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| **TSC Category** | Development and Implementation | | | | | |
| **TSC Title** | Radio Frequency Engineering | | | | | |
| **TSC Description** | Design, deploy and maintain radio frequency infrastructure for IT systems and wireless communication networks | | | | | |
| **TSC Proficiency Description** | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **Level 5** | **Level 6** |
|  |  | **ICT-DIT-3027-1.1** | **ICT-DIT-4027-1.1** | **ICT-DIT-5027-1.1** |  |
|  |  | Set up and tune radio frequency (RF) and analyse faults | Manage system-wide radio frequency (RF) faults to optimise performance | Design and evaluate radio frequency (RF) performance |  |
| **Knowledge** |  |  | * RF components and principles * RF design and circuits * RF propogations * RF spectrums and bandwidths * Spectrum allocation, assignment and refarming impacts | * Cell site design * Long-Term Evolution (LTE) networking and LTE-Advanced technologies * RF antenna design and integration * RF conditioning * RF design theory * Radio-Frequency Integrated Circuit (RFIC) design and tools | * Cloud Radio Access Networks (C-RANs) and Cell Virtualisation * Industry best practice on RF architecture * Multi-Antenna Transmission multiple-input and multiple-output (MIMO) and Massive MIMO * RF testing and test architecture * Small cells and frequency reuse |  |
| **Abilities** |  |  | * Configure and deploy RF and analogue elements using appropriate tools and test equipment * Incorporate hardware and/or firmware modifications * Monitor performance indications of system and equipment * Identify faults and escalate where necessary in accordance with organisational procedures * Conduct unit testing and user confidence checks | * Identify requirements of RF sub-systems and perform integration * Simulate RF circuit designs and components * Investigate and resolve system-wide fault conditions * Calibrate and tune equipment and systems to optimise RF performance * Develop maintenance schedules and procedures for RF equipment and systems * Analyse performance to recommend improvements to RF equipment and systems | * Establish RF requirements and performance standards * Develop RF system architectures and ensure compliance to regulatory standards * Establish test specifications and methods * Oversee upgrades and modifications of equipment and systems * Apply best practices in the design of RF equipment and systems * Evaluate performance to prioritise improvements of RF equipment and systems |  |
| **Range of Application** |  | | | | | |