

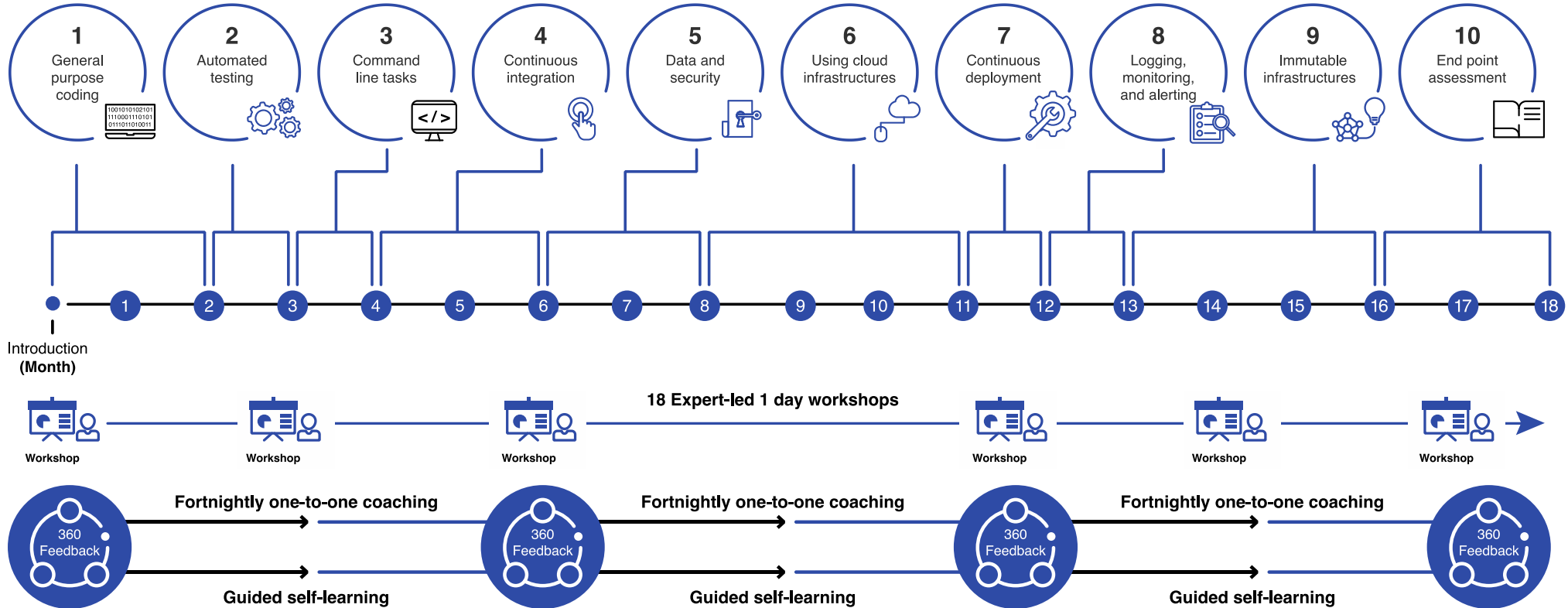


**Corndel  
Digital.**

## **DevOps** curriculum and timeline

September 2019

# Programme timeline



# Course content

## Unit 1 General purpose coding

- Python
- Version control tools (e.g. git)
- Refactoring
- Technical collaboration (e.g. knowledgesharing, pair programming)
- Web APIs and interpreting documentation

## Unit 2 Automated testing

- Test-driven development
- Testing best practices
- Testing frameworks (e.g. pytest)
- Test coverage tools and metrics

## Unit 3 Command line tasks

- Remote access through secure shell
- Introduction to general-purpose tools (e.g. grep)
- Automating tasks (e.g. repetitive or scheduled tasks)

## Unit 4 Continuous integration

- Available tools (e.g. Jenkins)
- Advantages of continuous integration and deployment
- Troubleshooting logs and solving problems
- Agile methodology, including user stories, roles in a multidisciplinary team, and a DevOps engineer's contribution
- Communication methods and mapping techniques

## Unit 5 Data and security

- Appropriate application of database technologies
- Ethics and data protection
- Data security tools (e.g. certificates, application of public key infrastructure)
- Security threat assessment (e.g. threat modelling, vulnerability scanning) and automated patching
- DevOps in the wider digital landscape
- Internationalisation, accessibility, and user experience

## Unit 6 Using cloud infrastructures

- Benefits of hosting on the cloud vs on premises
- Options available (e.g. AWS, Azure)
- File storage (e.g. S3, Azure Blob Storage)
- Cloud security and access control tools such as IP filters, firewalls, and DDoS protection
- Working with distributed systems
- Common architectural patterns and strategies
- Emerging tools and keeping up with the cutting edge

## Unit 7 Continuous deployment

- Benefits of continuous deployment
- Integrating continuous deployment into available tools (e.g. Jenkins)
- Integration of the build pipeline with the cloud
- Organisational cultures and their effect on release management and the adoption of CD

## Unit 8 Logging, monitoring, and alerting

- On-premises and SaaS tools
- How tools have changed over time
- Options available (e.g. Sentry, in-cloud)
- Setup, configuration, integration

## Unit 9 Immutable infrastructures

- Tools for immutable infrastructures (e.g. Docker)
- Infrastructure as code (e.g. Terraform)
- Integration of immutable infrastructures with version control