (0.0.0.0/0) to allow all traffic. Attach the IG tothe VPC and launch an instance inside it.
Day-16	Hands on Demo on VPC and Subnets	Practice on VPC ceation from console and script	1. Write a bash script to create a VPC attach a public subnet to it. Create an Internet gateway and add a Routing table to it. In the routing table open a route (0.0.0.0/0) to allow all traffic. Attach the IG tothe VPC and launch an instance inside it.
Day-17	Advanced EC2	1. Bootstrapping an Instance with user data 2.	1. Bootstrap user data to install nginx and host a static webpage on it. So on starting the instance in aws it should have inbuilt nginx installed and running.
Day-18		Practice session for Advanced AWS commands	Practice Sessions for Day 13 to Day 18
Week -4 Terraform and IAAC	**Theory Session**	**Lab session**	**Lab Assignments**
Day-19	IAAC, need of IAAC, Terraform workflow	Installing and using terraform in the terminal.	1. Write a bash script to install terraform in a ubuntu system
Day-20	Terraform state files, providers, variables, output	Practice session for terraform commands	1. Using terraform create a ubuntu flavoured EC2 instance, a public S3 bucket a security group.
Day-21	Terraform module and workspaces		1. Create a Terraform module for EC2 instance, a public S3 bucket a security group. and demonstrate the reusability of modules
Day-22	Doubt Clearing Session on Terraform	Practice Session on Terraform	
		Assignment	

Day-23 and 24	Assignment - Deploying 3 Tier Architecture with moduler approach	Assignment - Deploying 3 Tier Architecture with moduler approach	Assignment - Deploying 3 Tier Architecture with moduler approach

Week -5	Theory Session	Lab session	Lab Assignments
Day-25	Introduction to docker and containerization		1. Write a bash script to create AWS infrastructure using terraform. In the same script use docker to install nginx and run it as a web server
Day-26	Containerization of a PHP based application		Containerization of a PHP based application
Day-27	Containerization of a PHP based application		Containerization of a PHP based application
Day-28	3-tier application automation	1. Using a bash script create 3-tier AWS infrastructure through terraform, use docker to containerize an application in the created infrastructure.	
Day-29	3-tier application automation	1. Using a bash script create 3-tier AWS infrastructure through terraform, use docker to containerize an application in the created infrastructure.	

Week -6	Theory Session	Lab session	Lab Assignments
Day-25 -29	**Master Assignment**		