Timeline	Learning Outcomes in Modules	Original Capgemini Excel list (area/topic)	Additional expectations and comments of Capgemini
Pre-Studies (July)	(1) Java & object-oriented programming • Knowledge of the basic concepts of object-oriented programming (using UML) • Use of Eclipse for managing Java projects • Selection of suitable data types, declaration and initialization of variables • Use of operators to create statements, comparisons and assignments • Creating and modifying strings and using them for their intended purpose • Selection and use of sequence instructions to control the program flow • Recognition of scopes and identification of the validity of variables • Understanding and using one-dimensional fields (arrays) (2) Installation of different tools • Linux • Eclipse • Docker with Hello World • https://docker-curriculum.com/#our-first-image (3) Practice using the command line (4) Getting to know Jira, first steps • Create Jira Account (on Capgemini Test Instance) • Work through given Tutorial (5) Theory • What do I understand by the DevOps value chain? • How does an agile team work together in a project?	Programming General (Runtime Environments)	**Linux will be part of each Module:** Deep knowledge in Linux installation, administration, usage **Java:** Base knowledge about object oriented principles Setup a new Java project, change code, build and start an application. **Locale Entwicklungsumgebung:** Installation of Eclipse Understanding what an IDE is for and how Eclipse works
Week 1	**Module 1: DevOps Mindset** As a consultant I can explain basic concepts and a set of best practices of software engineering and DevOps. • I know how to run a simple JAVA program and a simple docker container. • I can explain how development and operations work together.	General (Software Development) (Operations) (Vorgehensmodelle) (DevOps Approach)	DevOps Approach: Knowledge what DevOps means and its objective and advantages Samples how DevOps works in practice **Operations:** Awerness what operations means Understanding what operations manuals and release notes are typical operations tasks and resposibilities **Softwareengineering:**

			Knowledge of all SE fields/phases from requirement to test and delivery Usage of Docker Containers (installation, administration) Overview of different process models (waterfall, v-modell, agile)
Week 2 & 3	**Module 2: Programming & Basics** As a consultant I understand java programs and can write tests and fix bugs in java code. • I can manage my Java Project in Eclipse using maven dependencies, so packages are resolved automatically. • I can write Unit Tests using JUnit 5 to achieve basic coding quality and maintainability. • I can persist Entities using Hibernate to connect a JAVA application to a relational database. • I can use the Debugger to follow a program execution. As a consultant I can explain git-flow and its main benefits and can use it to share my code with other team members. • I can work proficiently with git and git-flow. • I can manage and automate test cases using Selenium and X-Ray.	Version Control Programming Test (Selenium) Build Management (Deployment) General (Testmanagement)	**Java:** Debug a Java application Usage of third party libraries **Unit Test:** Understanding what Unit Tests are for and how they work Write JUnit tests, execute it locally, analyse results **Hibernate:** Understand OR Mapper in priciple Know the concepts of Hibernate and how it is used Implementation of a small sample with Hibernate and database connection **Lokale Entwicklungsumgebung:** Using Eclipse for Java Development, Unit Tests, Hibernate etc. Understanding of difference between Eclipse Workspaces / Builds versus Maven **SonarQube:** Understand how SonarQube works on server and on client side (Eclipse) Usage of SonarQube to analyse issues, dashboards etc. **GIT / GitWorkflows:** Understanding what Versioncontrol is for, including general concepts like branching, tagging etc. Installation of GITLab Creation of GIT Repositories, Groups and Projects in GitLab Knowledge about difference between centralized and distributed version control Use of GITLab for version control of source code Understanding of branching model and Review processes (GitFlow) Creating branches, tags, merge requests etc. **Maven:** Installation of Maven Understand what Maven is for and how it is used

