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| JPK's logo  sldn's logo  **LEARN AND WORK ASSIGNMENT**  **(LWA)** | | | |
| **NOSS**  **(CODE NOSS)** | **COMPUTER SYSTEM OPERATION**  **(IT-020-3:2013)** | | |
| **Competency Unit Title**  **(CU CODE)** | **SERVER INSTALLATION**  **(IT-020-3:2013-C04)** | **LEVEL** | **3** |
| **Competency Unit Descriptor** | Server maintenance is the practice of keeping server in a good state of performance. It refers to the prevention or correction of faults in hardware and software by a programmed of inspection and the replacement of parts  The person who is competent in this competency unit shall be able to inspect server operation environment that include temperature, humidity, safety and security, interpret LED indicator, inspect server utilization status,  conduct server data back-up, asses’ server systems logs, and inspect server antivirus software logs in accordance with manufacturer instruction manual and company SOP  The outcome of this competency is to produce excellent condition of server in term of performance and functionality to meet user’s requirement.  The personnel who are to be trained for this competency must in prior have the following competencies:   1. Competence in CU 1: Computer set-up | | |
| **Candidate Name** |  | | |
| **Candidate I/C**  **Number** |  | | |
| **Company’s Name** |  | | |

**CU WORK ACTIVITY STATEMENT**:

PERFORM SERVER INSTALLATION **ACTIVITIES**

**DURATION:**

**A. SETTING GOAL**

You are required to perform server installation activities based on performance criteria below:

1.1 Define and interpret Job order /change request and checklist produced according company

procedure.

1.2 Identify types of server to be set-up (database server, file server, mail server, print server,

web server).

1.3 Identify and confirm server software and peripheral.

1.4 Obtain and confirm server configuration details with superior and user.

1.5 Unpack, arrange and check server according server handling and safety procedure.

1.6 Check and confirm server hardware components compatibility according manufacture’s

specification.

1.7 Install server hardware components according user manual and manufacturer instruction

manual.

1.8 Install operating systems according installation manual.

1.9 Install, configure and test device drivers according installation manual.

1.10 Install and test operating systems patches according company Standard Operating

Procedure(SOP).

1.11 Execute server parameter configuration setting according user’s requirement.

1.12 Carry out server security configuration setting according company security policy.

1.13 Initial server, inspect and verify operation status to ensure server is running according to

job specification and Service Legal Agreement (SLA).

1.14 Conduct server unit testing according manufacturer instruction manual.

1.15 Carry out server performance testing according manufacturer instruction manual.

1.16 Perform server load testing according manufacturer instruction manual.

1.17 Conduct server connectivity testing according manufacturer instruction manual.

1.18 Document server configuration information for future reference according to company

SOP.

1.19 Record and store CD resources (operating systems, software, drivers and backup)

according to company policy.

1.20 Record server warranty cards according to company policy.

1.21 Record server installation checklist according company guideline.

1.22 Prepare and submit User Acceptance Test (UAT) report to superior.

1.23 Update inventory records according to company inventory procedure.

1.24 Prepare and close server installation job order / change request report.

**B. PLANNING**

You are required to plan activities in performing server installation to achieve setting goal by using resources listed below:

* 1. Identify tools, equipment & materials.

|  |  |
| --- | --- |
| **ITEMS** | **RATIO (TEM: Trainees)** |
| 1) LCD Projector  2) Laptop/PC  3) Server hardware components  • Processor  • Mother board  • Network card  • Memory module  • Graphic card  • Power supply  • Hard disk  • Storage media  • Optical drive  • Casing  • Heat sink  • Thermal paste  4) Server Operating system and  software driver  5) Computer cable connector, such as:  • Network connector RJ45  • Phone connector RJ11  6) Connector orientation:  • Power cable  • USB (1.1, 2.0, 3.0)  • Monitor cable  • Network cable (RJ45)  7) Electrostatic precaution  8) Server system set-up tools:  • screw driver,  • multi meter  • anti-electrostatic wristband  • Vacuum cleaner  9) Sample of as-built diagram  10) Sample of electrical schematic  diagram  11) Sample of computer set-up  checklist  12) Sample of inventory record  13) Sample of server installation job  order /change request | 1:25  1:25  1:5  1:5  1:5  1:5  1:5  1:5  1:1  1:1  1:1  1:1  1:1 |

* 1. Perform server installation workflow.
  2. Identify server installation procedures, flow chart and correct sequence.
  3. Plan duration/time of server installation procedures.
  4. Identify manpower in performing server installation activities.
  5. You may review references as guidelines in performing this activity.

