

National Technical and Vocational Qualification Framework

NTVQF

**Competency Standards
For
IT Support Technician
NTVQ, Level 1- 5**



Bangladesh Technical Education Board

Agargoan, Sher-E-Bangla Nagar

Dhaka-1207

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INTRODUCTION

These Competency Standards were developed by the Standards and Curriculum Development Committee (SCDC) **for the occupation 'IT Support Technician'** that was established under the sub-sector Industry Skills Council (ISC) and with the assistance of the Technical and Vocational Education Reform project. This project is funded by the European Union, the International Labour Organization and the Government of Bangladesh.

The competency standards are the foundation on which new competency based curriculum will be developed that responds better to the needs of industry for skilled workers. The members of the SCDCs are primarily from industry but with representatives from the Bangladesh Technical Education Board (BTEB), Directorate of Technical Education (DTE), Bureau of Manpower Employment and Training (BMET), NGO, and Private Training providers. Persons who will successfully complete the new TVET programs based on these competency standards will receive a qualification in the new National Technical and Vocational Qualification Framework (NTVQF).

Endorsed by

Industry Skills Council
Date:

Bangladesh Technical Education Board
(BTEB)
Date:

Proposed Bangladesh NTVQF with Job Classifications

| NTVQF LEVELS | EDUCATION SECTORS | | | Job Classification |
|--------------|--------------------------------------------|--------------------------------------|--------------------------------------|------------------------------------------------|
| | Pre-Vocation Education | Vocational Education | Technical Education | |
| NTVQF 6 | | | Diploma in engineering or equivalent | Middle Level Manager /Sub Assistant Engr. etc. |
| NTVQF 5 | | National Skill Certificate 5 (NSC 5) | | Highly Skilled Worker / Supervisor |
| NTVQF 4 | | National Skill Certificate 4 (NSC 4) | | Skilled Worker |
| NTVQF 3 | | National Skill Certificate 3 (NSC3) | | Semi-Skilled Worker |
| NTVQF 2 | | National Skill Certificate 2 (NSC 2) | | Medium-Skilled Worker |
| NTVQF 1 | | National Skill Certificate 1 (NSC 1) | | Basic Skilled Worker |
| Pre-Voc 2 | National Pre-Vocation Certificate NPVC 2 | | | Pre-Vocation Trainee |
| Pre-Voc 1 | National Pre-Vocation Certificate 1 NPVC 1 | | | Pre-Vocation Trainee |

Annex 1: NTVQF level Descriptors

| NTVQF Level | Knowledge | Skill | Responsibility | Job Class. |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 6 | <ul style="list-style-type: none"> Comprehensive actual and theoretical knowledge within a specific study area with an awareness of the limits of that knowledge. | <ul style="list-style-type: none"> Specialised and restricted range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems | <ul style="list-style-type: none"> Manage a team or teams in workplace activities where there is unpredictable change Identify and design learning programs to develop performance of team members | Supervisor / Middle Level Manager /Sub Assistant Engr. etc. |
| 5 | <ul style="list-style-type: none"> Very broad knowledge of the underlying, concepts, principles, and processes in a specific study area | <ul style="list-style-type: none"> Very broad range of cognitive and practical skills required to generate solutions to specific problems in one or more study areas. | <ul style="list-style-type: none"> Take overall responsibility for completion of tasks in work or study Apply past experiences in solving similar problems | Highly Skilled Worker / Supervisor |
| 4 | <ul style="list-style-type: none"> Broad knowledge of the underlying, concepts, principles, and processes in a specific study area | <ul style="list-style-type: none"> Range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and information | <ul style="list-style-type: none"> Take responsibility, within reason, for completion of tasks in work or study Apply past experiences in solving similar problems | Skilled Worker |
| 3 | <ul style="list-style-type: none"> Moderately broad knowledge in a specific study area. | <ul style="list-style-type: none"> Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools | <ul style="list-style-type: none"> Work or study under supervision with some autonomy | Semi-Skilled Worker |
| 2 | <ul style="list-style-type: none"> Basic underpinning knowledge in a specific study area. | <ul style="list-style-type: none"> Basic skills required to carry out simple tasks | <ul style="list-style-type: none"> Work or study under indirect supervision in a structured context | Medium Skilled Worker |
| 1 | <ul style="list-style-type: none"> Elementary understanding of the underpinning knowledge in a specific study area. | <ul style="list-style-type: none"> Limited range of skills required to carry out simple tasks | <ul style="list-style-type: none"> Work or study under direct supervision in a structured context | Basic Skilled Worker |
| Pre-Voc 2 | <ul style="list-style-type: none"> Limited general knowledge | <ul style="list-style-type: none"> Very limited range of skills and use of tools required to carry out simple tasks | <ul style="list-style-type: none"> Work or study under direct supervision in a well-defined, structured context. | Pre-Vocation Trainee |
| Pre-Voc 1 | <ul style="list-style-type: none"> Extremely limited general knowledge | <ul style="list-style-type: none"> Minimal range of skills required to carry out simple tasks | <ul style="list-style-type: none"> Simple work or study exercises, under direct supervision in a clear, well defined structured context | Pre-Vocation Trainee |

National Competency Standards for National Certificate in IT Support (NTVQF Level 1,2,3,4 & 5)

| S. No. | Unit Code and Title | | UoC Level | Nominal Duration (Hours) |
|-----------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|-----------|--------------------------|
| Generic – Compulsory (5 UoCs required) | | | | 200 |
| 1 | GN1001A1 | Use basic mathematical concepts | 1 | 40 |
| 2 | GN1002A1 | Apply OSH practices in the workplace | 1 | 30 |
| 3 | GN2003A1 | Use English in the workplace | 2 | 70 |
| 4 | GN2004A1 | Operate in a self- directed team | 2 | 30 |
| 5 | GN2005A1 | Present and apply workplace information | 1 | 30 |
| Sector Specific – Compulsory (5 UoCs required) | | | | 180 |
| 6 | ITSS1001A1 | Type Text and Documents in English and Bangla | 1 | 90 |
| 7 | ITSS1002A1 | Access Information Using Internet and Electronic Mail | 1 | 10 |
| 8 | ITSS1003A1 | Operate Office Application Software. | 1 | 20 |
| 9 | ITSS2004A1 | Apply compliance and Ethics in IT work Place | 2 | 20 |
| 10 | ITSS5030A1 | Apply Soft Skills | 5 | 40 |
| Occupation Specific – Compulsory (22 UoCs required) | | | | 1160 |
| 11 | ITSUP1001A1 | Assemble hardware components of a PC | 1 | 60 |
| 12 | IITSUP1002A1 | Install and configure software components to a personal computer | 1 | 80 |
| 13 | ITSUP2003A1 | Apply the awareness of career opportunities in computer hardware & networking field | 2 | 40 |
| 14 | ITSUP2004A1 | Use electronic parts and Components for making circuits in PCB | 2 | 40 |
| 15 | ITSUP2005A1 | Use testing and measuring instruments for electronic servicing | 2 | 30 |
| 16 | ITSUP2006A1 | Install and use open source operating system and optimize utilities | 2 | 50 |
| 17 | ITSUP2007A1 | Maintain standalone security | 2 | 30 |
| 18 | ITSUP3008A1 | Install and Configure Workgroup LAN | 3 | 50 |
| 19 | ITSUP3009A1 | Connect PC to an existing network | 3 | 30 |
| 20 | ITSUP3010A1 | Maintain equipment and software in working order | 3 | 40 |
| 21 | ITSUP3011A1 | Apply the concept of digital electronics to computer and network system | 3 | 50 |
| 22 | ITSUP3012A1 | Evaluate system status and run standard diagnostic tools for network security | 3 | 40 |
| 23 | ITSUP3013A1 | Use business & communicative English essential to IT support | 3 | 20 |
| 24 | ITSUP3014A1 | Use product documentation for IT support | 3 | 20 |
| 25 | ITSUP4015A1 | Install and configure Client Server Network | 4 | 40 |
| 26 | ITSUP4016A1 | Provide basic system administration | 4 | 40 |
| 27 | ITSUP4017A1 | Troubleshoot for computer network and system | 4 | 30 |

| | | | | |
|-------------------------------------|-------------|---------------------------------------------|---|-------------|
| 28 | ITSUP4018A1 | Install software to networked computer | 4 | 20 |
| 29 | ITSUP5019A1 | Provide defence systems for network threats | 5 | 50 |
| 30 | ITSUP5020A1 | Manage Cyber centre services | 5 | 100 |
| 31 | ITSUP5021A1 | Setup and expand networks | 5 | 100 |
| 32 | ITSUP5022A1 | Manage IP address, routing and Switching | 5 | 100 |
| 33 | ITSUP5023A1 | Apply basic data storage concepts | 5 | 70 |
| Total Nominal Learning Hours | | | | 1540 |

Course Structure for National Certificate in IT Support (NTVQF Level 1)

| S. No. | Unit Code and Title | | UoC Level | Nominal Duration (Hours) |
|----------------------------------------------------|---------------------|---------------------------------------------------------|-----------|--------------------------|
| Generic (3 UoCs required) | | | | 100 |
| 1 | GN1001A1 | Use basic mathematical concepts | 1 | 40 |
| 2 | GN1002A1 | Apply OSH practices in the workplace | 1 | 30 |
| 3 | GN1005A1 | Present and apply workplace information | 2 | 30 |
| Sector Specific (3 UoCs required) | | | | 120 |
| 4 | ITSS1008A1 | Type Text and Documents in English and Bangla | 1 | 90 |
| 5 | ITSS1007A1 | Access Information Using Internet and Electronic Mail | 1 | 10 |
| 6 | ITSS1006A1 | Operate Office Application Software | 1 | 20 |
| Occupation Specific – Compulsory (2 UoCs required) | | | | 140 |
| 7 | ITSTEC1011A1 | Assemble hardware components | 1 | 60 |
| 8 | ITSTEC1010A1 | Install and configure components of a personal computer | 1 | 80 |
| Total Nominal Learning Hours | | | | 380 |

Course Structure for National Certificate in IT Support (NTVQF Level 2)

| S. No. | Unit Code and Title | | UoC Level | Nominal Duration (Hours) |
|----------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|-----------|--------------------------|
| Generic – Compulsory (2 UoCs required) | | | | 100 |
| 1 | GN1003A1 | Use English in the workplace | 2 | 70 |
| 2 | GN1004A1 | Operate a self- directed team | 2 | 30 |
| Sector Specific – Compulsory (1 UoC required) | | | | 20 |
| 3 | ITSS2004A1 | Apply compliance and Ethics in IT work Place | 3 | 20 |
| Occupation Specific – Compulsory (4 UoCs required) | | | | |
| 4 | ITSUP2003A1 | Apply the awareness of career opportunities in computer hardware & networking field | 2 | 40 |
| 5 | ITSUP2004A1 | Use electronic parts and Components for making circuits in PCB | 2 | 40 |
| 6 | ITSUP2005A1 | Use testing and measuring instruments for electronic servicing | 2 | 30 |
| 7 | ITSUP2006A1 | Install and use open source operating system and optimize utilities | 2 | 50 |
| 8 | ITSUP2007A1 | Maintain standalone security | 2 | 30 |
| Total Nominal Learning Hours | | | | 310 |

Course Structure for National Certificate in IT Support (NTVQF Level 3)

| S. No. | Unit Code and Title | | UoC Level | Nominal Duration (Hours) |
|----------------------------------------------------|---------------------|-------------------------------------------------------------------------------|-----------|--------------------------|
| Occupation Specific – Compulsory (7 UoCs required) | | | | 270 |
| 1 | ITSUP3008A1 | Install and Configure Workgroup LAN | 2 | |
| 2 | ITSUP3009A1 | Connect PC to an existing network | 2 | 30 |
| 4 | ITSUP3010A1 | Maintain equipment and software in working order | 2 | 40 |
| 6 | ITSUP3011A1 | Apply the concept of digital electronics to computer and network system | 3 | 50 |
| 7 | ITSUP3012A1 | Evaluate system status and run standard diagnostic tools for network security | 3 | 50 |
| 7 | ITSUP3013A1 | Use business & communicative English essential to IT support | 3 | 20 |
| 9 | ITSUP3014A1 | Use product documentation for IT support | 3 | 40 |
| Total Nominal Learning Hours | | | | 270 |

Course Structure for National Certificate in IT Support (NTVQF Level 4)

| S. No. | Unit Code and Title | | UoC Level | Nominal Duration (Hours) |
|----------------------------------------------------|---------------------|----------------------------------------------|-----------|--------------------------|
| Occupation Specific – Compulsory (5 UoCs required) | | | | 320 |
| 1 | ITSUP4015A1 | Install and configure Client Server Network | 4 | 40 |
| 2 | ITSUP4016A1 | Provide basic system administration | 4 | 40 |
| 3 | ITSUP4017A1 | Troubleshoot for computer network and system | 4 | 50 |
| 4 | ITSUP4018A1 | Install software to networked computer | 4 | 100 |
| Total Nominal Learning Hours | | | | 320 |

Course Structure for National Certificate in IT Support (NTVQF Level 5)

| S. No | Unit Code and Title | | UoC Level | Nominal Duration (Hours) |
|----------------------------------------------------|---------------------|---------------------------------------------|-----------|--------------------------|
| Sector Specific – Compulsory (1 UoC required) | | | | 40 |
| 1 | ITSS5030A1 | Apply soft skills | 5 | 40 |
| Occupation Specific – Compulsory (4 UoCs required) | | | | 440 |
| 2 | ITSUP5018A1 | Provide defence systems for network threats | 5 | 100 |
| 3 | ITSUP5018A1 | Manage Cyber centre services | 5 | 100 |
| 4 | ITSUP5018A1 | Setup and expand networks | 5 | 70 |
| 5 | ITSUP5018A1 | Manage IP address, routing and Switching | 5 | 100 |
| 6 | ITSUP5018A1 | Apply basic data storage concepts | 5 | 70 |
| Total Nominal Learning Hours | | | | 480 |

List of Abbreviations

General

BMET – Bureau of Manpower Employment and Training
BTEB – Bangladesh Technical Education Board
DTE – Directorate of Technical Education
ILO – International Labour Organization
ISC – Industry Skills Council
NPVC – National Pre-Vocation Certificate
NTVQF – National Technical and Vocational Qualification Framework
SSDC – Standards and Curriculum Development Committee
TVET – Technical Vocational Education and Training
UoC – Unit of Competency

Occupation Specific Abbreviations

CD – Compact Disk
CMS – Content Management System
CSS – Cascading Style Sheets
DHTML – Dynamic Hyper Text Markup Language
DSL – Digital Subscriber Line
DVD – Digital Video Disk
FTP – File Transfer Protocol
GPL – General Public License
HTML - Hyper Text Markup Language
IDE – Integrated Development Environment
IT – Information Technology
LCD – Liquid Crystal Display
MS – Microsoft
MSDS – Material Safety Data Sheet
OSH – Occupational Safety and Health
PATA – Parallel Advanced Technology Attachment
PPE – Personal Protective Equipment
SATA – Serial Advanced Technology Attachment
SEO – Search Engine Optimization
SOP – Standard Operating Procedures
UTP – Unshielded Twisted Pair

