Programme: MCA

Course code: CSC-302 **Title of course:** Modern Development Platforms

Number of credits: 3 (3L-0T-0P) **Total contact hours:** 36 hours (36L-0T-0P)

Effective from AY: 2021-22

Prerequisites for the course	Programming(Program Prerequisites), Knowledge of OS (CSC-103), Networks(CSC-104) and Web Development(CSC-201,CSC-204)	
Objectives	This course will focus on the modern development technologies, tools and platforms prevalent in the software development industry	
Content	**Overview** ● Ever-changing development terrain, Importance of development at scale. Emergence of Cloud Services, Devops	1 hour
	Development at scale ● Introduction to API Query ● Introduction to ELK stack	4 hours
	Cloud Computing ● Overview ● Cloud Models - IaaS, PaaS, SaaS, Public/Private/Hybrid Cloud ● Components - Virtualisation & VMs, File Storage, Server Instances, Content Delivery Network, etc. ● Setting up cloud ● Cloud Services ● Case study of any one cloud (e.g. *Amazon AWS/ Google Cloud/ MS Azure)*	16 hours
	DevOps ● Overview of DevOps: ○ Introduction to DevOps ○ DevOps Lifecycle ○ DevOps Delivery Pipeline ● Continuous Integration/ Continuous Delivery (CI/CD) ○ Introduction to CI/CD	15 hours

	○ Continuous Delivery v/s Continuous Deployment ○ Case study of any one CI/CD tool(CircleCI/Jenkins, etc). Case study should include architecture, pipeline and plugin management ● Configuration Management ○ Introduction to Configuration Management ○ Case study of any one Configuration Management(e.g. Ansible, Chef, etc). Case study should include Infrastructure as Code, Inventory Management, playbooks/cookbooks ● Containerization ○ Introduction to Containerization ○ Container Lifecycle ○ Case study of any one containerization tool (e.g. Docker, etc) which should include namespaces, commands,CLI, image creation, image registry ● Continuous Monitoring ○ Introduction to continuous monitoring ○ Types: Infrastructure Monitoring, Application Monitoring and Network Monitoring ○ Case study on one continuous monitoring tool(e.g. Nagios, Prometheus, etc)	
Pedagogy	Hands-on assignments / tutorials / peer-teaching / flip classroom.	
References/ Readings	1. Frank W. Zammetti, "Modern Full-Stack Development", Apress 2. Nader Dabit, "Full Stack Serverless", O'Reilly 3. Joakim Verona, "Practical DevOps" 4. https://www.elastic.co/guide/index.html 5. https://docs.aws.amazon.com/ 6. https://cloud.google.com/docs 7. https://docs.microsoft.com/en-us/azure/?product=featured 8. https://docs.docker.com	
Learning	1. Learner will learn about the latest tools and platforms used in the software industry	

Outcomes	2. Learner will have fair idea on the popular cloud services used 3. Learner will appreciate the different devops tools and why devops is important	