

Continuous Delivery & DevOps

# About this course

Amazon famously delivers new code every 11.6 seconds. Just a few years ago, this was unthinkable: many ‘cutting edge’ firms would release software quarterly. When it comes to digital innovation, velocity is critical and many would say it’s the most reliable determinant of success.

Bringing an organization to the state of the art (or even functional capability) in this area requires strong work in a combination of disciplines and a combination of both technical and managerial skills. There is no single cookie-cutter approach for achieving this capability. Much like agile, the right focus and formulation depends a lot on the facts and circumstances of the team. This course, developed at the Darden School of Business at the University of Virginia and taught by top-ranked faculty, will provide you with the interdisciplinary skill set to cultivate a continuous deployment capability in your organization.

After completing this course, you will be able to:

1. Diagnose a team’s delivery pipeline and bring forward prioritized recommendations to improve it

2. Explain the skill sets and roles involved in DevOps and how they contribute toward a continuous delivery capability

3. Review and deliver automation tests across the development stack

4. Explain the key jobs of system operations and how today’s leading techniques and tools apply to them

5. Explain how high-functioning teams use DevOps and related methods to reach a continuous delivery capability

6. Facilitate prioritized, iterative team progress on improving a delivery pipeline

The Important of Velocity & The Jobs of Delivery

If your job is to make software, you’re probably busy. Everyone needs new features yesterday. Stuff breaks. How do you make time to work smarter? How do you know where you should focus the time you do have for process improvement? In this week, we’ll cover the fundamentals of DevOps and continuous delivery with an emphasis on the relationship between required investment and benefits.

[Why Is Velocity Important?](https://www.coursera.org/lecture/uva-darden-continous-delivery-devops/why-is-velocity-important-ippf7)

What Is a Delivery Pipeline?

What Is a Test Stack?

What Is DevOps?

The Job of Development and DevOps

The Job of Test and DevOps

The Job of Ops and DevOps

Interview with Jez Humble

Your Delivery Pipeline- Getting Started

# Your Testing Stack

Focusing and automating your software testing is one of the most critical foundation elements to a continuous delivery capability. Thinking like a developer and looking at how to automate repetitive tasks is a lot of what DevOps collaboration is about. In this week, we’ll explore the test stack with a focus on the when and how’s of automated testing.

[The Science and Economics of Testing](https://www.coursera.org/lecture/uva-darden-continous-delivery-devops/the-science-and-economics-of-testing-f5ZwR)

How Many Tests?

Demo: Introduction to Our Sample Application

Demo: Introduction to Our Sample Code

Demo: Sample Code

The Small/Unit Test

Unit Test Example

Unit Test Practice Example

The Medium/Integration Test

The Medium/Integration Test Example

The Large/System Test

Introduction to System Testing

System Test Example

Creating a Culture of Experimentation

# Infrastructure & The Jobs of Ops

Something like 99% of the code that delivers your functionality to the user is code you don’t write- it’s an operating system and supporting packages from third parties. The quality and availability of standard components has driven down the cost of software development exponentially. It’s also increased the importance of managing this supporting code and the environments where it runs to support your application. In this week, we’ll look at the techniques and tools teams are using to manage their environments and operations for continuous delivery.

[The 99% of Your Code You Don't Write](https://www.coursera.org/lecture/uva-darden-continous-delivery-devops/the-99-of-your-code-you-don-t-write-qFDwQ)

Who Is this Ops Person?

The Job of Ops Sys Admin

The Job of Designing

The Job of Deploying

The Job of Maintaining

The Job of Monitoring

Version Control 101

The Role of Version Control

What's Under the Hood?

Kubernetes and Container Orchestration

# Delivering Continuously

You now have an understanding of the key components of a continuous delivery capability. The key to success is focusing on the right things at the right time and creating momentum with your initial investments on the capability. In this final week, we’ll look at how teams get their continuous capability online and keep their pipeline healthy.

[Towards CI, CD](https://www.coursera.org/lecture/uva-darden-continous-delivery-devops/towards-ci-cd-KfW3C)

The CI/CD Process

Feature Flags and the Blue/Green Pattern

Interview with Adam Zimman at LaunchDarkly

Microservices vs. Monoliths

Interview with Jim Rose

Interview with Ricardo at CircleCI

Interview with Emma Bukacek at CircleCI

Interview with Sam Aronoff at Honey

Interview with David at Intuit

Course Wrap-up