GENERIC UNITS

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

| | |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Code and Title | GN1001A1: Use Basic Mathematical Concepts |
| Nominal Hours | 40 hours |
| Unit Descriptor | This requires the knowledge, skill and attitude to apply mathematical methods such as addition, subtraction, multiplication, and division, among others, in the routine tasks of an organisation. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Identify calculation requirements in the workplace | 1.1 Calculation requirements are identified from <i>workplace information</i> |
| 2. Select appropriate mathematical methods for the calculation | 2.1. Appropriate <i>Mathematical methods</i> are selected to carry out the calculation. 2.2. <i>System and units of measurement</i> to be followed are determined. |
| 3. Use basic mathematical concepts to calculate workplace calculation. | 3.1. Calculations are completed using appropriate methods such as addition, subtraction, multiplication and division. 3.2. Systems and units of measurement for the task are applied to workplace calculation. |
| Range of Variables | |
| Variable | Range (may include but are not limited to) |
| 1.Equipment and tools | 1.1 Calculator 1.2 Computer with office software |
| 2. Mathematical methods | 3.1. Addition 3.2. Subtraction 3.3. Division 3.4. Multiplication 3.5. Ratio on any types of real values (such as whole numbers, fractional numbers, percentages, numbers with exponents |
| 3. System and units of measurement | 3.1. Measurement 3.2. Volume 3.3. Weight 3.4. Mass 3.5. Density 3.6. Percentage 3.7. Length / Breadth / Thickness 3.8. Capacity 3.9. Time 3.10. Temperature 3.11. Budget, Pay/ Wages, Leave entitlements |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 3.12. Material usage 3.13. Speed 3.14. Costing |
| 4. Workplace information | 4.1 Project documents 4.2 Graphs 4.3 Charts 4.4 Tables 4.5 Spread sheets 4.6 Item price quotations 4.7 Equipment manuals |
| 5. Budget | 5.1 Budget of consumables 5.2 Calculation for software components 5.3 Hardware equipment 5.4 Maintenance budget of a set-up 5.5 Cost estimation |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Applied mathematical methods such as addition, subtraction, division and multiplication to workplace calculations. |
| 2. Underpinning knowledge | 2.1. Calculation requirements in the workplace 2.2. Select appropriate mathematical methods 2.3. Equipment and tools 2.4. Mathematical language, symbols and terminology 2.5. Application of units 2.6. Workplace information 2.7. Using arithmetic processes to find solutions to simple mathematical problems |
| 3. Underpinning skill | 3.1. Ability to identify calculation requirements from workplace information 3.2. Ability to select appropriate mathematical methods 3.3. Ability to use appropriate technology 3.4. Ability to use mathematical language, symbols and terminology 3.5. Understanding of appropriate units of measurement (such as kg, meter) and application may include measurement, volume, weight, density, percentage etc. 3.6. Ability to include workplace information (project documents, graphs, charts, tables, spread sheets, item price quotations, equipment manuals) 3.7. Ability to use arithmetic processes to find solutions to simple mathematical problems 3.8. Ability to apply in the workplace. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety |

| | |
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| | 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | The following resources must be provided: 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables to perform activities. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

| | |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Code and Title | GN1002A1: Apply OSH practices in the workplace |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit covers the knowledge, skills and attitude required to identify and apply OSH in the workplace. This also covers identifying, controlling and reporting OSH hazards, conducting of work in a safe manner, following emergency response procedure and maintaining and improving health and safety in the workplace. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Identify, control and report OSH hazards | 1.1 Immediate work area is routinely checked for OSH hazards prior to commencing and during work. 1.2 Hazards and unacceptable performance are identified and corrective action is taken within the level of responsibility. 1.3 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures. 1.4 Safety Signs and symbols are identified and followed |
| 2. Conduct work safely | 2.1. Apply OSH practices in the workplace. 2.2. Appropriate personal protective equipment (PPE) is selected and worn. |
| 3. Follow emergency response procedures | 3.1. Emergency situations are identified and reported according to workplace reporting requirements. 3.2. Emergency procedures are followed as appropriate to the nature of the emergency and according to workplace procedures. 3.3. Workplace procedures for dealing with accidents, fires and emergencies are followed whenever necessary within scope of responsibilities. |
| 4. Maintain and improve health and safety in the work place | 4.1 Risks are identified and appropriate control measures are implemented in the work area. 4.2 Recommendations arising from risk assessments are implemented within level of responsibility. 4.3 Opportunities for improving OSH performance are identified and raised with relevant personnel. 4.4 Safety records according to company policies are maintained. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Company policies | 1.1. Job-related Standard Operating Procedures (SOPs) and OSH-specific procedures. Examples of OSH procedures include consultation and participation, emergency response, response to specific hazards, incident investigation, risk assessment, reporting arrangements and issue resolution procedures |
| 2. Workplace procedures | 2.1. OSH system and related documentation including policies and procedures 2.2. Standard Operating Procedures (SOPs) 2.3. information on hazards and the work process, hazard alerts, safety signs and symbols 2.4. Labels 2.5. Material Safety Data Sheets (MSDSs) and manufacturers' advice. |
| 3. Hazards | 3.1 OSH incidents include near misses, injuries, illnesses and property damage, noise, handling hazardous substances, other hazards 3.2 Working with and near moving equipment/load shifting equipment 4.3 Broken or damaged equipment or materials |
| 4. Personal Protective equipment | 4.1 Goggles 4.2 ear muffs 4.3 ear plugs 4.4 Gloves 4.5 Clothing 4.6 Apron 4.7 Helmet 4.8 Boots |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Identified, controlled and reported OSH hazards 1.2 Followed work safety. 1.3 Followed emergency response procedures. 1.4 Maintained and improved health and safety in the workplace. |
| 2. Underpinning knowledge | 2.1. Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron, 2.2. Identification of tools and equipment 2.3. Hazardous events 2.4. Tools, equipment, machinery and relevant accessories. 2.5. Communication 2.6. Job roles, responsibilities and compliance 2.7. Workplace laws |
| 3. Underpinning skill | 3.1. Ability to use the appropriate PPE. 3.2. Ability to identify tools and equipment. 3.3. Ability to quick response and to take safety precautions for different hazardous situations. |

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 3.4. Ability to operate and use tools, equipment, machinery and accessories properly as per SOP (Company standards). 3.5. Ability to communicate with peers and supervisors. 3.6. Ability to apply in the workplace. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | The following resources must be provided: 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables to perform activities. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

| | |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Code and Title | GN2003A1: Use English in the workplace |
| Nominal Hours | 70 hours |
| Unit Descriptor | This unit specifies knowledge, skills and attitude the competency required to able to read, write and understand basic English in the workplace. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Read and understand workplace documents in English | 1.1 Workplace documents are read and understood. 1.2 Visual information is interpreted. |
| 2. Write simple routine workplace documents in English | 2.1 Simple routine workplace documents are prepared using key words, phrases, simple sentences and visual aids where appropriate. 2.2 Key information is written in the appropriate places in standard forms. |
| 3. Listen to conversation in English | 3.1 Active listening in English language is demonstrated to the required workplace standard. |
| 4. Perform conversation in English | 4.1 Conversation is performed in English with peers, customers and management to the required workplace standard. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Workplace documents | 1.1 Schedules and itineraries 1.2 Agenda 1.3 Simple reports such as progress and incident reports 1.4 Job sheets 1.5 Operational manuals 1.6 Brochures and promotional material 1.7 Visual and graphic materials 1.8 Standards 1.9 OSH information |
| 2. Visual information | 2.1 Signs 2.2 Maps 2.3 Diagrams 2.4 Forms 2.5 Labels 2.6 Graphs 2.7 Charts |
| Evidence Guide | |
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and | |

| | | |
|-------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| meet the requirements of the current version of the Unit of Competency. | | |
| 1. Critical aspects of competency | 1.1 | Used basic English in the workplace |
| | 1.2 | Read and understood workplace documents in English |
| | 1.3 | Constructed simple routine workplace documents in English |
| | 1.4 | Listened to conversation in English |
| | 1.5 | Communicated with peers, customers and management using English to the required workplace standard |
| 2. Underpinning knowledge | 2.1. | Read workplace documents in English |
| | 2.2. | Write simple routine workplace documents in English |
| | 2.3. | Listen to conversation in English |
| | 2.4. | Perform conversation in English |
| | 2.5. | Interaction skills (i.e., teamwork, interpersonal skills, etc.) |
| | 2.6. | Job roles, responsibilities and compliances |
| 3. Underpinning skill | 3.1. | Ability to read and understand workplace documents in English, using appropriate vocabulary and grammar, and standard spelling and punctuation. |
| | 3.2. | Ability to write simple routine workplace documents in English, such as: Schedules and agendas, job sheets, operational manuals and brochures, and promotional material. |
| | 3.3. | Ability in active listening in English language is demonstrated to the required workplace standard. |
| | 3.4. | Ability to perform conversation in English with peers, customers and management, to the required workplace standard. |
| | 3.5. | Work effectively with others: <ul style="list-style-type: none"> ○ listening and questioning skills ○ ability to follow simple directions |
| 4. Required attitude | 4.1 | Commitment to occupational health and safety |
| | 4.2 | Promptness in carrying out activities |
| | 4.3 | Sincere and honest to duties |
| | 4.4 | Environmental concerns |
| | 4.5 | Eagerness to learn |
| | 4.6 | Tidiness and timeliness |
| | 4.7 | Respect for rights of peers and seniors in workplace |
| | 4.8 | Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | The following resources must be provided: | |
| | 5.1 | Tools, equipment and physical facilities appropriate to perform activities. |
| | 5.2 | Materials, consumables needed to perform |

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| | activities. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | GN2004A1: Operate in a self-directed team |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit specifies the knowledge, skills and attitude to communicate and work within a team in an interactive work environment as per the workplace standard. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Identify team goals and processes | 1.1 <i>Team goals and processes</i> are identified. 1.2 Roles and responsibilities of team members are identified 1.3 Relationships within team and with other work areas are identified |
| 2. Communicate and cooperate with team members | 2.1. Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives. 2.2. Formal and informal forms of communication are used effectively to support team achievement. 2.3. Diversity is respected and valued in team functioning. 2.4. Views and opinions of other team members are interpret 2.5. <i>Workplace staff regulation</i> is used correctly to assist communication. |
| 3. Work as a team member | 3.1. Duties, responsibilities, authorities, objectives and task requirements are identified and clarified with team. 3.2. Tasks are performed in accordance with organizational and team requirements, specifications and workplace procedures. 3.3. Team members support other members as required to ensure team achieves goals and requirements. 3.4. Agreed reporting lines are followed using standard operating procedures |
| 4. Solve problems as a team Member | 4.1 Current and potential problems faced by team are identified. 4.2 Procedures for avoiding and managing problems are identified. 4.3 Problems are solved effectively and in a manner that supports the team. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |

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| 1. Team goals and processes | 1.1 Identifying the problem 1.2 Consider solutions 1.3 Action 1.4 Follow-up. |
| 2. Workplace staff regulation | 2.1. Organization/company's code of conduct, complaint handling/grievance policies and procedures |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Daily job instructions 1.2 Specifications 1.3 Standard operating procedures 1.4 Charts 1.5 Lists 1.6 Documents 1.7 Computer data 1.8 Drawings 1.9 Sketches 1.10 Tables 1.11 Technical manuals and/or charts 1.12 Surveys 1.13 Interviews 1.14 Front-end analysis 1.15 Functional analysis |
| 2. Underpinning knowledge | 2.1. Questionnaires 2.2. Profile 2.3. Accident/incident report form 2.4. Work order 2.5. Purchase order, |
| 3. Underpinning skill | 3.1. Organize information 3.2. Understand and convey intended meaning 3.3. Participate in a variety of workplace discussions 3.4. Comply with Organization's requirements in the use of written and electronic communication methods |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | The following resources MUST be provided: 5.1 Variety of Information |

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| | 5.2 | Communication tools |
| | 5.3 | Simulated workplace |
| 6. Methods of assessment | 6.1 | Demonstration with oral questioning |
| | 6.2 | Direct observation |
| | 6.3 | Written test |
| | 6.4 | Portfolio |
| | 6.5 | Log book |
| 7. Context of assessment | 7.1 | Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | GN2005A1: Present and apply workplace information |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit covers the knowledge, skills and attitude to communicate and deliver up-to-date information in an interactive work environment as per workplace standard. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Identify information requirements | 1.1 Sources of Information requirements in the workplace are identified |
| 2. Process Data | 2.1. Data is collected and correlated as per prescribed method . 2.2. Relevant data is used as references in accordance with the objectives of the program. 2.3. Information is applied according to workplace requirements. |
| 3. Analyse, interpret and organize information | 3.1. Collected information is analyzed, interpret and organize as required for workplace. 3.2. |
| 4. Apply and present workplace information | 4.1 Findings and recommendations are summarized and presented in a user-friendly manner. 4.2 Draft report/ forms are prepared based on standard format. 4.3 Graphs and other visual presentations are prepared to highlight analysis /interpretation of information. 4.4 Reports/forms are submitted and distributed to relevant departments/persons. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Sources of information | 1.16 Daily job instructions 1.17 Specifications 1.18 Standard operating procedures 1.19 Charts 1.20 Lists 1.21 Documents 1.22 Computer data 1.23 Drawings 1.24 Sketches 1.25 Tables 1.26 Technical manuals and/or charts |

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| | 1.27 Surveys 1.28 Interviews 1.29 Front-end analysis 1.30 Functional analysis |
| 2. Forms | 2.6. Questionnaires 2.7. Profile 2.8. Accident/incident report form 2.9. Work order 2.10. Purchase order, |
| 3. Methodologies | 3.1. Qualitative 3.2. Quantitative |
| 4. Statistical analysis | 4.1 Average (mean, median, mode) 4.2 Percentage 4.3 Frequency distribution |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Communicated and delivered current information in an interactive work environment as per workplace standard. |
| 2. Underpinning knowledge | 2.1. Identify information 2.2. Identify data 2.3. Workplace standard |
| 3. Underpinning skill | 3.1. Collecting information 3.2. Collecting data 3.3. Demonstrating, interpreting and/or following data sheet or instruction 3.4. Performing task as per data sheet or instruction 3.5. Keeping records and reports |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | The following resources must be provided: 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables needed to perform activities. |
| 6. Methods of | 6.1 Demonstration with oral questioning |

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| assessment | 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

