

COURSE PLAN

DevOps Overview

Online Mode | June – July 2026

1. Course Information

Course Title	DevOps Overview
Faculty	Dr. Mohsin Furkh Dar
Delivery Mode	Online (Live Sessions)
Course Duration	8 June 2026 – 15 July 2026 (6 Weeks)
Class Days	Monday & Tuesday
Monday Sessions	Session 1: 9:00 AM – 10:00 AM Session 2: 11:00 AM – 12:00 PM
Tuesday Session	Session 3: 9:00 AM – 10:00 AM
Total Sessions	18 Sessions (3 sessions/week × 6 weeks)
Total Hours	18 Hours
No. of Units	5 Units

2. Course Objectives

- Learn about the DevOps lifecycle and its stages, including continuous integration, continuous delivery, and continuous deployment.
- Gain practical knowledge of version control systems and configuration.
- Understand the importance of security in DevOps and learn how to integrate security practices into the CI/CD pipeline.
- Learn the principles and techniques of demand forecasting and source code management planning to effectively match with needs.
- Gain insights into sustainable source code management practices, to create long-term value.

3. Course Outcomes

On completion of this course, the students will be able to

- CO1: Understand the principles and benefits of DevOps and its role in software development and deployment.
- CO2: Develop an understanding of compliance requirements and how to incorporate them into DevOps processes.
- CO3: Develop a comprehensive understanding of source code management concepts, including its objectives and components.

- CO4: Understanding of management principles and techniques, including source code planning and optimization.
- CO5: Gain an understanding of source code management practices and their impact on the teams' environment.

4. Course Syllabus

The course is organized into five units as detailed below:

Unit	Topics Covered
Unit I – Traditional Software Development and Rise of Agile Methodologies	<ul style="list-style-type: none"> • The Advent of Software Engineering • Waterfall Method • Developers vs IT Operations Conflict • Agile Movement in 2000 • Agile vs Waterfall Method; Iterative Agile Software Development • Agile Manifesto Principles: Individuals & Interactions, Working Software, Customer Collaboration, Responding to Change
Unit II – Definition and Purpose of DevOps	<ul style="list-style-type: none"> • Introduction to DevOps; DevOps and Agile • Minimum Viable Product; Application Deployment • Continuous Integration (CI) and Continuous Delivery (CD) • CAMS – Culture, Automation, Measurement, Sharing • Test-Driven Development; Configuration Management • Infrastructure Automation; Root Cause Analysis; Blamelessness; Organizational Learning
Unit III – Typical Toolkit for DevOps and Source Code Management	<ul style="list-style-type: none"> • Introduction to Continuous Integration and Deployment • Version Control System (VCS) – History and Overview • Examples: SVN, Mercury, and Git • History of Git – Linux and Linus Torvalds
Unit IV – Version Control System vs Distributed Version Control System	<ul style="list-style-type: none"> • Local Repository and Distributed VCS • Advantages of Distributed Version Control • The Multiple Repositories Model • Completely Resetting Local Environment • Revert – Cancelling Out Changes
Unit V – Monitoring and Security	<ul style="list-style-type: none"> • Importance of Monitoring in DevOps • Implementing Application and Infrastructure Monitoring • Log Aggregation and Analysis • Security and Compliance in DevOps • DevOps Security Principles and Practices • Implementing Security Controls in CI/CD Pipelines • Compliance Considerations in DevOps

5. Content Delivery Schedule

All classes are conducted online. Three live sessions are held each week – two on Monday and one on Tuesday. The table below provides a detailed session-by-session schedule from 8 June to 15 July 2026.

