Course Code	COS6006B			
Course Category	**Elective Computer Science**			
Course Title	**DevOps**			
Teaching Scheme and Credits	**L**	**T**	**Laboratory**	**Credits**
Weekly load hrs.	**4**	**-**	**--**	**4**

Pre-requisites: Basic knowledge of Operating System, Networking and IDEs

Course Objectives: Knowledge: To apply the principles and knowledge of DevOps Environment

Course Outcomes:

By the end of the course you will be able to understand:

1. The background and mindset of DevOps
2. The practices of version control and configuration management that support DevOps,how test automation supports DevOps, the essentials of continuous integration (CI)
3. The principles and practices of continuous delivery (CD), the deployment pipeline and its purpose
4. The challenges and support for managing infrastructure and databases, What changes to start making when first starting out with DevOps

Course Contents:

LINUX Basics
Introduction to Devops
GIT: Version Control
Chef for Configuration Management
Puppet for configuration management

Learning Resources:

Textbooks:

1. The DevOps Adoption Playbook: A Guide to Adopting DevOps in a Multi-Speed IT Enterprise by Sanjeev Sharma, IBM press
2. Practical DevOps: Harness the power of DevOps to boost your skill set and make your IT organization perform better by Joakim Verona

Reference Books:

1. Beyond the Phoenix Project: The Origins and Evolution of DevOps, Gene Kim (Author, Narrator), John Willis (Author, Narrator), IT Revolution Press (Publisher)
2. The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations, Gene Kim, Patrick Debois, John Willis, Jez Humble, IT Revolution Press; Illustrated edition

Pedagogy:

Participative learning, discussions, problem solving, assignments, tutorial

Assessment Scheme: Class Continuous Assessment (CCA) 60 marks

Mid Term Examination (MCQ Online Test /Direct Internal Examination	FAT 1 (Formative Assessment Test 1)	FAT 2 (Formative Assessment Test 2)	Total
30 Marks	15 Marks	15 Marks	60 Marks

Term End Examination: 40 marks

Syllabus:

Module	Contents	Work load in hrs.		
		Theory	Lab	Access
1	**LINUX Basics:** Unix and linux difference**,** Linux File system structure, Basic linux/unix commands, Changing file permissions and ownership, Types of links soft and hard link, Filter commands, Simple filter and advance filter commands, Start and stop services, Find and kill the process with id and name, Package installation using RPM and YUM	12	-	-
2	**Introduction to Devops:** Define Devops, What is Devops, SDLC models, Lean, ITIL, Agile, Why Devops? , History of Devops, Devops Stakeholders, Devops Goals, Important terminology, Devops perspective, Devops and Agile, Devops Tools – taken later with other units, Configuration management, Continuous Integration and Deployment	12	-	-
3	**GIT: Version Control:** Introduction, What is GIT, About Version Control System and Types, Difference between CVCS and DVCS, A short history of GIT, GIT Basics - GIT Command Line, Installing Git- Installing on Linux, Installing on Windows, Initial setup, GIT Essentials- Creating repository, Cloning, check-in and committing, Fetch pull and remote, Branching, Creating the Branches, switching the branches, merging the branches.	12	-	-
4	**Chef for Configuration Management:** Overview of Chef -Common Chef Terminology (Server, Workstation, Client, Repository etc.), Servers and Nodes, Chef Configuration Concepts, Workstation Setup, Organization Setup, Create organization, Test Node Setup, Environments, Attributes Data bags	12	-	-
5	**Puppet for configuration management:** What is Puppet? Installation and Configuration Puppet Language Basics Templates Install LAMP with preexisting modules Installing Apache Tomcat with Puppet Modules	12	-	-