			Implementation of Maven pom structure Usage of Maven for build, unit test execution, third party dependencies etc. **Static Code Verification:** Knowledge what Static Code Verification is, why it is used and how it works Try out one plugin e.g. Findbugs to analyze Code, check and analyse results, eliminate code problems Knowledge of tools for Static code verfication like Checkstyle, Sonarqube etc. **Nexus/Artifactory:** define local maven repository Download maven dependency libraries from Nexus **SQL:** Basic Knowledge about Ansi SQL, DML, DDL Using SQL for creation of tables, adding, reading and manipulating data **Database:** Base Knowledge what databases are and why we need a database Knowledge about different Database Types (SQL, NoSQL, ...) and Produckts Knowledge about Data Migration MySql installation **Selenium / Testautomation:** Install Selenium Understanding how Selenium works and what it is used for Implementation of Selenium Testcases, execution and result analysis Knowledge what test automation means and for which kinds of tests is is used Overview of technologies and tools for test automation
Week 4	**Module 3: Engineering Process & SoftSkills** I understand common software engineering processes and methodologies and I can explain their basic principles. • I can use Jira to manage my issues • I can use a Kanban board to visualize user stories	General (Issue-Management) (Jira) (Data Privacy) (Secruity) (Kanban/Scrum) (Agile Methoden),	deeper insight in agile model e.g. scrum Deeper insight in DevOps topics (collaboration, comunication, automation, agile etc.) Experiences with sprints, scrum and kanban boards

	• I am able to explain the main differences between conventional project management and common agile practices • I understand how changes and issues impact software development and can utilize common approaches to include them • I am aware of basic data privacy regulations and security threats As a consultant I know about necessary DevOps soft skill sets, can assess my individual level and am able to continuously improve upon them.	Soft Skills	Grundlagen der kommunikation im Team und gegenüber Kunden sind bekannt und geübt Grundlagen der Präsentation und Moderation sind bekannt Kandidaten haben mehrmals etwas Präsentiert und Moderiert Kandidaten treffen während des Trainings eigenständig Entscheideungen und tragen die Konsequenzen Averness that DevOps enginners have spcial responsibility (security, avialability of systems, data privacy, ...)
Week 5 & 6	**Module 4: Infrastructure as a Code and as a Service** I know the typical cloud services and their features and can compare cloud services to their on-premise counterparts. • I have theoretical background for container platforms. • I can use terraform to create local servers via docker. • I can deploy a Jenkins server on a Linux VM using ssh. • I can deploy a Jenkins server on a Linux VM using ansible.	Runtime Environments Build Management Deployment	**Jenkins:** Installation of Jenkins and Plugins Knowledge of plugin concept and most popular plugins Installation of SonarQube Installation of Nexus **Infrastructure as Code:** Understand what infrastructure as code means and how it can be implemented Knowledge about Infra as code on premise and in a cloud **Hypervisor:** Base knowledge about virtualization software, Hypervisor and VMWare **Docker:** Knowledge about Container Technology in general Docker Monitoring basics **Container Platforms:** Knowledge what Container Platforms are and why they should be used Overview of typical platform tools **Cloud IaaS and PaaS:** Deeper knowledge about IaaS and PaaS Base knowledge what a cloud is and which cloud providers are important Base knowledge about most common cloud services **Webserver:** Understanding what web servers are and why we need it Knowledge about most important Web Server Products

			Knowledge what proxies and load balancing are Apache Installation Apache configuration –> access Tomcat App
Week 7 & 8	**Module 5: Deployment and Delivery** As a consultant I understand common software engineering processes and methodologies and I can explain their basic principles. • I can write and configure a spring boot application using common spring boot mechanisms • I can pack a deliverable artifact with documentation. As a consultant I can deploy an application using scripts (without utilizing pipelines). • I can install and start a tomcat server using docker. • I can deploy a tomcat server on a Linux VM using ssh, ansible. • I can deploy a java war file to tomcat using ansible. • I can deploy a java docker image to the docker runtime.	Programming Build Management Deployment Runtime Environments	**Spring Boot:** Understand what Spring Boot is for and how it is used in an application **CI Pipelines:** Impelementation of a Build Process with Maven –> war file –> docker container **Nexus/Artifactory:** Knowledge what Nexus and Artifactory are used for Different kinds of Repositories Upload a build artifact into Nexus **CD Pipelines:** Understand difference between Snaphot and fixed versions of artifacts Knowledge about standard deployment pipelines implementation of deployment pipelines for an Java application with apache, tomcat and a database implementation of a deployment pipeline for an java application in a docker container **Ansible:** Understanding of what Ansible is for and how it works in general Implementation of Ansible Roles and Playbooks for deployment of apache, tomcat, database, application Understanding difference between deployment automation code and environment specific confuguration (Inventory, property files etc. **Application Server:** Understanding what application servers are and why we need it Knowledge about most important Application Server Products Tomcat Installation Deployment of war file on Tomcat Configuration of Datasoure in Tomcat
Week 9	**Module 7: Continuous Integration**	Build Management Deployment	**CI Pipelines:** Understand concept and need for Continuous Pipelines