SECTOR SPECIFIC UNITS

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSS1006A1: Type text and documents in English and Bangla. |
| Nominal Hours | 20 hours |
| Unit Descriptor | This unit covers the knowledge, skills and attitudes required to type text and documents systematically both in English and Bangla |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Follow OSH practices | 1.1 Safe work practices are observed according to workplace procedures. 1.2 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures. |
| 2. Install the Typing Tutor software | 2.1. Required Hardware and software are ready to use. 2.2. Typing tutor software are collected and selected 2.3. English Typing tutor software is installed. 2.4. Specialized Bangla Typing tutor software is installed |
| 3. Practice text typing in English and Bangla | 3.1 Typing tutor software is started. 3.2 English Home key drilling are practiced systematically 3.3 Intermediate level typing speed(25 cps) are achieved. 3.4 Specialized Bangla Typing tutor / software are installed. 3.5 Bangla Home key typing are practiced systematically 3.6 Text documents are typed repeatedly for increasing typing speed. |
| 4. Type documents | 4.1 Word processor is started. 4.2 Text document are typed. 4.3 Intermediate level typing speed (30 cps) in English and (20 cps) in Bangla are achieved. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Hardware | 1.1 Personal Computer 1.2 Keyboard 1.3 Mouse |
| 2. Software | 2.1. Operating System 2.2. Anti-virus Software 2.3. Microsoft Office 2.4. OpenOffice.org 2.5. Typing Tutor 2.6. Bangla Typing Software |
| 3. Common Keyboard layouts | May include but not limited to 3.1 Avro |

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| | 3.2 Bijoy |
| 4.Word processor | 4.1 Notepad 4.2 WordPad 4.3 MS word |
| 5. Legislation relevant to this unit standard | 5.1 Copyright Act 2005 5.2 National Cyber Policy 5.3 Intellectual Property Rights law 5.4 and their subsequent amendments |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.Intermediate level typing speed (30 cps) in English and (20 cps) in Bangla are achieved |
| 2. Underpinning knowledge | Computer, Home key, type of type tutor |
| 3. Underpinning skill | 1. Identify PC components and devices 2. Start and enter PC to work |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | The following resources must be provided: 5.1 Hardware and software tools and physical facilities appropriate to perform activities. 5.2 Learning Materials, consumables needed to perform activities. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place. |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSS1007A1: Access Information using Internet and electronic mail. |
| Nominal Hours | 10 hours |
| Unit Descriptor | This unit covers the Knowledge, skills and attitude required to access information using internet, Use internet to search, find and manage resources as well as use electronic mail for information transfer effectively. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable. |
| 1. Access resources from internet | <p>1.1 Appropriate internet browsers are selected and installed.</p> <p>1.2 Internet browser is opened and web address / URL is written/selected in /from address bar to access information.</p> <p>1.3 Search engines are used to access information</p> <p>1.4 Video / Information are Shared /downloaded / uploaded from / to web site/social media.</p> <p>1.5 Web based resources are used.</p> <p>1.6 Netiquette' (or web etiquette) principles are searched and followed.</p> |
| 2. Use and manage Electronic mail | <p>2.1. Email services are identified and selected to create a new email address</p> <p>2.2. Email account is created.</p> <p>2.3. Document is prepared, attached and sent to different types of recipient.</p> <p>2.4. Email is read, forwarded, replied and deleted as per requirement.</p> <p>2.5. Custom email folders are created and manipulated.</p> <p>2.6. Email message is printed.</p> |
| Range of Variables | |
| Variable | Range (May include but not limited to:) |
| 1.Browsers | <p>1.1 Mozilla Firefox</p> <p>1.2 Google chrome</p> <p>1.3 Internet explorer</p> <p>1.4 Opera</p> |
| 2. Information | <p>2.1. Text information</p> <p>2.2. Graphics</p> <p>2.3. Video</p> |
| 3. Search engines | <p>3.1. Google</p> <p>3.2. Yahoo</p> <p>3.3. AltaVista</p> <p>3.4. Msn</p> |

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| | 3.5. Bing |
| 4. Social media. | 4.1 Face book 4.2 Twitter 4.3 LinkedIn 4.4 YouTube |
| 5. Web based services | 5.1 Drive 5.2 Calendar 5.3 Map 5.4 Translator 5.5 Docs 5.6 search |
| 6. Email services | 6.1 Free mail services –Gmail, Yahoo, Hotmail 6.2 Web mail services. |
| 7. Manipulated | 7.1 Delete 7.2 Copy 7.3 Move 7.4 Sort 7.5 Archive |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Video / Information are downloaded / uploaded from / to web site 1.2 Documents are prepared, attached and sent to different types of recipient. |
| 2. Underpinning knowledge | 2.1. Internet 2.2. www 2.3. web site 2.4. web address 2.5. URL 2.6. Web browsers 2.7. Search engines 2.8. Information 2.9. Social media 2.10. Web based services 2.11. Folder manipulation |
| 3. Underpinning skill | 3.1 Access and share resources from internet 3.2 Download /upload file, documents and video from /to web sites 3.3 Send and receive mail through mail service. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in |

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| | workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following Resources must be provided- 5.1 Relevant tools, Equipment, software and facilities needed to perform the activities. 5.2 Required learning materials. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSS1008A1: Operate office application software |
| Nominal Hours | 90 hours |
| Unit Descriptor | This unit covers the knowledge, skills and attitudes required to operate a personal computer, Use word processor to create documents, use common spread sheets, create presentation using office applications, save works and print documents. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Follow OSH practices | 1.1 Safe work practices are observed according to IT workplace guideline. 1.2 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures. 1.3 Safe workplace environment are assured. |
| 2. Operate computer | 2.1. Peripherals are checked and connected with computer properly. 2.2. Power cords / adapter are connected properly with computer and power outlets socket safely. 2.3. Computer is switched on gently. 2.4. PC desktop / GUI settings are arranged and customized as per requirement. 2.5. Files and folders are created, opened, copied, renamed, deleted and sorted as per requirement. 2.6. Properties of files and folders are viewed and searched. 2.7. Disks are defragmented, formatted as per requirement. |
| 3. Install application software | 3.1 Installation requirements of software are identified and listed. 3.2 Software sources and CD key/ password are assured. 3.3 Appropriate Software are collected and selected as per requirement. 3.4 Software installation is started. 3.5 Customization is done as per requirement. 3.6 Steps of installation are followed as per installation Instructions. 3.7 Installations are completed properly. 3.8 Correctness of Installation is checked. |
| 4. Use application packages to prepare/create documents | 4.1 Appropriate application software packages are Selected and started. 4.2 Documents are created as per requirement in Personal use and office environment. 4.3 Contents are entered. 4.4 Documents are formatted . 4.5 Paragraph and page settings are completed. 4.6 Document is previewed |

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| 5. Use spread sheet packages to create /prepare worksheets | 5.1 Spread sheet packages are selected and started. 5.2 Worksheets are created as per requirement in Personal use and office environment. 5.3 Data are <i>entered</i> 5.4 Functions are used for calculating and editing logical operation 5.5 Sheets are formatted as per requirement. 5.6 Charts are created. 5.7 Charts/ Sheets are previewed. |
| 6. Use presentation packages to create / prepare presentation. | 6.1 Appropriate presentation software packages are selected and started 6.2 Presentation are created as per requirement in personal use and office environment 6.3 Image, Illustrations, text, table ,symbols and Media are entered as per requirements. 6.4 Presentations are formatted and animated. 6.5 Presentations are previewed. |
| 7. Print information and Shutdown computer. | 6.1 Printer is connected with computer and power outlet properly. 6.2 Power is switched on at both the power outlet and printer. 6.3 Printer is installed and added. 6.4 Correct printer settings are selected and document is printed. 6.5 Print from the printer spool is viewed or cancelled and unsaved data is saved as per requirements. 6.6 Open software is closed and computer hardware Devices are shut downed. 6.7 Power at the respective power outlets is switched off. |
| Range of Variables | |
| Variable | Range (May include but not limited to:) |
| 1. Peripherals | 1.1 Monitor 1.2 Keyboard 1.3 Mouse 1.4 Modem 1.5 Scanner 1.6 Printer |
| 2. Desktop settings | 2.1. Icons 2.2. Taskbar 2.3. View 2.4. Resolutions |
| 3. Typing tutors | 3.1. English typing tutor 3.2. Bangla typing tutor |
| 4. Bangla Keyboard layout | may include but is not limited to the: 4.1 Avro 4.2 Bijoy |
| 5. Different Software | MS office or Open office but limited to 5.1 Word processor software. 5.2 Spread sheet software. |

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| | 5.3 Presentation software. |
| 6. Application Packages | 6.1 MS Word or open office word processor 6.2 MS Excel or open office spread sheet 6.3 MS Power Point or prezi |
| 7. Software sources | 7.1 CD/DVD/ 7.2 Flash drive 7.3 Internet 7.3 Flash memory |
| 8. Documents | May include but not limited to: 8.1 Word documents 8.1 Standard CV / Bio-Data with different text & fonts, image and table. 8.2 Application / Official letter with proper paragraph and indenting, spacing, styles, Illustrations, Tables, Header & Footers and symbols. 8.3 Standard report / newspaper items with column, footnote and endnote, drop cap, indexing and page numbering. |
| Contents | 1. Illustrations and styles 2. Text 3. table 5. Symbols 6. Header & Footer |
| 9. Sheets | May include but not limited to: 9.1 Salary sheet with sorting, filtering and chart 9.2 Mark/Grade /Tabulation sheets for simple result processing |
| 10. Charts | 10.1 Column 10.2 Pie 10.3 line 10.4 bar |
| 11. Functions | May include but not limited to: 11.1 mathematics 11.2 Logical 11.3 simple Statistical |
| 12. Formatted. | 12.1 Bold 12.2 Italic 12.3 Underline 12.4 Font size, colour, 12.5 Change case 12.6 Alignment and intend |
| Evidence Guide | |
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Files and folders are created, opened, copied, renamed, deleted and sorted as per requirement. 1.2 Operating system Installations are completed properly. 1.3 Application software Installations are completed properly. 1.4 Functions are used for calculating and editing logical operation in spread sheet. 1.5 Image, Illustrations, text, table ,symbols and media are |

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| | <p>entered into presentation slide and animation is shown as per requirements.</p> <p>1.6 Appropriate printer settings are configured and Document is printed.</p> |
| 2. Underpinning knowledge | <p>1. Desktop items</p> <p>2. Type of Bangla keyboard layout</p> <p>3. Different type of software and application packages</p> <p>4. Use of word processor, spread sheet and presentation software</p> <p>5. Type of printers</p> <p>6. Type of charts, Impotence of chart</p> <p>7. Different type of math and logical functions.</p> |
| 3. Underpinning skill | <p>1. Start computer</p> <p>2. Run application software</p> <p>3. Manage desktop item</p> <p>4. Manipulate files and folders</p> |
| 4. Required attitude | <p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p> |
| 5. Resource implication | <p>Following Resources must be provided-</p> <p>5.1 Relevant tools, Equipment, software and facilities needed to perform the activities.</p> <p>5.2 Required learning materials.</p> |
| Methods of assessment | <p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p> |
| 6 Context of assessment | <p>7.1 Competencies may be assessed in the work place or a simulated work place environment.</p> |

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSS2009A1: Apply Compliance and Ethics in IT Work Place |
| Nominal Hours | 20 hours |
| Unit Descriptor | This unit defines Knowledge, Skills and attitude the competency required to maintain professional and ethical conduct when dealing with colleagues, clients and employers. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Follow OSH practices | 1.1 Safe work practices are observed according to workplace procedures. 1.2 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures. |
| 2. Protect the interests of clients | 2.1. Integrity and security of other information is demonstrated, as required by organisational policies, legislation and standards. 2.2. Potential conflicts of interest are identified and relevant parties of potential conflicts are notified. 2.3. Confidentiality and proprietary rights of client interest are maintained. |
| 3. Produce quality products and services | 3.1. Products and services are provided that match the operational and financial needs of clients. 3.2. Work is completed to industry and international standards. 3.3. Quality processes are implemented when developing products and services. |
| 4. Demonstrate correct representation | 4.1 Skills, knowledge and qualifications are presented in a professional manner. 4.2 Services and products developed by self and others are correctly acknowledged. 4.3 Unbiased and objective information are provided to clients. 4.4 Realistic estimates are demonstrated of time/money for work completed. |
| 5. Follow workplace code of conduct. | 5.1 Workplace code of conduct is followed. |
| Range of Variables | |
| Variable | Range (May include but not limited to:) |
| 1. Legislation and standards | 1.1 OSH 1.2 BSTI Legislation 1.3 Industry codes of practice, such as the Bangladesh computer council Code of Ethics 1.4 International Guidelines for Consumer Protection in E-commerce 1.5 Access and equity |

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| | 1.6 Copyright laws 1.7 Defamation laws 1.8 Privacy legislation 1.9 Intellectual property, confidentiality requirements 1.10 Legal and regulatory policies affecting e-business. |
| 2. Clients | 2.1. Internal departments 2.2. External organisations 2.3. Individual people 2.4. Colleagues 2.5. Employer and internal employees. |
| 3. Standards | 3.1. ISO standards 3.2. IEC standards 3.3. AS standards 3.4. BSTI Standard 3.5. Organisational standards 3.6. Project standards (for further information refer to the Standards Australia website at: www.standards.com.au) |
| 4. Guidelines | 4.1 Legal, ethical and security issues 4.2 Pre-requisites for membership 4.3 Conflict of interest guidelines 4.4 Customer service guidelines |
| 5. Indicators of personal ethical behaviour | 5.1 Must not allow dishonesty, personal prejudice or bias to influence conduct of employment. 5.2 Should not accept gifts, benefits or hospitality if their nature and value may be seen as compromising objectivity and influencing in official capacity. 5.3 Actions should be fair, honest, and truthful. 5.4 Should avoid actual or perceived conflicts of interest. 5.5 Should not condone the use of any statement that is misleading, false or deceptive. 5.6 Should conduct self with care and skill, and ensure actions do not conflict with the requirements of integrity and objectivity. 5.7 Should not use confidential or other information for personal advantage or for the advantage of another. |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Confidentiality and proprietary rights of client interest are maintained.. 1.2 Quality processes are implemented when developing products and services 1.3 Realistic estimates are demonstrated of time/money for work completed. |

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| 2. Underpinning knowledge | 2.1. Computer Society Code of Ethics 2.2. Organisational requirements for customer service 2.3. OSH legislation 2.4. Copyright and intellectual property legislation and principles 2.5. Relevant privacy legislation and principles 2.6. Access and equity legislation and principles |
| 3. Underpinning skill | 3.1. Application of standards and legislation to policy and procedure development and monitoring 3.2. Professional development skills in relation to identifying personal skills requiring 3.3. Upgrading and updating 3.4. Researching and identifying relevant courses, seminars or industry information to maintain currency. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following Resources must be provided- 5.1 Relevant tools, software and facilities needed to perform the activities. 5.2 Required learning materials. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSS5030A1: Apply Soft Skills |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit describes the performance outcomes of knowledge, skills and attitude required for applying soft skills in the working environment (including time management, planning & organization, interpersonal skills) |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components |
| 1. Follow OSH practices | 1.1 Safe work practices are observed according to workplace procedures. 1.2 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures. |
| 2. Demonstrate good communication | 2.1. Verbal and non-verbal communication to respond to client/colleague requests and enquiries effectively is demonstrated. 2.2. Appropriate questioning and active listening techniques are demonstrated, to understand colleagues and client needs and determine support requirements. 2.3. Accommodation of cultural differences in the workplace is demonstrated |
| 3. Plan and organise work of self and team members | 3.1. Ability to plan and organise work of self and team is demonstrated. 3.2. Enquiries are answered promptly and appropriately. 3.3. Information, messages and job requests are recorded and referred to the appropriate person in accordance with organisational procedures. 3.4. Investigation of organisational follow-up procedure or policy, and recording of follow-up action taken, in regard to the job request or enquiry. |
| 4. Create professional networks | 4.1 Professional networks within the design industry are identified and developed. 4.2 Professional development is incorporated in work practice and career planning |
| 5. Practice and implement the Code of Ethics | 5.1 Company Code of Ethics is implemented and practiced. |
| 6. Demonstrate time management skills | 6.1 Time management skills are demonstrated according to workplace standards. |
| 7. Document and | 7.1 Report issues/OSH problems within the |