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| --- |
| REFERENCES |
| 1. Books, Hephaestus (2011) . Computer Peripherals, Including: Computer Monitor,   Fax, Hard Disk Drive, Stored Energy Printer, Peripheral, Plug and Play, Auto-Configuration, Game Port, Hot Swapping, Autodetection, Surge Protector, Remote Terminal Unit,. Western Digital Media Center. Hephaestus Books, Lightning Source Uk Ltd. ISBN-13: 978-1-242-97956-9   1. Jyoti Snehi. (2006). Computer Peripherals and Interfacing. Firewall Media.   ISBN-13: 978-81-7008-929-2   1. R.A. Penfold. (2005). How to Set Up Your New Computer. Bernard Babani   Publishing. ISBN-13: 978-0-85934-559-0   1. Robert B J Warnar (2012). Computer Peripheral Memory System Forecast   (Volume 500-545). General Books. ISBN-13: 978-1-235-71266-1 |

**C. DECISION MAKING**

You are required to get coach approval before performing server installation activities.

**D. EXECUTING & MONITORING**

You are required to perform server installation activities according to the steps below:

* 1. Ensure types of server to be set-up, operating system and software
  2. Ensure server configuration setting
  3. Ensure server peripherals
  4. Ensure tools and material
  5. Ensure types of server hardware
  6. Unpack and arrange server hardware components.
  7. Ensure server hardware components compatibility.
  8. Install server hardware components according to manufacture requirements.
  9. Carry out server power initialization
  10. Follow server handling procedure when unpack and arrange server

components

4.11 Perform server operating system installation

4.12 Install, configure and test device drivers

4.13 Carry parameters configuration setting

4.14 Install and test operating system out server patches

4.15 Carry out server security configuration

4.16 Perform server initialization

4.17 Inspect server operation status

4.18 Verify server status

4.18.1 Power boot cycle status

4.18.2 Anti-virus protection status

4.18.3 Network connectivity status

4.19 Carry out company asset documentation

4.20 Prepare final as-built diagram

4.21 Prepare electrical schematic diagram

4.22 Record computer set-up checklist

4.23 Update Inventory record

4.24 Prepare server installation job order / change request report.

4.25 Comply with attitude, safety and environment listed below when performing this

activity.

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| --- | --- | --- |
| **ATTITUDE** | **SAFETY** | **ENVIRONMENTAL** |
| Detail and precise in identifying server operating system, server configuration detail and server peripherals | Adhere to company security policy | Adhere to company security policy |
| Thorough sight in checking hardware component compatibility | Adhere to server handling procedure | Adhere to server handling procedure |
| Meticulous and accurate in carrying out installation and configuration | Handle server with care during server unpack | Handle server with care during server unpack |
| Thorough system logs in conducting server status verification | Handle server with care during software installation | Handle server with care during software installation |
| Precise in updating inventory record | Adhere to manufacturer instruction | Adhere to manufacturer instruction |
| Accurate in preparing final as-build diagram |  |  |

