**Spring Core:**

1. Spring MVC Framework

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| 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13. | 14.10.2019  14.10.2019  14.10.2019  15.10.2019  18.10.2019  19.10.2019  20.10.2019  15.10.2019  15.10.2019  23.10.2019  24.10.2019  25.10.2019  26.10.2019 | The Dispatcher Servlet  Implementing Controllers  Handler mappings  Resolving views  Building URIs  Using locales  Using themes  Spring’s multipart (file upload) support  Handling exceptions  Web Security  Convention over configuration support  HTTP caching support  Configuring Spring MVC |

1. Spring MVC Framework. REST Implementation

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| 14  15  16  17  18 | 27.10.2019  28.10.2019  29.10.2019  30.10.2019  31.10.2019 | Creating REST Controllers  RestTemplate usage  HTTP Message Conversion  Async RestTemplate  Creating asynchronous controller |

1. Validation, Data Binding, and Type Conversion

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| 19  20  21  22  23  24 | 01.11.2019  02.11.2019  03.11.2019  04.11.2019  05.11.2019  06.11.2019 | Resolving codes to error messages  Bean manipulation and the BeanWrapper  Spring Type Conversion  Spring Field Formatting  Configuring a global date & time format  Spring Validation |

1. AOP with Spring - Intermediate

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| 25  26 | 07.11.2019  08.11.2019 | AOP Introduction  Built in proxying mechanisms |

1. Resources files handling

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| 27  28  29  30 | 09.11.2019  10.11.2019  11.11.2019  12.11.2019 | The Resource interface  The ResourceLoader  Resources as dependencies  Application contexts and Resource paths |

1. Introduction to Spring Testing

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| 31  32  33  34 | 13.11.2019  14.11.2019  15.11.2019  16.11.2019 | Introduction to Spring Testing  Unit Testing  Integration Testing  MVC Test Framework |

1. Introduction to Spring Testing

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| 35  36  37  38 | 17.11.2019  18.11.2019  19.11.2019  20.11.2019 | Introduction to Spring Testing  Unit Testing  Integration Testing  MVC Test Framework |

Spring Security configuration

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| 39  40  41  42  43 | 21.11.2019  22.11.2019  23.11.2019  24.11.2019  25.11.2019 | Configuring URL for authentication  Generate login form  CSRF attack prevention  Session Fixation protection  Security Header integration |

Multithreading: classic model and concurrency- Intermediate

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| 44  45  46  47  48  49  50  51  52 | 26.11.2019  27.11.2019  28.11.2019  29.11.2019  30.11.2019  01.12.2019  02.12.2019  03.12.2019  04.12.2019 | Standard Executors (Single-Thread, Fixed, Pooled)  Scheduled executor  Callable/Future interface  ReentrantLock, ReentrantReadWriteLock  Atomic\* (Integer, Boolean, etc)  Concurrent collections: CopyOnWriteArrayList/Set, ConcurrentSkipListMap/Set, ConcurrentHashMap  Thread States  BlockingQueues/Dequeues (Linked\*, Array\*, Priority\*,etc...) |

Garbage Collection in Java

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| 53  54  55  56 | 05.12.2019  06.12.2019  07.12.2019  08.12.2019 | Available Collectors  Parallel Collector  Concurrent Collector  Sizing the Generations |

Classloading - Intermediate

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| 57  58  59 | 09.12.2019  10.12.2019  11.12.2019 | Bootstrap, System and Extension classloaders  Current and Context Classloaders  How a class is loaded within JVM |

**JPA:**

1. Transactions (ACID and CAP)

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| 60  61  62  63  64 | 12.12.2019  13.12.2019  14.12.2019  15.12.2019  16.12.2019 | Atomicity  Consistency  Isolation levels (can name and explain how they work)  Durability  CAP theorem |

1. Object / Relational concept

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| 65  66  67  68  69 | 17.12.2019  18.12.2019  19.12.2019  20.12.2019  21.12.2019 | Object/Relational Mismatch (TODO: Fill in fields via Annotation w HQL)  Function of Entity Manager  Entity, Annotations  Configuration and persistence.xml |

1. Object / Relational Mapping and Entity Relationships

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| 70  71  72  73  74 | 22.12.2019  23.12.2019  24.12.2019  25.12.2019  26.12.2019 | Property, Field, Table and Column Mapping, Primary Keys and Generation  Type Mappings, Temporal and Enumerated Types, Embedded Types  @ManyToOne Relationships, @OneToOne Relationships, @OneToMany Relationships, @ManyToMany Relationships  Eager and Lazy Loading |

1. Object / Relational Operations

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| 75  76  77  78 | 27.12.2019  28.12.2019  29.12.2019  30.12.2019 | Fetching and Inserting  Detachment and Merging  Cascading and Orphan Removal  Lifecycle and Validation (JSR-303) |

1. Object / Relational Quering (JPA and native SQL)

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| 79  80  81 | 31.12.2019  01.01.2020  02.01.2020 | Java Persistence Query Language (JPQL)  Query builder with Criteria API  Named Queries, Native Queries Mapping |

1. Hibernate and JPA

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| 82  83 | 03.01.2020  04.01.2020 | Hibernate relation to JPA  Difference between Hibernate and JPA |

Types of NoSQL Databases

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| 84  85  86  87 | 05.01.2020  06.01.2020  07.01.2020  08.01.2020 | Key-Value databases  Document databases  Column family stores  Graph Databases |

Logging Implementation

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| 88 | 09.01.2020 | Has experience in usage of special logging tools (Log4Net,Log4j, etc.,) |

Addvanced debugging

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| 89  90 | 10.01.2020  11.01.2020 | Implements conditional breakpoints, debugs multithreading applications, connects to remote processes, SQL debugging |

Software Development Processes - Intermediate

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| 91  92 | 12.01.2020  13.01.2020 | Comparison of linear and iterative software development processes  Ability to choose one of the software development process for particular project |

Java Troubleshooting, Profiling, Monitoring and Management Tools

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| 93  94 | 14.01.2020  15.01.2020 | jconsole, Java Visual VM  Java Mission Control, Java Flight Recorder |

Integration tests

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| 95 | 16.01.2020 | Data Setup and Tear Down (DBUnit, Unitils, etc.) |

Mocking

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| 96  97  98 | 17.01.2020  18.01.2020  19.01.2020 | The difference between: Dummy, Stub, Spy, Mock and Simulator  Unit Testing Using Mocks  Creating Stubs for Legacy Code |