# The Mandatory Unit - Level 3, Unit 1 – RDK-V Software Solutions (6 credits)

| 1. Understanding the mechanics of RDK-V | 2. Working within the RDK-V framework | 3. Developing projects for RDK-V |
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| **1.1** I can understand the role of the RDK-V platform | **2.1** I can identify the management protocols available in RDK-V | **3.1** I can work with build tools to create embedded systems |
| **1.2** I can explain the role of RDK-V | **2.2** : I can understand the role of Xconf and related technologies  in RDK-V | **3.2** I can understand how to implement build tool SDKs into the RDK-V development workflow |
| **1.3** I can highlight the data model used by RDK-V | **2.3** I can highlight common features that are unavailable in RDK-V | **3.3** I can work with key components of the RDK-V framework |
| **1.4** I can understand the management protocols available in RDK-V | **2.4** I can explain the RDK-V layers | **3.4** I can highlight the features of key technologies like rbus and what it brings to RDK-V |
| **1.5** I can explain how networking is implemented in RDK-V. | **2.5** I can understand networking in RDK-V for content handling | **3.5** I can identify the appropriate technologies for  distributing AV content using RDK-V |

## Level 3 Unit 2: Networking and Security (6 credits)

| 1. Understand, demonstrate and explain how networks function | 2. Design and implement computer networks | 3. Understand the concepts and technologies that allow network scaling | 4. Understanding network security issues and technologies |
|---|---|---|---|
| **1.1** I can understand common networking technologies | **2.1** I can design and build a local area network infrastructure to meet a commercial requirement | **3.1** I can understand and implement common dynamic routing technologies and concepts | **4.1** I can work with Linux tools to create a secure networked environment |
| **1.2** I can configure a range of different systems used within a network infrastructure | **2.2** I can design and build a wide area network infrastructure to meet a commercial requirement | **3.2** I can explain the benefits of network redundancy and resilience | **4.2** I can explain the functional operation of different security features in Linux |
| **1.3** I can explain common protocols, their purpose and how to use them in RDK | **2.3** I can configure and build and justify a secure network infrastructure design | **3.3** : I can effectively troubleshoot connectivity issues between networks | **4.3** I can describe cryptographic techniques and where they are applied |
| **1.4** I can design and build a networked solution to meet a commercial requirement | | **3.4** I can describe the benefits and demands of scalable networked systems | **4.4** I can describe, manage and implement secure systems |
| **1.5** I can evaluate the potential performance effectiveness of an implemented solution | | | **4.5** I can configure and build secure network infrastructure |

## Level 3 Unit 3: Coding for RDK-V (6 credits)

| 1. Understanding the C / C++ programming languages and the bash scripting language | 2. Creating applications with C / C++ | 3. Understanding how C / C++ and RDK-V work together with supporting technologies | 4. Using JavaScript and Lightning to create front-end applications for RDK-V |
|---|---|---|---|
| **1.1** I can understand the key features of the C / C++ programming languages | **2.1** I can highlight the tools and technologies needed to create RDK-V applications with C / C++ | **3.1** I can highlight the need for build tools when working with RDK-V | **4.1** I can understand the key features of the JavaScript language |
| **1.2** I can highlight the purpose of the Bash scripting language | **2.2** I can create applications using the C / C++ programming languages | **3.2** I can highlight how RDK-V applications utilise the C / C++ programming languages for embedded systems development | **4.2** I can understand the relationship between JavaScript and Lightning |
| **1.3** I can understand how Bash works with Linux | **2.3** I can create RDK-V applications using the C / C++ programming languages | **3.3** I can use build tools with RDK-V | **4.3** I can understand the mechanics of JavaScript |
| **1.4** I can explain how RDK-V works with C / C++ | **2.4** I understand how to deploy C / C++ powered RDK-V applications | **3.4** I can build applications using the RDK-V development workflow | **4.4** I understand how to deploy JavaScript powered apps for RDK-V |

## Level 2 Unit 4: The Linux Operating System (6 credits)

| 1. Understand the mechanics and ecosystem of Linux | 2. Navigating the Linux operating system | 3. Working with and configuring Linux for enterprise and development use | 4. Setting up networking on Linux |
|---|---|---|---|
| **1.1** I can understand the concept of different Linux distributions | **2.1** I can Installing Linux in a virtualised environment | **3.1** I can work with wildcards and advanced file management | **4.1** I can configure Linux to operate on a computer network |
| **1.2** I can explain the role that Linux plays in both traditional systems and embedded devices | **2.2** I can Understand the Linux directory system and structure | **3.2** I can configure environment variables | **4.2** I can explain how containers work |
| **1.3** I can highlight the range of implementations that Linux is available in | **2.3** I can use the Linux command line to navigate around the system and searching for files | **3.3** : I can understand Linux processes | **4.3** I can configure DNS and hostnames |
| **1.4** I can explain the role open-source systems | **2.4** I can understand and work with the Linux permissions structure on files and folders | **3.4** I can perform user management and maintenance on Linux | |
| **1.5** I can explain the relationships between commercial and volunteer interests in a software development community | **2.5** I can use Vi to edit files | **3.5** I can demonstrate advanced OS management skills | |