4.26 Apply core activities listed below when performing this activity.

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| **Social Skills** | | **Core Abilities** |
| Communication skills | 02.03 Communicate clearly. | |
| Conceptual skills | 01.02 Document information procedures or processes.  02.04 Prepare brief reports and checklist  using standard forms. | |
| Interpersonal skills | 01.11 Apply thinking skills and creativity.  03.01Apply cultural requirement to the  workplace.  03.07 Resolve interpersonal conflicts  03.15 Liaise to achieve identified outcomes.  03.16 Identify and assess client/customer  needs.  04.02 Set and revise own objectives and  goals. | |
| Leadership skills | 01.01 Identify and gather information.  02.11 Convey information and ideas to people.  03.02 Demonstrate integrity and apply  practical practices.  03.05 Demonstrate safety skills  03.06 Respond appropriately to people and  situations.  04.04 Apply problem solving strategies.  04.05 Demonstrate initiative and flexibility  04.07 Negotiate acceptance and support for  objectives and strategies  06.04 Adapt competencies to new  situations/systems | |
| Learning skills | 01.03 Utilize basic IT applications.  01.04 Analyse information.  01.05 Utilize the Internet to locate and gather  information.  01.06 Utilize word processor to process information  05.01 Implement project/work plans  06.01 Understand systems.  06.03 Identify and highlight problems  06.05 Analyse technical systems.  06.06 Monitor and correct performance of  systems. | |
| Multitasking and prioritizing | 02.10 Prepare reports and instructions.  04.03 Organize and maintain own workplace. | |
| Self-discipline | 02.01 Interpret and follow manuals, instructions and SOP's.  03.03 Accept responsibility for own work and  work area.  04.01 Organize own work activities.  06.02 Comply with and follow chain of  command. | |
| Teamwork | 03.08 Develop and maintain a cooperation  within work group.  03.13 Develop and maintain team harmony  and resolve conflicts.  03.14 Facilitate and coordinate teams and  ideas. | |

**E. EVALUATING**

You are required to evaluate server installation activities using the checklist below.