#	Week	Date	Time Slot	Unit	Topic / Content
1	Week 1	Mon, 09 Jun 2026	9:00 – 10:00 AM	Unit I	The Advent of Software Engineering; Waterfall Model
2	Week 1	Mon, 09 Jun 2026	11:00 – 12:00 PM	Unit I	Developers vs IT Operations Conflict; Agile Movement in 2000
3	Week 1	Tue, 10 Jun 2026	9:00 – 10:00 AM	Unit I	Agile vs Waterfall; Iterative Agile Software Development
4	Week 2	Mon, 16 Jun 2026	9:00 – 10:00 AM	Unit I	Agile Manifesto – Individuals & Interactions; Working Software
5	Week 2	Mon, 16 Jun 2026	11:00 – 12:00 PM	Unit I	Customer Collaboration; Responding to Change – Recap & Q&A
6	Week 2	Tue, 17 Jun 2026	9:00 – 10:00 AM	Unit II	Introduction to DevOps; DevOps and Agile
7	Week 3	Mon, 23 Jun 2026	9:00 – 10:00 AM	Unit II	Minimum Viable Product; Application Deployment
8	Week 3	Mon, 23 Jun 2026	11:00 – 12:00 PM	Unit II	Continuous Integration (CI); Continuous Delivery (CD)
9	Week 3	Tue, 24 Jun 2026	9:00 – 10:00 AM	Unit II	CAMS – Culture & Automation; Test-Driven Development
10	Week 4	Mon, 30 Jun 2026	9:00 – 10:00 AM	Unit II	CAMS – Measurement & Sharing; Configuration Management
11	Week 4	Mon, 30 Jun 2026	11:00 – 12:00 PM	Unit II	Infrastructure Automation; Root Cause Analysis; Blamelessness; Organizational Learning
12	Week 4	Tue, 01 Jul 2026	9:00 – 10:00 AM	Unit III	Typical Toolkit for DevOps; Introduction to CI/CD
13	Week 5	Mon, 07 Jul 2026	9:00 – 10:00 AM	Unit III	Version Control System Overview; History of SCM
14	Week 5	Mon, 07 Jul 2026	11:00 – 12:00 PM	Unit III	SVN, Mercury and Git – Overview & Examples
15	Week 5	Tue, 08 Jul 2026	9:00 – 10:00 AM	Unit IV	VCS vs Distributed VCS; Local Repository; Multiple Repositories Model
16	Week 6	Mon, 14 Jul 2026	9:00 – 10:00 AM	Unit IV	Advantages of DVCS; Resetting Local Environment; Revert – Cancelling Changes
17	Week 6	Mon, 14 Jul 2026	11:00 – 12:00 PM	Unit V	Monitoring in DevOps; Application & Infrastructure Monitoring; Log Aggregation
18	Week 6	Tue, 15 Jul 2026	9:00 – 10:00 AM	Unit V	Security & Compliance; DevSecOps Principles; CI/CD Security Controls – Recap & Wrap-up

6. Assessment and Evaluation

Assessment Component	Weightage	Timing
Class Participation & Attendance	(Min. 75% attendance mandatory)	

Internal Assessment	50%	Ongoing
Mid-Semester Examination	20%	July 1 (Conducted by concerned faculty)
End-Semester Examination	30%	Mid July

7. Online Session Guidelines

- Students must join sessions on time through MS Teams using the link shared by the faculty.
- Cameras are encouraged to be turned on during live sessions for better engagement.
- All sessions will be recorded and archived; recordings will be available to registered students.
- Faculty must maintain date-wise manual attendance records in Excel for every session.
- Manual lecture delivery records must be updated after every conducted session.
- All assignments must be submitted via the course portal before the stated deadline.

8. Recommended References

- Gene Kim, Jez Humble, Patrick Debois & John Willis – The DevOps Handbook (IT Revolution Press)
- Jez Humble & David Farley – Continuous Delivery (Addison-Wesley)
- Scott Chacon & Ben Straub – Pro Git (Apress, available free at git-scm.com)
- Mark Hornbeek – Enterprise DevOps Playbook (O'Reilly)
- Online Resources: Atlassian DevOps Guides, AWS DevOps Whitepapers, GitHub Learning Lab