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| disseminate OSH requirements | 7.2 workplace to the appropriate person Determine and document the OSH standards which impact upon the workplace |
| 8. Evaluate work of self and team and apply continuous improvement strategy. | 8.1 Work of self and team is evaluated and a continuous improvement strategy applied. |
| Range of Variables | Range |
| 1. OSH hazards and incidents | (May include but not limited to:) 1. Physical hazards and incidents 2. Environmental hazard |
| 2. Verbal and non-verbal communication | (May include but not limited to:) 1. Written communication 2. Electronic Communication 3. Body language |
| 3. Questioning and active listening techniques | (May include but not limited to:) |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1. Appropriate questioning and active listening techniques are demonstrated, to understand colleagues and client needs and determine support requirements. 2. Information, messages and job requests are recorded and referred to the appropriate person in accordance with organisational procedures. 3. Time management skills are demonstrated according to workplace standards. |
| 2. Underpinning knowledge | List of OSH hazards and incidents 2.1 Type of Verbal and non-verbal communication 2.2 Questioning and active listening techniques 2.3 Attributes of an efficient graphic designer 2.4 Type of interpersonal skills |
| 3. Underpinning skill | 3.1 Ability to take stress 3.2 Ability to think critically |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following Resources must be provided- |

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| | 5.1 | Relevant tools, software and facilities needed to perform the activities. |
| | 5.2 | Required learning materials. |
| 6. Methods of assessment | 6.1 | Demonstration with oral questioning |
| | 6.2 | Direct observation |
| | 6.3 | Written test |
| | 6.4 | Portfolio |
| | 6.5 | Log book |
| 7. Context of assessment | 7.1 | Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | | |

OCCUPATION SPECIFIC UNITS

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP1001A1: Assemble hardware components of a PC |
| Nominal Hours | 60 |
| Unit Descriptor | This unit deals with the knowledge, skills and attitude to assemble personal computers. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Prepare for hardware assemble | 1.1 PC equipment is Isolated from electrical source when assembling 1.2 Electrostatic discharge precautions are observed at all times 1.3 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.4 Tools and equipment are selected and collected as required |
| 2. Determine the components required | 2.1. Required components of user PC are identified and documented. 2.2. Required PC components are collected from store according to the manual or user guide 2.3. components are checked with list and documented 2.4. Modification of check list is observed at all times |
| 3. Install power supply unit and Assemble motherboard components | 3.1 PC power supply unit is installed in casing 3.2 Processor , processor heat sink and cooling fan are installed 3.3 RAM (memory) installed 3.4 Other peripherals are installed 3.5 WiFi adapter is installed. 3.6 AGP,NIC and Sound card is installed as required |
| 4. Install storage devices and electrical connection | 1.1 Hard disk , optical drive(CD/DVD R/W drive),are installed 1.2 Power and data cables are properly connected 1.3 Front panel power switch, front or back panel USB port, status LED's etc. are properly connected 1.4 Motherboard is connected with power supply |
| 5. Connect input and output unit | 7.1 Input and output unit is connected |
| 6. Connect PC power supply unit and display with the electrical line | 6.1 Ensure power switch is switched off 6.2 PC system unit is connected to the electrical power line 6.3 Display unit (monitor) is connected to the electrical power line |
| 7. Modify BIOS CMOS | 7.1 Date and Time is adjusted |

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| setting | 7.2 Correct processor and memory clock frequency is chosen 7.3 Hard disk and CD/DVD interface is selected correctly 7.4 Boot device sequence is modified |
| 8 Install operating system and required device driver | 8.1 Hard disk partition is done correctly 8.2 Operating system is installed 8.3 Required device driver is installed |
| 9. View the system information | 9.1 System information is observed and cross checked with the requirements check list |
| 10 . Shut-down and clean work place | 10.1 Operating system is shut down properly 10.2 Computer is switched off 10.3 Tools and equipment is cleaned and stored as per workplace standard 10.4 Waste materials are disposed as per workplace practice |

Range of Variables

| Variable | Range (May include but not limited to) |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Tools and Equipment | 1.1 PC Assemblers Tool box 1.2 ESD tools 1.3 AVO meter 1.4 Cable tester 1.5 Power extension cord with multiple power socket |
| 2. Personal Computer (PC) | 2.1. desktop computer |
| 3. Operating System | 3.1. Windows 7/8/10 |
| 4. Power supply | 4 PC split A/C power supply available in market |
| 5. Output unit | 5.1 Monitor (CRT,LCD and LED) 5.2 speaker (optional) 5.3 Printer(optional) |
| 6. Input unit | 6.1 Keyboard 6.2 Mouse 6.3 web cam (optional) 6.4 Scanner(optional) |
| 7. Components | 7.1 Processor 7.2 RAM 7.3 CMOS Battery 7.4 Graphics Card 7.5 Network adapter Card 7.6 Hard disk (IDE, SATA, PATA, SCSI SSD) 7.7 Sound card 7.8 Wired and Wireless network interface card 7.9 Internal and external modem 7.10 display card 7.11 USB-2.00/USB-3.00 and any other update version |
| 8. Casing, Optical Drive | All types available in market |

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| (CD/DVD R/W) | |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Select and Collect proper hardware as per requirement 1.3 Connections of all required devices are checked and rectified as required before connecting to power source |
| 2. Underpinning knowledge | 2.1. Basic knowledge of personal computer and its components 2.2. Operating System basic 2.3. Operating system licensing system (proprietary) 2.4. Copyright ACT 2005 National IT Policy and their subsequent amendments. 2.5. Electrical and Electronic Safe working in practice 2.6. Basic knowledge on motherboard, motherboard components and other PC components and their functions and relationship 2.7. Basic knowledge on electrical connections, power supply, power cables, storage devices 2.8. Functions of BIOS and its configuration 2.9. Basic knowledge of operation system, functions and operating system installation steps |
| 3. Underpinning skill | 3.1. Make proper motherboard and motherboard components selection according to customer requirements 3.2. Make proper selection of power supply, power cord, storage devices, keyboard, mouse, case and monitor 3.3. Assemble motherboard and other PC components 3.4. Connect keyboard, mouse, monitor and power cord to wall power socket 3.5. Update BIOS configuration 3.6. Operating system basic installation 3.7. Handle electrical and mechanical equipment safely to avoid electrical and mechanical hazards 3.8. Follow instruction manuals when assembling 3.9. Keep clean and orderly workplace and equipment 3.10. Switch off every equipment when work is done |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties |

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| | 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Materials and consumables are related to the activities 5.3 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP1002A1: Install and configure components to a personal computer |
| Nominal Hours | 80 |
| Unit Descriptor | This unit specifies knowledge, skills and attitude the competency to be able to install and configure software and hardware components of a personal computer. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow Electrical and Electronic safety in work. OSH | 1.1 PC equipment is isolated from electrical source when assembling 1.2 Electrostatic discharge precautions are observed all time 1.3 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed. |
| 2. Determine client requirements | 2.1. User requirements for software and hardware are documented. 2.2. Analyze user requirements and list of pc components and their costs are determined 2.3. Components and budget are verified with the client 2.4. Approval of components and required budget from the client is confirmed |
| 3. Collect required PC software and hardware components | 3.1. PC hardware and software components are collected and stored according to user manual or guidelines. |
| 4. Install hardware components | 4.1 Computer power is switched off 4.2 Hardware components is inserted in appropriate 4.3 I/O slot or connected to the appropriate port 4.4 Hardware components are connected with the supply AC power line if external power is required 4.5 Computer and components power switch is on 4.6 System automatically detected the hardware and device driver is installed. 4.7 Otherwise vendor's given or from internet device driver is installed and configured 4.8 Correct functioning of hardware component is confirmed |

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| 5. Install software components | 5.1 Identify if older version of the software component is exists 5.2 If older version is already installed, software component is upgraded 5.3 Fresh installation of the software component is done 5.4 Documented the changes or modification of the system 5.5 Installed/updated software component is functioned correctly |
| 6. Determine satisfaction and document completion of work | 6.1 User satisfaction and confirmation of completion of work is documented |

Range of Variables

| Variable | Range (May include but not limited to) |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Personal Computer | 1st Desktop Computer. |
| 2. Components | 2nd hardware and software components |
| 3. Software components | 2.1. Linux OS 2.2. windows XP/ windows 7/ windows 8/10 2.3. printer driver 2.4. Open Office 2.5. MS office, utilities etc. 2.6. Antivirus 2.7. Utilities 2.8. Firefox, google chrome, Internet Explorer, Opera, safari internet browser |
| 4. Hardware components | 3.1. printer (Laser printer, Dot matrix, InkJet printer with driver) 3.2. Network Interface Card (10/100/1000 Mb/s) 3.3. Wireless Interface Card with drive () 3.4. scanner with driver 3.5. webcam with driver 3.6. modem with driver 3.7. AGP card/ VGA card with driver |
| 5. Upgrade | 4.1 Installation of newer version of hardware driver and software component over older version |
| 6. Fresh Installation | 5.1 Installation of new software and new hardware components |
| 7. Client | 6.1 customer 6.2 Internal staff. |
| 8. Tools and Equipment | 8.1 PC Assemblers Tool box |

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| | 8.2 ESD tools 8.3 AVO meter 8.4 Cable tester 8.5 Power extension chord with multiple power socket |
| 9. Licence | 9.1 License Required for hardware and software equipment |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Connections of all required devices are checked and rectified as required before connecting to power source 1.3 Select and Collect proper hardware and software as per standard |
| 2. Underpinning knowledge | 2.1. Basic knowledge of personal computer and its components 2.2. Operating System basic 2.3. Software licensing system (proprietary) 2.4. Copyright ACT 2005 National IT Policy and their subsequent amendments. 2.5. Software and hardware installation and upgrade 2.6. Basic knowledge on computer assembling 2.7. Basic knowledge on interaction of computer hardware and software 2.8. Electrical and Electronic Safe work practices |
| 3. Underpinning skill | 3.1. Correctly understand user requirements 3.2. Proper selection of software and hardware components 3.3. Install hardware and/or software components 3.4. Evaluate correct installation and functioning of the installed component 3.5. Keeps clean and orderly workplace and equipment 3.6. Damaged hardware components are trashed properly, follow environmental safety act 3.7. Follow steps to install/upgrade hardware and/or software components in the manual 3.8. Switch off all equipment after the end of work |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn |

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| | 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Materials and consumables are relate to the activities 5.3 Relevant manuals |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Bangladesh Technical Education Board (BTEB), the national quality assurance body, must accredit training Providers or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP2003A1: Apply the awareness of career opportunities in computer hardware & networking field |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit of competency specifies the knowledge, skill and attitude required to develop awareness of carrier opportunities and strategies to effective transition to work |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow OSH practices | 1.1 Safe work practice observed and PPE worn as required for the work performed. |
| 2. Assess personal strengths and weaknesses | 2.1. <i>Personal strength</i> and weakness in hardware and networking sector is assessed 2.2. Attitudes needed for career success is determined 2.3. Demonstrate the steps involved in resolving a conflict/stress situation in hardware and networking sector |
| 3. Increase knowledge, skills and experience | 3.1. Communication skills, honesty, integrity, teamwork, interpersonal skills, motivation, leadership skills, ability to work with diverse people, work experience, and a strong work ethic are demonstrated 3.2. Ability to accept and use of new technology in hardware and networking field is observed |
| 4. Develop self marketing skills to help implement career goals | 4.1 Resume writing, job application, interviewing, and job search strategies are observed 4.2 Networking with people working with hardware and networking sector are demonstrated |
| 5. Explore carrier options | 5.1 On line carrier-exploration site is used to search carrier options 5.2 Carrier opportunities from friends, family, alumni, colleagues and other people of the community are investigated 5.3 A plan is developed to obtain carrier goals in hardware and network sector |
| 6. Apply knowledge to a comprehensive set of goals and an individual carrier plan | 6.1 Knowledge and intelligence is applied on various carrier for a comprehensive set of goals and carrier plan |
| 7. Develop strategies to make an effective transition to work | 7.1 Strategies for <i>effective transition to work</i> is developed |

| Range of Variables | |
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| Variable | Range (May include but not limited to) |
| 1. Personal strengths | 1.1 Stated individual talents 1.2 interests and personal characteristics 1.3 confidence in knowledge 1.4 Integrity 1.5 handling conflict and stress 1.6 behaviour to other, |
| 2. Effective transition to work | 2.1. transition from training to work |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Identified electrical and electronic components. |
| 2. Underpinning knowledge | 2.1. Integrating the various theoretical underpinnings relative to career decision making and life planning 2.2. Learning a life-long career development process and career-decision making model that they can apply toward their professional development 2.3. How to research current print, web, and labour market trends within their fields of interest 2.4. Job search ethics and professionalism 2.5. insights into the methods of job search, interviewing skills, personal presentation, networking, informational interviewing, and negotiation techniques 2.6. Concept of creating a career action plan that integrates career goals with life goals in order to strive toward greater self-actualization 2.7. Concept of creating a career action plan that integrates career goals with life goals in order to strive toward greater self-actualization |
| 3. Underpinning skill | 3.1. Shall be able to assess personal strength and weakness in hardware and network sector 3.2. Shall be able to use standardized career assessment inventories and self-reflection exercises to explore their values, skills, interests and personality traits as they relate to their careers options. |

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| | 3.3. Shall be able to resolve a conflict/stress situation in hardware and networking sector 3.4. Can interact with diverse people using their work experiences, knowledge and professional ethics 3.5. Shall be able to write resume, job applications for specific job or purpose 3.6. Shall be able to create a career action plan that integrates career goals with life goals in order to strive toward greater self-actualization. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.1 Relevant documents, secondary data source and job portal required to perform activities |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP2004A1: Use electronic parts and Components for making circuits in PCB |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit of competency specifies the required knowledge, skills and attitude to apply basic electronics principles in repairing of computer electronic components. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow OSH practices, and electronic safety in work | 1.1 PC equipment is isolated from electrical source when assembling 1.2 Electrostatic discharge precautions are observed at all times 1.3 Safe work practice observed and personal protective equipment (PPE) worn as Electrical safety standard |
| 2. Identify Electrical and electronic components | 2.1. Electrical components are identified 2.2. Electronic components are identified |
| 3. Identify Electrical and electronic components in a computer | 3.1. Electronic components in a computer motherboard are identified 3.2. Electronic components of power supply unit are demonstrate |
| 4. Demonstrate Block diagram and schematic diagram computer | 3.1. Block diagram and schematic diagram of mother boards are demonstrated. 3.2. Block diagram and schematic diagram of power supply unit are demonstrated. |
| 5. Demonstrate soldering and desoldering of an electronic circuit | 5.1 Soldering materials are selected 5.2 Soldering on electronic components are demonstrated 5.3 disordering on electronic components are demonstrated |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Equipment | 1.1 PC 1.2 Oscilloscope |
| 2. Electronic Component | 2.1. Diode 2.2. LED 2.3. Transistor 2.4. MOSFET 2.5. UJT |

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| | 2.6. Zens Diode |
| 3. Electrical Component | 3.1. Switch 3.2. Socket 3.3. Resistor 3.4. Inductor 3.5. Capacitor 3.6. Transformer |
| 4. Materials | 5.1 Electrical wires 5.2 Soldering led 5.3 Resin |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Connect meter properly for measurements |
| 2. Underpinning knowledge | 2.1. Shall understand electrical and electronic fundamentals 2.2. Procedure to select appropriate electrical and/or electronic components for a repair work 2.3. Shall understand electrical diagram and symbols, colour codes of electrical and electronic components in a circuit board 2.4. Understand basic principle and use of step-up and step-down transformers 2.5. Shall understand various types of wire and their uses, common convention of grounding 2.6. Procedure of soldering and desoldering electrical/electronic components in a circuit board 2.7. Purpose of computer power supply, outlets and their use |
| 3. Underpinning skill | 3.1. Identify electrical and Electronic components used in PC 3.2. Identify and measure AC/DC 3.3. Identify basic electrical and electronic components by their symbols and schematic diagram and colour codes 3.4. Identify and prepare electrical, network wires in practical use in workplace and demonstrate common convention of grounding 3.5. Demonstrate soldering and desoldering electrical and electronic components in the circuit board 3.6. Can identify PC power supply components and |

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| | <p>their usages</p> <p>3.7. Handle electrical and mechanical equipment safely to avoid electrical and mechanical hazards</p> <p>3.8. Follow instruction manuals when testing, measuring, soldering and desoldering</p> <p>3.9. Keep clean and orderly workplace and equipment</p> <p>3.10. Switch off all equipment when work is done</p> |
| 4. Required attitude | <p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p> |
| 5. Resource implication | <p>5.1 Relevant Tools, Equipment and physical facilities required to perform activities</p> <p>5.2 Relevant user manuals</p> |
| 6. Methods of assessment | <p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p> |
| 7. Context of assessment | <p>7.1 Competencies may be assessed in the work place or a simulated work place</p> |
| <p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p> | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP2005A1: Use testing and measuring instruments for electronic servicing |
| Nominal Hours | 20 |
| Unit Descriptor | This unit of competency specifies the knowledge, skill and attitude required to use and handling of basic instrument to perform specific requirement in IT. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow OSH practices | 1.1 Safe work practice observed and PPE worn as required for the work performed. |
| 3. Identify and calibrate electrical or electronic measuring instrument | 3.1. Appropriate (precision and measurement range) electrical or electronic measuring instrument is identified 3.2. The calibration of the instrument is examined 3.3. Instrument is calibrated if required |
| 5. Perform electrical or electronic measurement | 5.1 ESD (electrostatic discharge) precaution is demonstrated 5.2 Instrument is connected as instructed and measurement is performed 5.3 Measurement result is documentation |
| 6. Identify and calibrate electro-mechanical instrument for the task | 6.1 Electro-mechanical task is determined 6.2 Electro-mechanical instrument is identified required for the task 6.3 Examine the calibration of the instrument If require instrument is calibrated |
| 7. Perform the task | 7.1 Using the electro-mechanical instrument task is performed |
| 8. Document the steps to use the instrument | 8.1 Steps to use the instrument is documented |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Electrical or electronic instrument | 1.1 Multi-meter 1.2 Oscilloscope 1.3 network continuity tester, voltmeter, impedance meter, signal generator, analog and digital measuring instrument |
| 2. Electro-mechanical | 2.1. Cutting/Hand/Power Tools |

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| instrument | 2.2. safety instruments 2.3. soldering and de-soldering 2.4. calculator tools |
| 3. Task | 3.1. Cabling 3.2. Testing 3.3. Installation 3.4. diagnosis of fault of PC and network equipment |
| 4. Measurement | 4.1 Voltage 4.2 Resistance 4.3 Impedance 4.4 Inductance 4.5 current and electric power flow 4.6 electrical signal 4.7 frequency |
| 5. Required tools | 5.1 ESD Hand tools 5.2 crimping tools and cutter |

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

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| 1. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Identify basic electrical and electronic instruments |
| 2. Underpinning knowledge | 2.1. Shall understand the functions of basic electrical and electronic instruments 2.2. Procedure to select appropriate instrument for the task 2.3. Operation and calibration of the instruments |
| 3. Underpinning skill | 3.1. Make proper selection of electrical, electronic and/or electromechanical instruments for the task 3.2. Check and Calibrate the instruments 3.3. Measurement of electrical and electronic quantity 3.4. Keeps clean and orderly workplace and instruments 3.5. Use manuals and/or other electronic resources on how to use the instrument 3.6. Environmentally aware: switch off instruments at the of work |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties |

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| | 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Relevant user manuals |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

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| Unit Code and Title | ITSUP2006A1: Install and use open source operating system and optimize utilities |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit specifies the knowledge, skill and attitude required to install operating system software, utilities and optimise the operating system software, utilities to meet the client or workplace needs |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practices observed and personal protective equipment (PPE) worn as required for work performed. |
| 2. Identify the purpose and functions of operating system | 2.1. Basic purpose of operating system is identified and defined 2.2. Operating system basic functions are identified and defined. |
| 3. Determine the components of operating system | 3.1. Operating system components are determined 3.2. Functionality of the components is defined. |
| 4. Install and optimize operating system | 4.1 Types of operating system are identified. 4.2 Use of each type of operating system is defined. 4.3 Computer hardware information and workplace requirement is determined 4.4 Operating system based on 4.1 is determined 4.5 Operating system software is installed according to instructions given in the manual 4.6 Operating system and its components are configured and optimised according to the workplace requirement |
| 8. Install and optimize utility software | 8.1 Utilities are identified according to the workplace requirement 8.2 Utility software is installed 8.3 Utility software is configured and optimised to meet the client or workplace requirement 8.4 Instruction of new software installation requirement is documented |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Operating System | Red hat Linux, Ubuntu, Fedora Linux, Enterprise |

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| | Linux OS |
| 2. Type of operating systems | 2.1. Single process 2.2. multi process 2.3. multi tasking 2.4. multi thread 2.5. special purpose 2.6. Home 2.7. Professional 2.8. enterprise operating system etc. |
| 3. Component | 3.1. Process 3.2. Thread 3.3. Task 3.4. file system 3.5. memory management 3.6. Scheduler 3.7. disk management 3.8. network management |
| 4. Utility software | 4.1 Storage utility 4.2 Disk defragmenter 4.3 Disk checkers 4.4 Disk cleaner 4.5 Disk space analyser 4.6 Disk partitioner 4.7 Disk compression 4.8 Backup 4.9 Anti-virus 4.10 Network utilities 4.11 Registry cleaner 4.12 CLI 4.13 GUI |
| 5. Legislation | 5.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Knowledge about Linux Operating system 1.2 Knowledge about different type of command |
| 2. Underpinning knowledge | 2.1. Knowledge about Operating system basic functions 2.2. Knowledge about advantage of Linux Operating system |
| 3. Underpinning skill | 3.1. Operating system software is installed according to instructions given in the manual 3.2. Utility software is configured and optimised |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities |

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| | 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Materials and consumables are related to the activities 5.3 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP2007A1: Maintain standalone security |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit of competency specifies the knowledge, skill and attitude required to maintain security of standalone computer from software threat such as virus, worm, trojan horse etc. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Check antivirus software | 1.1 Safe work practice observed and PPE worn as required for the work performed. 1.2 Operating system license is checked and verified 1.3 Antivirus software is installed 1.4 Antivirus software licence is checked and update database 1.5 appropriate person is reported to take necessary actions to update or renew licenses |
| 2. Protect standalone system from security threat | 2.1. Antivirus guard started/activated 2.2. System recovery disk is created and preserved 2.3. Important directory and files are backed up regularly and preserved |
| 3. Protect important user account | 3.1. System administrator accounts are determined 3.2. Administrator accounts password are verified according to the standard password rule 3.3. Administrator accounts passwords are preserved in a secured place 3.4. Administrator accounts are protected |
| 4. Apply security update of operating system, other software and install only trusted software | 4.1 Security updates of OS and other software are downloaded/collected and applied 4.2 Before installing any new software license is verified 4.3 Installation source disk, directory or file signature is verified 4.4 Installing trusted software |
| 5. Observe security status of the standalone system regularly and record security incident and possible actions taken | 5.1 Full system is scanned and observed for possible vulnerabilities in regular basis 5.2 Identified security incident and its details is documented 5.3 Possible actions and remedy is recorded |
| 6. Identify, analyze and nullify possible security threat and recover system from possible | 6.1 Possible security threat of standalone system is identified 6.2 Possible cause of infection is determined from the analysis |

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| damage | 6.3 Security threat (Identified) is analysed to find out its characteristics 6.4 Capability of the security threat is determined from the analysis 6.5 Affected files are <i>nullified</i> 6.6 Security threat is removed or from the system using antivirus software |
| 7. Recover system from possible damage | 7.1 Damage done by security threat is determined clearly 7.2 Antivirus software is used to recover affected files 7.3 If some files are need to be deleted, possible effect is identified 7.4 If boot sector of the standalone system is damaged, recovery disk is used to recover boot sector 7.5 Deleted files are restored from the backup |
| Range of Variables | |
| Variable | Range (May include but are not limited to) |
| 1. Antivirus | 1.1 KasperSky 1.2 Eset Nod32 1.3 Bit defender 1.4 Avast 1.5 Avg |
| 2. Appropriate person | 2.1 Higher authority, 2.2 responsible person, 2.3 client, 2.4 customer |
| 3. Scan | 3.1. 3.1 Using antivirus software scan all files and directory for possible vulnerability 3.2. Examine system log 3.3. Audit logs 3.4. Activity logs |
| 3.5. Trusted | 4.1 Software and hardware from a reliable source or internet site |
| 3.6. Regular basis | 5.1 Weekly, monthly, fortnightly or any other interval decided by the appropriate person/management |
| 3.7. Nullify | 6.1 Means disinfected, disabled, deleted, removed |
| Evidence Guide | |
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed. 1.2 Ensure that PC is installed with an antivirus |

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| | before using flash drive. 1.3 Ensure that antivirus is updated always. 1.4 Ensure windows security |
| 2. Underpinning knowledge | 2.1. Knowledge about different kind of antivirus 2.2. security threat 2.3. user account 2.4. security threat 2.5. trusted software |
| 3. Underpinning skill | 3.1. installing antivirus 3.2. system scan 3.3. analyzing of threat 3.4. restore/recovery of data |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Relevant user manuals |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP3008A1: Install and Configure Workgroup LAN |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit specifies the knowledge, skill and attitude required to create workgroup network based on windows environment with basic network devices. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | Safe work practices observed and personal protective equipment (PPE) worn as required for work performed. |
| 2. Plan for local area network (LAN) | 2.1. Basic purpose of LAN is identified and defined 2.2. Basic functions of LAN are identified and defined. 2.3. Required component, tools and equipments are identified and listed 2.4. Materials and consumables are identified listed 2.5. Budget is prepared and documented for LAN as per Requirements 2.6. Budget is send to appropriate person for approval as per workplace practice |
| 3. Collect tools equipments materials | 3.1. Invoice for tools and equipments is collected as per workplace practice 3.2. tools and equipment are selected and collected from vendor 3.3. Materials and consumables are collected |
| 4. Configure Local Area Network | 4.1 Configuration requirements are identified 4.2 Necessary settings for LAN are configured 4.3 Assigned IP address in Network interface card 4.4 Ensure Computer name and workgroup name are documented and confirmed 4.5 Documents and file sharing setting are confirmed 4.6 Add Printer and enable sharing are confirmed 4.7 Access requirements are determined and sharing is confirmed |
| 7 Test Local Area Network | 5.1 Ping between two computers 5.2 Conduct file sharing between two computer 5.3 Print a document by network printer |
| 8 Configure DNS Server, Mail Server, HTTP Server Using Simulator | 5.4 DNS is Configured 5.5 HTTP is configured 5.6 Mail server is configured 5.7 Packets are send using mail server 5.8 Website is browsed using HTTP server. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. PC | Personal computer with Operating System installed |
| 2. Tools and equipment | 2.1. Crimping tools 2.2. UTP cable |

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| | 2.3. printer |
| 3. Component | 1.1 Rj-45 connector 1.2 Switch 1.3 Router |
| 5. Legislation | 5.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Tools equipment & Materials. 1.2 Configure Local Area Network 1.3 Test Local Area Network |
| 2. Underpinning knowledge | 2.1. Basic knowledge about LAN 2.2. Knowledge about ping, local/remote loopback 2.3. Computer Network, link layer protocol, TCP/IP protocol and addressing 2.4. Basic knowledge computer operating system. 2.5. Patch cable configuration 2.6. Description of subnet mask, host name |
| 3. Underpinning skill | 3.1. conduct ping operation 3.2. local/remote loop-back |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Materials and consumables are related to the activities 5.3 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

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| Unit Code and Title | ITSUP3009A1: Connect a PC to an existing network |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit specifies knowledge, skills and attitude the competency required to able to connect a PC to an existing network. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1 Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed. |
| 2. Collect existing network specification | 2.1. The existing network is interviewed by responsible person in the organization 2.2. Existing network topology and network protocol is reviewed and documented 2.3. Network IP address plan is documented |
| 3. Determine client network hardware and software components are required | 3.1. Hardware and software components are determined 3.2. Cost of components is determined 3.3. Approval of components and confirmation of required budget is obtained from the client |
| 4. Install network hardware and software components | 4.1 Required Hardware and software are collected 4.2 Network hardware and hardware driver software (if not automatically installed) is installed 4.3 Installed hardware and software are documented |
| 5 Connect PC to the existing network | 5.1 Existing network infrastructure are identified 5.2 Existing network transmission media is determined. 5.3 PC is connected with the existing network with appropriate transmission media infrastructure |
| 6. Assign client machine address | 6.1 IP address is assigned to client machine (DHCP or statically. e.g.; assign IP address, subnet mask, gateway, DNS statically in the case of TCP/IP protocol) 6.2 Conflict of network IP address is assessed 6.3 Domain name assigned if required. 6.4 Host name assigned if required. 6.5 Network interface card (NIC) is disabled and enabled as required |
| 7. Test network connectivity | 7.1 Test is conducted using simple network connectivity tools 7.2 ping If loop-back test fails, network interface card, connecting wire (continuity) is tested |

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| | 7.3 | A successful reply is ping reply verified that network connectivity worked |
| | 7.4 | Connectivity is tested with gateway and any known host of the internet |
| 8. Configure firewalls and internet proxy | 8.1 | PC internet firewall is configured to protect PC from unwanted packet. |
| | 8.2 | Internet proxy address is assigned as required |
| 9. Create documentation for maintenance | 9.1 | All the settings are documented |
| | 9.2 | Configuration and PC network IP address are documented for future maintenance purpose |
| Range of Variables | | |
| Variable | Range (May include but not limited to) | |
| 1. PC | 1.1 | Personal computer with Operating System installed |
| 2. Operating System | 2.1. | Operating System Installation Disk |
| | 2.2. | Ubuntu desktop |
| | 2.3. | Windows XP |
| | 2.4. | Windows 7 |
| | 2.5. | Windows 10 |
| | 2.6. | Linux or any other OS |
| 3. Network Equipment | 3.1. | Ethernet 10/100/1000 Mbps interface card |
| | 3.2. | Wireless Wi-Fi card |
| | 3.3. | Modem (2G/3G/4G) |
| 4. Driver Software | 4.1 | Driver software for LAN card |
| | 4.2 | Wireless Wi-Fi card |
| | 4.3 | Modem (2G/3G/4G) |
| 5. Existing Network | 5.1 | LAN configuration |
| | 5.2 | WAN configuration |
| | 5.3 | IP Network available in cellular Phone company |
| | 5.4 | Y-MAX existing network (if available) |
| 6. TCP/IP | 6.1 | TCP/IP software for IPv4 and IPv6 if not available in the operating system |
| 7. Components | 7.1 | UTP Cat5, CAT5e, CAT6, Optical Fiber |
| | 7.2 | Rj45, Rj11 |
| | 7.3 | Ethernet |
| | 7.4 | Fiber patch cable |
| | 7.5 | Optical to Ethernet Copper Media converter |
| 8. Transmission media | 8.1 | Router |
| | 8.2 | Switch |
| | 8.3 | Wireless Router |

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| 9. Legislation | 9.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments. |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Verified properly installed hardware and driver. 1.3 verified existing network environment |
| 2. Underpinning knowledge | 2.1. Computer Network, link layer protocol, TCP/IP protocol and addressing 2.2. Basic knowledge computer operating system 2.3. Internet, GSM, CDMA system 2.4. Transmission media such as wires, wireless, fiber channel etc. 2.5. Patch cable configuration 2.6. description of subnet mask, host name, DNS, Firewall, proxy, |
| 3. Underpinning skill | 3.1. conduct ping operation 3.2. local/remote loop-back |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Relevant manuals. |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |

Accreditation Requirements

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National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Code and Title | ITSTEC2016A1: Maintain equipment and software in working order |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit covers the knowledge, skills and attitude to diagnosis equipment and software fault of computer and repair according to organizational procedure to keep them working |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1 Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazards are avoided at all times 1.3 Safe work practices observed and personal protective equipment (PPE) worn as required for the work performed |
| 2. Identify faults and Determine the cause of fault or system performance degradation | 2.1. Equipment and software maintenance specification is reviewed 2.2. Diagnosis procedure for fault detection and analysis is identified 2.3. Fault/degradation of equipment/software performance is identified 2.4. Fault is reported to the appropriate person 2.5. Existing problem area is assessed 2.6. Result of the assessment is analyzed 2.7. Main cause of the problem is identified 2.8. Maintenance manual, historical fault record is analyzed for information about the cause of current fault |
| 4. Plan to repair or replacement of equipment or software | 4.1 Work plan for replacement or repair of faulty equipment or software is prepared 4.2 Security updates of OS and others software's are downloaded/collected and applied 4.3 Replacement or repair plan is approved from the appropriate person |
| 5. Repair fault and Update documentation | 5.1 Faulty equipment or software is repaired 5.2 Faulty equipment are replaced with the minimum disruptions of the client 5.3 Fault and maintenance data, replacement of equipment or software is recorded 5.4 Maintenance document is review and updated with the consultation of the appropriate person 5.5 Updated maintenance document is preserved for future use. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |

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| 1. Equipment | 1.1 Hardware component of a computer 1.2 workstation 1.3 Laptop 1.4 Monitor 1.5 Keyboard 1.6 Mouse 1.7 Processor 1.8 RAM 1.9 I/O cards 1.10 CMOS battery 1.11 hard disk 1.12 CD/DVD 1.13 Printer 1.14 Scanner 1.15 Speaker 1.16 power socket 1.17 power strip 1.18 cooling fan 1.19 power cable 1.20 network cable 1.21 data communication ports |
| 2. Software | 2.1. Operating system 2.2. Disk partition 2.3. Application packages 2.4. Operating system utilities 2.5. BIOS 2.6. Anti-virus 2.7. Internet browser |
| 3. Faults | 3.1. Installed Cable 3.2. LAN card 3.3. Switch port 3.4. Server down 3.5. Cable punching |
| 4. Repair | 4.1 Equipment repair by replacing faulty its components 4.2 software up-gradation |
| 5. Replacement | 4.1 Replacement of equipment with a new or fault free one 4.2 re-installation of same application or uninstall or tuning of software parameters |
| 6. Appropriate person | 5.1 office staff or any external person |
| 7. Component | 6.1 Parts of a equipment but not included internal components of microprocessor 6.2 RAM 6.3 had disk 6.4 CD/DVD 6.5 I/O cards 6.6 CMOS batteries |
| 7. Legislation and Standards | 7.1 Legislation relevant to this unit of competency standard includes but not limited to the Copyright |

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| | ACT 2005 National IT Policy and their subsequent amendments. | |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | | |
| 1. Critical aspects of competency | 1.1 | Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed |
| | 1.2 | Proper maintenance and diagnosis has been practiced |
| 2. Underpinning knowledge | 2.1. | Ability of troubleshooting |
| | 2.2. | proper knowledge about equipment and software |
| | 2.3. | proper equipment maintenance knowledge |
| | 2.4. | Repair/replacement procedure |
| 3. Underpinning skills | 3.1. | Identify faults and determine the causes of fault |
| | 3.2. | Prepare a work plan for replacement or repair of faulty equipment or software devises |
| | 3.3. | Calculating and approving repair or replacement of hardware equipment cost from the appropriate person |
| | 3.4. | Repairing or replacing faulty hardware equipments or software component |
| | 3.5. | Updating network and computer maintenance and trouble shooting documents |
| 4. Required attitude | 4.1 | Commitment to occupational health and safety |
| | 4.2 | Promptness in carrying out activities |
| | 4.3 | Sincere and honest to duties |
| | 4.4 | Environmental concerns |
| | 4.5 | Eagerness to learn |
| | 4.6 | Tidiness and timeliness |
| | 4.7 | Respect for rights of peers and seniors in workplace |
| | 4.8 | Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- | |
| | 5.1 | Relevant Tools, Equipment and physical facilities required to perform activities |
| | 5.2 | |
| 6. Methods of assessment | 6.1 | Demonstration with oral questioning |
| | 6.2 | Direct observation |
| | 6.3 | Written test |
| | 6.4 | Portfolio |
| | 6.5 | Log book |
| 7. Context of assessment | 7.1 | Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | | |

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

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| Unit Code and Title | ITSUP3011A1: Evaluate system status and run standard diagnostic tools for network security. |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit of competency specifies the knowledge, skills and attitude required to evaluate the system status using standard diagnostic tools. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practices observed and personal protective equipment (PPE worn) as required for work performed. |
| 2. Determine the scope, parameters & Plan to evaluate system status | 2.1. Scope for evaluating the system status is determined 2.2. Parameter is determined to evaluate system status 2.3. Plan is developed to evaluate the system status |
| 3. Identify & Use the appropriate diagnostic tools | 3.1. To evaluate the system status, appropriate diagnostic tools are identified 3.2. System status is evaluated according to the parameters and plan |
| 4. Identify the threat and protect system from security threats | 4.1 Possible security threat is identified. 4.2 Identified security threat is analyzed to find out its characteristics 4.3 Possible causes of infection are determined from analysis. 4.4 Anti-malware software is installed. 4.5 malware guard is started/activated 4.6 System recovery disk is created and preserved. 4.7 Important directory and files are backed up regularly 4.8 Affected files are isolated or marked as quarantine. 4.9 Security threat is removed from system using anti-malware. |
| 5. Record evaluation report | 5.1 System status is observed and recorded 5.2 Effect of change of system status is recoded |
| 6. Analyse & Report the system status | 5.1 Record of the system status is analyzed 5.2 System performance status is observed from the analysis 5.3 System status is summarized 5.4 In case of system performance degradation, possible corrective measures are determined and documented 5.5 System status evaluation is reported to the |

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| | <i>appropriate person</i> |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. System status | 1.1 Computer with installed operating system |
| 2. Diagnostic tools | 2.1. Anti-virus /virus scanner 2.2. disk scanner 2.3. system monitoring tools 2.4. system performance evaluation tools |
| 3. Recorded | 3.1. System status is recorded |
| 4. Appropriate person | 4.1 Client 4.2 organisation management 4.3 work place administration etc. |
| 5 Analyse | 5.1 The methodical study of the data-processing needs of a business or department, together with recommendations for specific hardware and software installations. |
| Evidence Guide | |
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Safe work practice observed. 1.2 Ensure that PC is installed with an antivirus before using flash drive. 1.3 Ensure that antivirus is updated always. 1.4 Ensure windows security 1.5 Analyse & Report the system status 1.6 System status is summarized |
| 2. Underpinning knowledge | 2.1. Procedure of protecting and preserving administrator accounts 2.2. anti-malware software installation 2.3. Common types of destructive software 2.4. Common types of spam 2.5. Knowledge about System Status 2.6. Diagnostic tools 2.7. System Record 2.8. System Analyze 2.9. System performance degradation |
| 3. Underpinning skill | 3.1 Use Diagnostic tools 3.2 System status is summarized 3.3 Checking and verifying the operating system and the other software licenses 3.4 determine possible causes of infection from analysis 3.5 Installing anti-malware software 3.6 Taking appropriate action in regard to spam 3.7 Using recovery disk if boot sector of the standalone system is damaged |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns |

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| | 4.5 | Eagerness to learn |
| | 4.6 | Tidiness and timeliness |
| | 4.7 | Respect for rights of peers and seniors in workplace |
| | 4.8 | Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 | Relevant Tools, Equipment and physical facilities required to perform activities |
| | 5.2 | Relevant user manuals |
| 6. Methods of assessment | 6.1 | Demonstration with oral questioning |
| | 6.2 | Direct observation |
| | 6.3 | Written test |
| | 6.4 | Portfolio |
| | 6.5 | Log book |
| 7. Context of assessment | 7.1 | Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Unit Code and Title | ITSUP3012A1: Apply the concept of digital electronics to computer and network system | |
| Nominal Hours | 50 hours | |
| Unit Descriptor | This unit of competency covers the knowledge, skills and attitude to use basic mathematical functions in digital electronics | |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables | |
| 1. Follow OSH practices, and electronic safety in work | 1.1 | PC equipment is isolated from electrical source when assembling |
| | 1.2 | Electrostatic discharge precautions are observed all time |
| | 1.3 | Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed |
| 2. Convert number system | 2.1. | Number system is determined for conversion |
| | 2.2. | Number system used in computer are interpreted |
| | 2.3. | The quantity of specific number system is converted to target number system |
| 3. Use arithmetic operations | 3.1. | The appropriate arithmetic functions selected |
| | 3.2. | Selected arithmetic functions are performed on binary and hexadecimal number system |
| 4. Use logical operations | 4.1 | Logic gates are interpreted |
| | 4.2 | Logical operations are selected |
| | 4.3 | Binary data is processed using logic circuits |
| | 4.4 | Logical operations on binary and hexadecimal number system are interpreted |
| 5. Calculate quantity in digital system | 5.1 | Arithmetic/Logical operations are selected |
| | 5.2 | Quantity is calculated using select operations |
| 6. Demonstrate digital logic circuit | 6.1 | Logic circuits are selected |
| | 6.2 | Truth table of logic circuit is verified |
| 7. Build an equivalent logic circuit | 7.1 | Electrical logic circuit is interpreted |
| | 7.2 | Equivalent logic circuit is built from truth table |
| | 7.3 | Equivalent logic circuit is prepared from logic operation |
| Range of Variables | | |
| Variable | Range (May include but not limited to) | |
| 1. Arithmetic operation | 1.1 | addition |
| | 1.2 | Subtraction |
| | 1.3 | multiplication and division |
| 2. Logical operation | 2.1. | AND |
| | 2.2. | OR |

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| | 2.3. NOT 2.4. NAND 2.5. NOR 2.6. XOR operations |
| 3. Number system | 3.1. Decimal 3.2. Binary 3.3. Octal 3.4. hexadecimal |
| 4. Target Number system | 4.1 Decimal to Binary 4.2 Binary to decimal 4.3 Decimal to Hexadecimal 4.4 Hexadecimal to Binary |
| 5. Logic circuit | 5.1 AND 5.2 OR 5.3 NOT 5.4 NAND 5.5 NOR 5.6 XOR gates and combination of these |
| 6. Calculation | 6.1 manual calculation 6.2 or use calculator |
| 7. Equipment | 7.1 Breath Board 7.2 Logic gates (AND, OR, XOR, NOT, NOR, XNOR) 7.3 LED 7.4 DC power supply 7.5 Multi-meter 7.6 Electric wires |
| 8. Tools | 8.1 Cutter 8.2 Nose Pliers 8.3 Scientific Calculator |
| 9. Legislation and Standards | 9.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Knowledge about different type of logic gates (AND,OR, NOT, NAND, NOR, XOR) |
| 2. Underpinning knowledge | 2.1. Binary/hexadecimal/octal number system 2.2. Boolean Logic 2.3. Logic gates 2.4. Arithmetic and logical Operations 2.5. De-Morgan's theorem |
| 3. Underpinning skill | 3.1. Convert one number system to another number system (binary to decimal, decimal to binary, Binary to hexadecimal, hexadecimal to binary, decimal to hexadecimal, hexadecimal to decimal) 3.2. Verifying the Truth table of logic circuit |

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| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.4 Relevant Tools, Equipment and physical facilities required to perform activities 5.5 Materials and consumables are related to the activities 5.6 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