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| **A** | **ASSESSMENT CRITERIA**  **(60%)** | **MARKS GIVEN BY APPRENTICE** | | | | | **MARKS GIVEN BY**  **COACH** | | | | |
| 0 | 1-2 | 3-4 | 5-6 | 7 | 0 | 1-2 | 3-4 | 5-6 | 7 |
| 1. | Server maintenance job order interpreted |  |  |  |  |  |  |  |  |  |  |
| 2. | Server maintenance schedule obtained and interpreted |  |  |  |  |  |  |  |  |  |  |
| 3. | Type of maintenance is determined and listed out |  |  |  |  |  |  |  |  |  |  |
| 4. | Server maintenance requirement (tools, document, manual) identified |  |  |  |  |  |  |  |  |  |  |
| 5. | Server operation environment (such as workplace temperature and humidity physical safety and security) inspected |  |  |  |  |  |  |  |  |  |  |
| 6. | Server cables connection inspected and organized |  |  |  |  |  |  |  |  |  |  |
| 7. | Server external surface is inspected and cleaned from dust |  |  |  |  |  |  |  |  |  |  |
| 8. | Server Light Emitting Diode (LED) status indicator inspected and interpreted |  |  |  |  |  |  |  |  |  |  |
| 9. | Server peripheral (such as Uninterrupted Power Supply-UPS, Storage Area Network -SAN, Backup Device) LED status indicator inspected |  |  |  |  |  |  |  |  |  |  |
| 10. | Server hardware error/faulty identified and reported to superior |  |  |  |  |  |  |  |  |  |  |
| 11. | Server utilization status (such as disk space, memory usage, Central Processing Unit - CPU usage, network usage) inspected and recorded |  |  |  |  |  |  |  |  |  |  |
| 12. | Server data back-up conducted |  |  |  |  |  |  |  |  |  |  |
| 13. | Server backup status inspected and verified |  |  |  |  |  |  |  |  |  |  |
| 14. | Server systems logs assessed |  |  |  |  |  |  |  |  |  |  |
| 15. | Server systems status indicator (LEDs) interpreted |  |  |  |  |  |  |  |  |  |  |
| 16. | Critical Operating Systems patches availability recorded |  |  |  |  |  |  |  |  |  |  |
| 17. | Server Antivirus software logs (update log, scan log, error log) inspected and recorded. |  |  |  |  |  |  |  |  |  |  |
| 18. | Server maintenance checklist recorded |  |  |  |  |  |  |  |  |  |  |
| 19. | Server maintenance job order recorded and submitted to the client for acknowledgement |  |  |  |  |  |  |  |  |  |  |
| 20. | Computer maintenance report is produced |  |  |  |  |  |  |  |  |  |  |
|  | **SUBTOTAL** | **A1** | | | | | **A2** | | | | |
|  | **FULL MARKS** | **140** | | | | | **140** | | | | |
| **B** | **ATTITUDE/ SAFETY/ ENVIRONMENT**  **(20%)** | **MARKS GIVEN BY APPRENTICE** | | | | | **MARKS GIVEN BY**  **COACH** | | | | |
| 0 | 1-2 | 3-4 | 5-6 | 7 | 0 | 1-2 | 3-4 | 5-6 | 7 |
| 1. | Detail and precise in identifying server operating system, server configuration detail and server peripherals |  |  |  |  |  |  |  |  |  |  |
| 2. | Adhere to company security policy |  |  |  |  |  |  |  |  |  |  |
| 3. | Thorough in checking hardware component compatibility |  |  |  |  |  |  |  |  |  |  |
| 4. | Adhere to server handling procedure |  |  |  |  |  |  |  |  |  |  |
| 5. | Handle server with care during server unpack |  |  |  |  |  |  |  |  |  |  |
| 6. | Meticulous and accurate in carrying out installation and configuration |  |  |  |  |  |  |  |  |  |  |
| 7. | Handle server with care during software installation |  |  |  |  |  |  |  |  |  |  |
| 8. | Thorough in conducting server status verification |  |  |  |  |  |  |  |  |  |  |
| 9. | Adhere to manufacturer instruction |  |  |  |  |  |  |  |  |  |  |
| 10. | Precise in updating inventory record |  |  |  |  |  |  |  |  |  |  |
| 11. | Accurate in preparing final as-build diagram |  |  |  |  |  |  |  |  |  |  |
| 12. | Adhere to company policy |  |  |  |  |  |  |  |  |  |  |
|  | **SUBTOTAL** | **B1** | | | | | **B2** | | | | |
|  | **FULL MARKS** | **84** | | | | | **84** | | | | |
| **C** | **EMPLOYABILITY SKILLS**  **(SOCIAL SKILLS)**  **(20%)** | **MARKS GIVEN BY APPRENTICE** | | | | | **MARKS GIVEN BY**  **COACH** | | | | |
| 0 | 1-2 | 3-4 | 5-6 | 7 | 0 | 1-2 | 3-4 | 5-6 | 7 |
| 1. | Communication skills |  |  |  |  |  |  |  |  |  |  |
| 2. | Conceptual skills |  |  |  |  |  |  |  |  |  |  |
| 3. | Interpersonal skills |  |  |  |  |  |  |  |  |  |  |
| 4. | Leadership skills |  |  |  |  |  |  |  |  |  |  |
| 5. | Learning skills |  |  |  |  |  |  |  |  |  |  |
| 6. | Multitasking and prioritizing |  |  |  |  |  |  |  |  |  |  |
| 7. | Self-discipline |  |  |  |  |  |  |  |  |  |  |
| 8. | Teamwork |  |  |  |  |  |  |  |  |  |  |
|  | **SUBTOTAL** | **C1** | | | | | **C2** | | | | |
|  | **FULL MARKS** | **56** | | | | | **56** | | | | |

**CALCULATION TABLE**

|  |  |  |  |  |
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|  | **MARKS GIVEN BY APPRENTICE** | **MARKS GIVEN BY COACH** | **WEIGHTED MARKS GIVEN BY**  **APPRENTICE** | **WEIGHTED MARKS GIVEN BY COACH** |
| **ASSESSMENT CRITERIA** | A1 | A2 | A1 / 140X 60 | A2 /77X 60 |
| **ATTITUDE, SAFETY & ENVIRONMENT** | B1 | B2 | B1 / 84X 20 | B2 / 21X 20 |
| **EMPLOYABILITY SKILLS (SOCIAL SKILLS)** | C1 | C2 | C1 / 56X 20 | C2 / 56X 20 |
| Total | | | X | Y |
| Ratio of Percentage (Apprentice: Coach) | | | P% | Q% |
| Grand Total | | | (P/100 x X) + (Q/100 x Y) | |

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| COMMENTS/ RECOMMENDATIONS BY COACH |

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COACH: APPRENTICE:

DATE: DATE: