

# Specification of Competency Standards for ICT Operation and Support

## Unit of Competency

### Functional Area: System and Hardware Support

Title	Perform fundamental data centre operations
Code	107902L2
Range	This unit of competency (UoC) applies to operational personnel who are responsible to operate the key components of a data centre. The concerned personnel will need to handle various aspects of the data centre such as power, cooling, security, cabling, safety etc. so as to ensure a high-available centre. This UoC also addresses the key operations and maintenance aspects about a data centre.
Level	2
Credit	2
Competency	<p>Performance Requirements</p> <p>1. Knowledge to operate data centres</p> <ul style="list-style-type: none"><li>• Possess basic knowledge about a data centre or facilities environment</li><li>• Possess basic knowledge to name and apply various industry standards</li><li>• Possess the skill to identify the components that are important for high availability of a data centre</li><li>• Possess the awareness about the necessity and various technologies for:<ul style="list-style-type: none"><li>• Uninterruptible power supply (UPS)</li><li>• Fire suppression</li><li>• Cooling</li><li>• Monitoring systems</li><li>• Cabling standards, etc.</li></ul></li><li>• Possess good inter-personal skills to work with people at different levels, including:<ul style="list-style-type: none"><li>• Supervisors</li><li>• Colleagues</li><li>• Equipment and facilities suppliers, etc.</li></ul></li></ul>

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### Functional Area: System and Hardware Support

Competency	<p>2. Perform fundamental data centre operations</p> <ul style="list-style-type: none"> <li>• Assist in appropriate data centre sites and buildings selection</li> <li>• Assist in acquiring various components and supporting facilities for data centre setup, such as:             <ul style="list-style-type: none"> <li>• Raised floor and supporting ceiling</li> <li>• Lighting</li> <li>• Power infrastructure</li> <li>• Electromagnetic fields</li> <li>• Equipment racks</li> <li>• Cooling infrastructure</li> <li>• Water supply, etc.</li> </ul> </li> <li>• Participate in the design and planning for the data centre network infrastructure:             <ul style="list-style-type: none"> <li>• Work according to requirements such as:                 <ul style="list-style-type: none"> <li>• Network monitoring system requirements</li> <li>• Building-to-building connectivity, etc.</li> </ul> </li> <li>• Follow standards such as:                 <ul style="list-style-type: none"> <li>• The Copper and Fiber cable technology and standards</li> <li>• The ANSI/TIA-942 cabling hierarchy and recommendations, etc.</li> </ul> </li> <li>• Make considerations for:                 <ul style="list-style-type: none"> <li>• System testing and verification</li> <li>• Storage area network (SAN) cabling, etc.</li> </ul> </li> </ul> </li> <li>• Carry out routine monitor and precaution tasks, such as:             <ul style="list-style-type: none"> <li>• Maintain fire detection system and follow standards for fire suppression</li> <li>• Capture various total flooding fire suppression techniques and systems</li> <li>• Maintain water leak detection systems</li> <li>• Monitor status of the Environmental Monitoring System (EMS) and Building Management System (BMS) systems, if installed</li> </ul> </li> <li>• Ensure operational security and safety practices, including:             <ul style="list-style-type: none"> <li>• Data center security layers</li> <li>• Physical, infrastructure and organisational security</li> <li>• Safety measures and essential signage, etc.</li> </ul> </li> <li>• Perform miscellaneous related activities, such as:             <ul style="list-style-type: none"> <li>• Choose a labelling scheme and perform labelling practices, such as cable labelling</li> <li>• Setup proper documentation policies and procedures</li> <li>• Carry out cleaning practices for the data centre</li> <li>• Record mean time between failures (MTBF), mean time to recover (MTTR) information, etc.</li> </ul> </li> </ul> <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> <li>• Always exhibit loyalty to the work attitude</li> <li>• Apply industry best practices for data centre operations and being up-to-date with the latest technology trends</li> <li>• Always stick to all established procedures and guidelines while at work</li> </ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>• Describe all components that are important for high availability in a data centre and how to setup the data centre</li> <li>• Demonstrate the various technologies for data centre operational tasks</li> <li>• Setup effective data centre monitoring and ensure proper security measures</li> <li>• Assist in designing a highly reliable and scalable network architecture</li> </ul>
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