	As a consultant I know typical steps of Continuous Integration (CI) and can create pipelines. • I can create a hello World Jenkins file and a CI Pipeline. • I can set up a Webhook to Jenkins. • I can validate code quality with SonarQube.		Understanding of difference between Continuous Intgeration, –Deployment, –Delivery Pielines Knowledge about separation of workflow and pipeline step implementation Knowledge about standard build pipelines Design of a detailed build pipeline with different steps **Jenkins & Jenkins Pipelines:** Deep knowledge how Jenkins works and how to use it Use of Jenkins for execution of pipelines and workflows Usage of Shared Libraries for Pipelines Implementation of Build and Deployment Pipeline Jobs in Jenkins Structuring Jenkins GUI with Folders etc. Implementation of Jenkins Jobs Understanding Jenkins pipelines concept including parallelization Implementation of Jenkins pipelines using blue ocean **Groovy:** Implementation of shared libraries and pipelines for Jenkins
Week 10	**Module 8: Continuous Deployment** As a consultant I know typical steps of Continuous Deployment (CD) and can detect simple errors. • I understand error messages in Jenkins or application logs and can fix the errors. • I can deploy using a Jenkins file. • I can inspect log files of my application. • I can deploy my application to an existing logging stack using the sidecar pattern. • I can monitor api health and ready metrics using Prometheus and Grafana. • I can monitor CPU and memory usage.	Build Management Deployment Runtime Environments	**Jenkins:** Usage of Jenkins Jobs – execution, result and error analysis **Monitoring / Logging:** Understanding what monitoring and logging are and why we need it Knowledge about different Products for Monitoring and for Logging Different kinds of Monitoring (infrastructure–, application–, process–monitoring) Installation of a logging tool and connection to application on tomcat and Apache
Week 11 & 12	**Finale Project**		

Original Capgemini Excel list

Basic: Wendet theoretisch fundiertes Wissen an, um klar definierter Aufgabenstellungen überwiegend unter Anleitung zu erledigen.
Experience: Wendet fundiertes Wissen an, um Lösungen weitestgehend selbsständig zu erarbeiten und Aufgabenstellungen eigenständig zu erledigen.
Professional: Wendet fundiertes Wissen und Praxiserfahrung an, um eigenständig Geschäftsprozesse und Lösungen umzusetzen

		Knowledge			
Area	Topic	Basic	Experienced	Professional	Academy Modules
Programming	Java		x		Pre, 1, 2, 6
	Spring Boot		x		6
	Unit Test		x		2
	Hibernate		x		2
	Lokale Entwicklungsumgebung		x		All
Versioncontrol	GIT		x		2+
	GIT Workflows		x		2+
Buildmanagement	CI Pipelines		x		7
	Maven		x		2, 6
	Jenkins			x	4, 5, 7, 8
	Static Code Verification	x			2, 7
	SonarQube	x			7
	Nexus / Artifactory	x			4
Deployment	CD Pipelines		x		8
	Jenkins Pipelines		x		7, 8
	Groovy		x		7
	Ansible		x		4, 6
	SQL	x			2
	Infrastructure as Code	x			4, 6
Test	Testautomation	x			2, 5
	Selenium	x			2, 5
Runtime Environments	Hypervisor (e.g. VMWare)	x			4

	Linux			x	6
	Docker		x		All
	Container Platforms (Kubernetes or OpenShift)	x			4
	Cloud IaaS and PaaS (AWS or Azure)	x			4
	Database (e.g. Oracle)	x			
	Application Server (e.g. Tomcat)		x		4, 6, 8
	Webserver (e.g. Apache/Nginx)		x		4, 6, 8
	Monitoring / Logging		x		8
General	Softwareengineering		x		1
	DevOps Approach	x			1
	Vorgehensmodelle	x			1, 3
	Operations	x			1
Soft Skills	Siehe DAF für Applications Consultant		x		5, All
	Verantwortungsbewußtsein		x		5, All
	Vertrauenswürdigkeit		x		5, All