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| Unit Code and Title | ITSUP3013A1: Use business & communicative English essential to IT support |
| Nominal Hours | 50 hours |
| Unit Descriptor | This unit of competency specifies the knowledge, skills and attitude required in English language for business and communication essential in IT support |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow OSH practices | 1.1 Safe work practice observed and PPE worn as required for the work performed. |
| 2. Participate IT interviews/meetings | 2.1. One to one and group interview/meeting is participated in 2.2. Essential notes are recorded 2.3. English vocabulary, correct pronunciation and syntax is demonstrated 2.4. Appropriate IT terms are used 2.5. Fluency in speaking English is demonstrated |
| 3. Conduct telephone conversation | 3.1. Telephone conversation is initiated or received 3.2. Basic courtesy formulas are demonstrated 3.3. Idiomatic expressions are used appropriately 3.4. Document conversation, complaints, disappointment, and or dissatisfaction etc. |
| 4. Identify client requirements from business documents | 4.1 Requirement are interpreted from client business documents 4.2 Requirements are reviewed |
| 5. Write & Present business documents | 5.1 <i>Business document</i> such as letters, email, resume, specifications etc. are written as per workplace standard 5.2 Business documents are prepared using presentation software. 5.3 Appropriate terms, phrases, and correct structure of the sentences are demonstrated. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Business Document | 1.1 Resume 1.2 business letters 1.3 Email 1.4 software documentation 1.5 presentation of business information 1.6 Manuals 1.7 system specification 1.8 tender documents 1.9 News |

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| | 1.10 Media 1.11 online documents 1.12 advertisements |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Participate in interviewing ,meeting. 1.2 Conduct telephone conversation with correct pronunciation. 1.3 Business documents are prepared using presentation software. |
| 2. Underpinning knowledge | 2.1. interviews/meetings 2.2. English vocabulary, correct pronunciation 2.3. Idiomatic expressions 2.4. business documents |
| 3. Underpinning skill | 3.1. Fluency in speaking English 3.2. Telephone conversation with Basic courtesy formulas 3.3. Business documents are prepared using presentation software. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities Relevant user manuals |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP3014A1: Use Product Documentation for IT support | |
| Nominal Hours | 30 | |
| Unit Descriptor | This competency unit specifies the knowledge, skill and attitude required to use of various product documentation to installation, configuration, troubleshoot of software and hardware product | |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables | |
| 1. Follow OSH practices | 1.1 | Safe work practice observed and PPE worn as required for the work performed. |
| 2. Identify product and management software | 2.1. | Product and its version is identified |
| | 2.2. | Management software (driver, admin, configuration) is identified |
| 3. Identify operating system and available product documentation | 3.1. | Operating system is identified under which the product will be used |
| | 3.2. | All available documentation of the product is identified according to the product version |
| 4. Determine the task or problem with the product and correct documentation related with the task | 4.1 | Task to be done or problem of use of the product is determined |
| | 4.2 | Correct documentation related to the task or problem is identified. |
| 5. Apply knowledge base system & the steps to complete the task or to solve the problem | 5.1 | Knowledge base system is used to clearly determine the steps in the actions |
| | 5.2 | All the steps in actions are applied in order to complete the task or to solve the problem |
| | 5.3 | Feedback of each actions are recorded and verified with the product documentation |
| | 5.4 | All the steps in actions are applied in order to complete the task or to solve the problem |
| | 5.5 | Feedback of each actions are recorded and verified with the product documentation |
| 6. Determine and record the side effect and report to the appropriate person | 6.1 | All side effects of the actions are determined and verified with product documentation |
| | 6.2 | Side effects of all the actions are recorded and preserved for the future use as the product extended documentation |
| | 6.3 | Side effects are reported to the appropriate person |
| Range of Variables | | |
| Variable | Range (May include but not limited to) | |

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| 1. Product | 2.3. Hardware 2.4. software |
| 2. Knowledge base system | 2.1. Online search facilities of the product documentation 2.2. Help 2.3. FAQ 2.4. Blog 2.5. forum |
| 3. Task | 3.1. Installation 3.2. Upgrade 3.3. Replacement 3.4. Configuration 3.5. reconfiguration |
| 4. Steps | 4.1 Sequence of task to be done to complete a task or to solve a problem |
| 5. Side effect | 5.1 Change of system behaviour 5.2 performance |
| 6. Documentation | 6.1 Quick guide or manual 6.2 user guide or manual 6.3 Tutorials 6.4 white paper 6.5 online documents 6.6 FAQ 6.7 Forum 6.8 online documentation 6.9 license documentation |
| 7. Appropriate person | 7.1 Management of the organization 7.2 Client 7.3 customer |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Identify product and management software 1.2 Correct documentation related to the task 1.3 Side effects of all the actions |
| 2. Underpinning knowledge | 2.1. Product and its version 2.2. Management software 2.3. correct documentation related with the task 2.4. knowledge base system 2.5. side effects of the actions are determined and verified with product documentation |
| 3. Underpinning skill | 3.1. Management software is identified 3.2. All available documentation of the product is identified 3.3. Correct documentation related to the task or |

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| | <p>problem is identified.</p> <p>3.4. All the steps in actions are applied in order to complete the task or to solve the problem</p> <p>3.5. Determine and record the side effect and report to the appropriate person</p> |
| 4. Required attitude | <p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p> |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities Relevant user manuals |
| 6. Methods of assessment | <p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p> |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| <p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p> | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP4015A1: Install and configure Client-Server Network |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit specifies the knowledge, skill and attitude required to create a Client-Server network based on windows environment with basic network devices. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | Safe work practices observed and personal protective equipment (PPE) worn as required for work performed. |
| 2. Analyze hardware and software requirements | 2.1. Requirements identified according to the information gathered from client. 2.2. Logical diagram prepared according to the client requirements 2.7. Hardware and software for the network requirements identified as appropriate 2.8. Required component, tools and equipments are identified and listed 2.9. Materials and consumables are identified listed 2.10. Budget is prepared and documented for Client-Server network as per Requirements 2.11. Budget is send to appropriate person for approval as per workplace practice |
| 3 Design Hardware and network architecture | 3.1. Physical elements of the network system identified as appropriate 3.2. Network system design architecture prepared and documented according to the identified requirements 3.3. |
| 4. Collect tools equipments materials and end user (PC) | 4.1 Equipment fixed as per technical specifications. 4.2 tools and equipment are selected and collected from vendor 4.3 Materials and consumables are collected 4.4 End user (PC) are collected as required |
| 5. Install and Configure Windows Server | 5.1 Windows Server (Operating system) is installed. 5.2 File server is configured. 5.3 User's are created with policies (Read, Write and full) |
| 6. Install and Configure network | 6.1 Network design are implemented. 6.2 Equipment connected to the network and configured as per the technical specifications. 6.3 vlan are created as per specification. 6.4 Assigned IP address in Network interface card and default vlan interface. 6.5 Inter-vlan routing is configured. 6.6 Documents and file sharing setting are confirmed |

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| | 6.7 Windows remote desktop are allowed 6.8 Software are installed to client pc from server. 6.9 Access requirements are determined and sharing is confirmed |
| 9 Test Client-Server network | 8.1 Ping to gateway 8.2 Ping between two computers 8.3 tracert between pc and server is confirmed 8.4 Conduct file sharing between two computer 8.5 Ping loop-back address (127.0.0.1) is checked |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Tools and equipment | 2.4. Crimping tools 2.5. UTP cable 2.6. Cable tester |
| 2. Component | 3.1 Switch(Manageable) 3.2 Router 3.3 patch cord 3.4 console cable |
| 3 Materials and consumables | 4.1 Rj-45 connector 4.2 UTP cable |
| 4 Software | 5.1 antivirus 5.2 Winrar 5.3 browser 5.4 Operating system(windows server, windows 7 or upper version) |
| 5. Legislation | 5.2 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments |
| Evidence Guide | |
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Tools equipment & Materials. 1.2 Configure Local Area Network 1.3 Test Local Area Network |
| 2. Underpinning knowledge | 2.1. Network theory and practical design fundamentals 2.2. Operating system fundamentals 2.3. Basic knowledge about LAN, vlan and inter-vlan routing. 2.4. Hardware and software requirements for networking 2.5. Current trends in networking and systems engineering 2.6. Security aspects such as firewalls, virus protection and access control fundamentals 2.7. Knowledge about ping, local/remote loopback 2.8. Computer Network, link layer protocol, TCP/IP protocol and addressing 2.9. Patch cable configuration 2.10. description of subnet mask, host name 2.11. 2.12. |

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| 3. Underpinning skill | 3.1. conduct ping operation 3.2. local/remote loop-back 3.3. Computer operation skills 3.4. Ability to use network system design and diagramming tools 3.5. Communication skills 3.6. Ability to make cost estimates |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.4 Relevant Tools, Equipment and physical facilities required to perform activities 5.5 Materials and consumables are related to the activities 5.6 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.6 Demonstration with oral questioning 6.7 Direct observation 6.8 Written test 6.9 Portfolio 6.10 Log book |
| 7. Context of assessment | 7.2 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP4016A1: Provide basic system administration |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit specifies the knowledge, skills and attitude to manage system users and groups, system backup and restore, resource sharing and access control to directories and files of client machine |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practices observed and personal protective equipment (PPE) worn as required for the work performed. |
| 2. Determine security access plan | 2.1. Organization requirements for security access plan for clients are documented 2.2. Current security access status is reviewed 2.3. Detailed work plan is documented for security access for clients of the organization |
| 3. Mange User and group | 3.1. Group account is created 3.2. Group account security access control is modified 3.3. Network or standalone user accounts with account details is created 3.4. Password assigned to user account 3.5. User account group membership is modified 3.6. User account access control is modified 3.7. User account and password detail issued to the client 3.8. User account details, access control are recorded for future auditing |
| 4. Manage system back-up | 4.1 Files and directories or full system is identified for back-up according to organizational requirement 4.2 Based on organizational requirement back-up schedule is determined or reviewed 4.3 Back-up of files and directories or full system is carried out according to the schedule 4.4 Back-up labeled with date time according to the organizational guideline 4.5 Back-up is stored and recorded according to organizational guidelines |
| 5. Manage system restore | 5.1 Restore steps are determined and tested according to organizational guidelines 5.2 Back-up is restored in presence of appropriate |

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| | person according to organizational guidelines restore is recorded |
| 6. Manage sharing of resources and access control | 6.1 According to organizational requirement share name of a resource is assigned 6.2 Resource sharing is done 6.3 Access control and permission to use shared resource is assigned or modified according to the organizational guidelines |
| 7. Apply security access control to system resources | 7.1 Operating system access control on file system and other resources are determined 7.2 Security access control is modified on file system, services of server or standalone machine according to organizational guidelines |
| 8. Manage basic network threats | 8.1 Network threats are identified 8.2 Anti-virus (including network adware, spyware detection) software is installed. 8.3 Ensure Antivirus is updated 8.4 Unsecured network switch port is blocked. |
| 9. Create list for legal and illegal use of the software | 9.1 List of licensed software used in organization is identified and verified 9.2 License and licensed software are listed 9.3 Use of illegal software is listed and verified 9.4 List of illegal software is reported to the appropriate person |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Access control | 1.1 Open 1.2 Read 1.3 Write 1.4 execution control |
| 2. License | 2.1. proprietary software licenses 2.2. GNU General Public License (GPL) 2.3. permissive licenses |
| 3. Appropriate person | 3.1. organisational management authority |
| 4. Resource | 4.1 files, directories, printer, scanner, modem, internet services, software |
| 5. System back up | 5.1 file system of a server or standalone computer |
| 6. Client | 6.1 User of the resources not limited to internal staff |
| 7. Server | 7.1 Provided services to networked computer, client software |
| 8. Services | 8.1 file service 8.2 print service 8.3 email service 8.4 authentication service 8.5 DNS 8.6 web service |

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| 9. Network threats | 9.1 Virus 9.2 Worm 9.3 Trojan Horse 9.4 Phishing 9.5 Packet Sniffer |
| 10. Details work plan | 10.1 List of work to be done for security access control 10.2 List of work to be done for network threats. |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Access of different user restriction 1.2 System back up 1.3 Password memorizing 1.4 Resource sharing 1.5 Server service 1.6 License software 1.7 Network threats |
| 2. Underpinning knowledge | 2.1. Backup of files 2.2. File system 2.3. Access and security attributes 2.4. Computer resources 2.5. Software copyright and licenses 2.6. Client and Server software platform 2.7. Basic understanding of system backup and restore 2.8. Network threats |
| 3. Underpinning skill | 3.1. Group account create 3.2. Password assigned for user account 3.3. Backup files 3.4. Services of server. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities Relevant user manuals |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |

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| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Code and Title | ITSUP4017A1: Troubleshoot Computers & Networks |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit covers the knowledge skill, and attitude to diagnose computer and network faults and troubleshoot in a systematic way. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practices observed and personal protective equipment (PPE) worn as required for work performed. |
| 2. Gather information from networks and computers to assist the identification of a fault | 2.1. Network design, support and maintenance documents are reviewed 2.2. Computer manuals and maintenance documents are reviewed |
| 3. Identify the fault | 3.1. Appropriate person is interviewed about the problem 3.2. The problem scenarios is Analyzed using diagnostic tools |
| 4. Identify the Solution | 4.1 Appropriate person (if required) is consulted and solution is identified 4.2 Repair or Replacement of hardware equipment cost is calculated and approved from the appropriate person |
| 5. Repair or replace faulty equipment/software components | 5.1 Faulty hardware equipment or software component is repaired or replaced 5.2 Repaired/replaced equipment is tested 5.3 Network activity is tested. |
| 6. Update document | 6.1 Network and Computer maintenance and troubleshooting document are updated |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Repair | 1.1 Repair network cable 1.2 Connectivity 1.3 Reconfiguration switch 1.4 Router and gateway 1.5 Update software |
| 2. Replacement | 2.1. replacement of network card |

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| | 2.2. cable 2.3. Switch 2.4. Router 2.5. Wireless access point 2.6. Modem 2.7. Software 2.8. mother board components |
| 3. Diagnosis | 3.1. software and hardware of computer and network using diagnostic tools |
| 4. Appropriate person | 4.1 person responsible for network 4.2 management of the organization |
| 5. Network and cabling | 5.1 LAN, MAN, WAN, Network connected to Internet 5.2 Cross cable, straight-through, console and roll over. |
| 6. Computer | At least three computer connected to network |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 8. Critical aspects of competency | 1.1 Safe work practice observed and personal protective equipment (PPE) worn as required for the work performed 1.2 Verified properly installed hardware and driver. 1.3 verified existing network environment |
| 9. Underpinning knowledge | 2.1. Network Design 2.2. Network Transmission media 2.3. Network Card 2.4. Network cable 2.5. Network diagnostic tools (if not available in OS) ping, traceroute/tracert, iptraf, snmp tools 2.6. TCP/IP software IPv4, Ipv6, IPX/SPX (if not available in OS) 2.7. ESD Tool box |
| 10. Underpinning skill | 3.1. conduct ping operation 3.2. local/remote loop-back 3.3. Faulty hardware equipment or software component is repaired or replaced 3.4. Using diagnostic tools the fault needs to be identified |
| 11. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness |

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| | 4.7 | Respect for rights of peers and seniors in workplace |
| | 4.8 | Communication with peers, sub-ordinates and seniors in workplace |
| 12. Resource implication | 5.1 | Relevant Tools, Equipment and physical facilities required to perform activities Relevant user manuals |
| 13. Methods of assessment | 6.1 | Demonstration with oral questioning |
| | 6.2 | Direct observation |
| | 6.3 | Written test |
| | 6.4 | Portfolio |
| | 6.5 | Log book |
| 14. Context of assessment | 7.1 | Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP4018A1: Install software to networked computer |
| Nominal Hours | 40 hours |
| Unit Descriptor | This unit cover the knowledge, skills and attitude to plan, manage, support and install software in networked computer according to client/organizational need/guidance |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practice observed and PPE worn as required for the work performed. |
| 2. Determine software requirements | 2.1. According to organization or client plan or requirements list of software is documented 2.2. Analyze the list of software and dependency on other software is also included in the list 2.3. Software licenses cost (if required) is determined 2.4. Installation plan is documented 2.5. Installation plan, budget is approved from the appropriate persons of organization |
| 3. Collect required software | 3.1. Required software is downloaded from the software repository or collected from the appropriate vendor |
| 4. Install software to the networked computer | 4.1 Important system data and configuration files are backed up (if required) period to the new 4.2 According to the approved installation plan (1.5) software is installed to the networked computer 4.3 In the installation procedure organization/client guidelines are followed at all times 4.4 Installation disk and licenses are stored in an appropriate place 4.5 Installation procedure is documented |
| 5. Tuning the software configuration | 5.1 Parameter and configuration of the software is optimized for better performance |
| 6. Determine and provide instruction to the client | 6.1 Instructions from the software manual or user guidelines are documented 6.2 Appropriate person in the organisation is reported to if training is required |
| 7. Provided post installation support and maintenance | 7.1 Long term support and maintenance plan along with budget is documented and submitted to the organization for approval |

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| | 7.2 After approval of organization the support and maintenance plan is preserved for future use |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Software | 1.1 Office packages 1.2 Utilities 1.3 anti-virus 1.4 system software 1.5 network tools 1.6 audio/video tools 1.7 development tools 1.8 graphics applications 1.9 database applications 1.10 internet browser 1.11 operating system components 1.12 customized software |
| 2. Software repository | 2.1. open source software repository with GPL, Microsoft |
| 3. Vendor | 3.1. software manufacturer or their licensed agents |
| 4. Maintenance | 4.1 May include diagnosis for possible fault detection of installed software and repair and upgrade or re-installation of software |
| 5. Networked Computer | 5.1 Computer connected to LAN, WAN, MAN, Internet |
| 6. Long term support | 6.1 Post installation maintenance and support for one or more years |
| 7. Appropriate person | 7.1 Organisation head or section head or responsible management personnel |
| 8. Legislation | 8.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments. |
| Prerequisite <ul style="list-style-type: none"> • install and configure PC components • Maintain equipment and software in working order | |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Purpose and functions of operating system 1.2 Install and Operating System 1.3 Install and optimize utility Software |
| 2. Underpinning knowledge | 2.1. Basic knowledge of computer OS 2.2. Basic knowledge of software application |

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| | 2.3. Basic knowledge of PC Network TCP/IP 2.4. Basic knowledge of software repository. |
| 3. Underpinning skills | 3.1. Handling tools and equipments 3.2. Installing software's 3.3. Configuring Networks 3.4. Accessing software repository |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.7 Relevant Tools, Equipment and physical facilities required to perform activities 5.8 Materials and consumables are related to the activities 5.9 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP5019A1: Provide defence systems for Network threats |
| Nominal Hours | 50 hours |
| Unit Descriptor | This unit of competency specifies the required knowledge, skills and attitude to understand network threats and possible measures to defend the system from network threats |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow OSH practices | 1.1 Safe work practice observed and PPE worn as required for the work performed. |
| 2. Identify a variety of network security threats | 2.1. A variety of network <i>security threats</i> and their possible effect to the system are identified. |
| 3. Prepare system defence from network threats | 3.1. Anti-virus (including network adware, spyware detection) software is installed. 3.2. Firewall is configured in client and server machine 3.3. DNS, mail, web and other servers are configured. 3.4. Unsecured network port is blocked. 3.5. Network equipment (router, switch, mikrotik) is protected 3.6. Access privilege (0-15) and user management are enabled |
| 4. Observe and identify network security incident | 4.1 Network (TCP/IP) <i>ports, system logs</i> are monitored regularly using various tools 4.2 System for unexpected behaviour or anything suspicious is observed. 4.3 Network security incidents are identified |
| 5. Analyse and characterize security incident. | 5.1 Security incidents are analysed and types of <i>threats</i> are determined |
| 6. Determine possible solution | 6.1 Available documents are consulted to determine the possible solution 6.2 National and International <i>CERT's</i> (computer emergency response teams) are consulted 6.3 Software bugs are reported to appropriate personnel. |
| 7. Remove or minimize the network security threat | 7.1 Possible solution is implemented and security updates are applied. 7.2 <i>Appropriate person</i> is informed. |
| 8. Record incident and action taken | 8.1 All network security incidents and possible solutions are recorded and preserved for future use |

| Range of Variables | |
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| Variable | Range (May include but not limited to) |
| 1. Security Incident/threat | 1.1 Virus 1.2 Worm 1.3 Malware 1.4 Spyware 1.5 trojan horse 1.6 DoS attack 1.7 DDoS attack 1.8 DNS tampering 1.9 spam in mail 1.10 Website forgery 1.11 Adware 1.12 Bot 1.13 Bad intention of user |
| 2. Port | 2.1. TCP/IP port – communication end point, used for network services/application in server and in client machine |
| 3. CERT | 3.1. Computer Emergency Response Team |
| 4. Log | 4.1 System logs 4.2 Mail log 4.3 http log 4.4 DNS log/cache 4.5 Syslog server 4.6 audit log 4.7 other software specific log 4.8 firewall log messages |
| 5. Software bug | 6.1 Software contains code bugs 6.2 buffer management bugs 6.3 memory allocation bugs |
| 6. Appropriate person/developer | 7.1 Management of the organization 7.2 Developers 7.3 software vendor 7.4 clients |
| Evidence Guide | |
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Manage different server service installation 1.2 Maintain network security 1.3 Choose appropriate person for network security threat |
| 2. Underpinning knowledge | 2.1 Servers like Linux, DNS, Mail, Web 2.2 Antivirus 2.3 Spyware 2.4 Firewall |

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| | 2.5 Network Port 2.6 TCP/IP port 2.7 Threats |
| 3. Underpinning skill | 3.1 Antivirus software installation 3.2 Firewall is configured 3.3 DNS, Web, Mail server installation 3.4 Unsecure Network port blocking 3.5 Monitor System logs. 3.6 Security updates are applied. |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | 5.1 Relevant Tools, Equipment and physical facilities required to perform activities Relevant user manuals |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP5020A1: Manage Cyber centre services |
| Nominal Hours | 30 hours |
| Unit Descriptor | This unit of competency specifies the required knowledge, skills and attitude to manage cyber centre and use various tools for smooth operation of cyber centre |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow OSH practices | 1.1 Safe work practice observed and PPE worn as required for the work performed. |
| 2. Develop cyber centre accounting and billing policy | 2.1. Cyber centre accounting and billing policy is developed |
| 3. Identify, Determine, login policy and tools for cyber centre management | 3.1. Cyber centre management tools are identified 3.2. Centralized login policy and tools for login is determined |
| 4. Implement billing policy, Generate reports of usages of cyber centre resources and Protect illegal uses of cyber centre resources | 4.1 Use of computer, internet and other equipment accounting and billing tools are determine 4.2 Cyber centre billing policies are implemented 4.3 Customer usage report of cyber centre resources are generated using cyber centre management tools 4.4 Day to day/weekly, monthly or annual report is generated using cyber centre management software 4.5 Illegal use of cyber centre resources are identified 4.6 Loophole for possible forgery is determined and analyzed 4.7 Related software or hardware documents are consulted to find out the cause of problems 4.8 Possible solutions are identified 4.9 Cyber center resources are protected from illegal uses |
| 5. Maintain, Monitor, standalone security and defence system from network threats | 5.1 Antivirus is used to maintain standalone security 5.2 Firewall, port block, anti-spyware, anti-malware software is used to defend system from network threats. 5.3 Customer privacy is protected when monitoring customer activities 5.4 Cyber centre resources are monitored for identify possible security flaws 5.5 Serious security matters are reported to |

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| | <i>appropriate person</i> |
| 6. Troubleshoot computer, network, software and update documents | 6.1 Malfunctioning of the computer, network and other equipment is identified and analyzed 6.2 Available documentation is consulted to understand and to identify possible remedy of the problems 6.3 Equipment or software is replaced, reconfigured or updated to solve the problem 6.4 All the problems and solution are recorded and preserved for future use |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Equipment | 1.1 Printer 1.2 Webcam 1.3 Headphone 1.4 Scanner 1.5 PC |
| 2. Tools | 2.1. Cyber centre management software 2.2. PPPOE 2.3. Database 2.4. AAA, radius authentication server 2.5. LDAP active directory 2.6. Samba 2.7. web proxy |
| 3. Resources | 3.1. Computer 3.2. Printer 3.3. Scanner 3.4. internet bandwidth |
| 4. Appropriate person | 4.1 Top management 4.2 upstream management 4.3 Client |
| 5. Agency | 5.1 Law enforcement authority |
| 6. License | 6.1 GPL 6.2 Proprietary 6.3 permissive |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Cyber centre management roles 1.2 Cyber centre accounting and billing policy |
| 2. Underpinning knowledge | 2.1. Malfunctioning of the computer, network and other equipment 2.2. Identified Cyber center management tools |

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| 3. Underpinning skill | Maintain, Monitor, standalone security and defence system from network threats |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.10 Relevant Tools, Equipment and physical facilities required to perform activities 5.11 Materials and consumables are related to the activities 5.12 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP5021A1: Set-up and Expand networks |
| Nominal Hours | 50 hours |
| Unit Descriptor | This unit covers the knowledge, skills and attitude to plan, design, deploy and expand computer networks. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Follow workplace health and safety - OSH | 1.1 Electrical isolation is maintained at the time of installation of the network equipment 1.2 Electrical hazard is avoided at all times 1.3 Safe work practice are observed and personal protective equipment (PPE) worn and required for the work performed |
| 2. Gather organizational requirements to set-up a new or expand an existing network | 2.1. Organizational requirements to set-up a new or expand an existing network are collect 2.2. Existing network design is reviewed for expansion of the network 2.3. Collected information is documented |
| 3. Design and plan to establish a new network or expand an existing network | 3.1. Collected information (in 2.3) are analyzed and a network design plan is devised. 3.2. Network design plan is reviewed and approved from the appropriate person of the organization 3.3. Required equipment and tools are listed and estimated budget calculated and documented 3.4. Estimated budget and required equipment list are discussed with and approved by the appropriate person |
| 4. Establish a new network or expand the existing network | 4.1 According to the approved network design plan new network or an existing network is deployed 4.2 If Internet is in the plan, network is connected to the internet 4.3 Servers and client computers are connected to the network 4.4 Network diagnostic tools are installed for network testing |
| 5 Test newly established network or an expanded existing network | 5.1 Using network diagnostic tools, network is tested 5.2 Congestion of the network is observed 5.3 Reachability to Internet (if available) is tested |
| 6. Devise and document the network maintenance and support plan | 6.1 Network maintenance plan is completed. 6.2 Network maintenance plan is approved by the appropriate person or from the organization |

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| | 6.3 | Approved network maintenance plan is documented |
| | 6.4 | Support plan for the network is documented |
| 7. Develop new network documents. | 7.1 | Old documentation of the existing network is modified |
| | 7.2 | Network design plan for newly established network is recorded |
| | 7.3 | User manual for the network is prepared. |
| Range of Variables | | |
| Variable | Range (May include but not limited to) | |
| 1. Design plan | 1.1 | network topology |
| | 1.2 | protocol to be use |
| | 1.3 | address plan |
| | 1.4 | IP routing |
| | 1.5 | NAT, PAT |
| 2. Network | 2.1. | LAN |
| | 2.2. | MAN |
| | 2.3. | WAN |
| | 2.4. | Wireless LAN, Y-MAX |
| | 2.5. | Intranet or Internet |
| | 2.6. | Campus wide network |
| 3. Organizational requirements | 3.1. | target and requirements for networking purpose |
| 4. Appropriate person | 4.1 | responsible person of an organisation, |
| 5. Equipment (hardware and software) | 5.1 | switch (Layer 2 and Layer 3) |
| | 5.2 | router |
| | 5.3 | edge modem |
| | 5.4 | Modem |
| | 5.5 | Bridge |
| | 5.6 | network interface card |
| | 5.7 | network cable |
| | 5.8 | optical fibre |
| | 5.9 | media converter |
| | 5.10 | Connectors |
| | 5.11 | PC |
| | 5.12 | Server |
| | 5.13 | wireless access point |
| 6. Server | 6.1 | Payment Gateway |
| | 6.2 | network server |
| | 6.3 | proxy server |
| | 6.4 | DNS server |
| | 6.5 | web server |
| | 6.6 | ftp server |
| | 6.7 | NFS server |
| | 6.8 | directory server |
| | 6.9 | File server |
| | 6.10 | Mail server |
| | 6.11 | Samba server |
| | 6.12 | VAS server |

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| | 6.13 | iSCSI server |
| 7. Diagnostic tools | 7.1 7.2 7.3 7.4 7.5 7.6 | ifconfig/ipconfig Wireshark Snmp Ping Traceroute Dig |
| 8. Reachability | 8.1 | Packet or data flow to and from one computer to another computer with in network or with in Internet |
| 9. Congestion | 9.1 | Packet loss occurs when switch or router cannot handle high density of packet beyond capacity waiting for get serviced |
| 10. Client Computer | 10.1 | Personal computer connected to network |
| 11. Deploy | 11.1 11.2 11.3 11.4 11.5 11.6 11.7 11.8 11.9 | laying cables preparing patch cord using cable manager switch installation configuration of switch configuration of routing IP address assignment establish NAT gateway Access-list, prefix-list. |
| 12. Legislation and Standards | 12.1 | The Copyright ACT 2005 National IT Policy and their subsequent amendments |

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

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| 1. Critical aspects of competency | 1.1 1.2 | Knowledge about Servers and client computers Knowledge about switch (Layer 2 and Layer 3) and router |
| 2. Underpinning knowledge | 2.1. 2.2. 2.3. 2.4. 2.5. | Network Routing and switching, bridge TCP/IP protocol and Addressing NAT, Gateway, Proxy, NFS, Directory server, NFS, http, ftp, SNMP Transmission media such as optical fibre, UTP, wireless |
| 3. Underpinning skill | 3.1. 3.2. | approved network design plan new network or an existing network is deployed Using network diagnostic tools, network is tested |
| 4. Required attitude | 4.1 4.2 4.3 4.4 | Commitment to occupational health and safety Promptness in carrying out activities Sincere and honest to duties Environmental concerns |

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| | 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Materials and consumables are related to the activities 5.3 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP5022A1: Manage IP addresses, Routing and Switching |
| Nominal Hours | 170 hours |
| Unit Descriptor | This unit of competency specifies the knowledge, skill and attitude required to manage and understand IP address and configuration of router using basic routing concepts. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Identify and Calculate IP addresses | 1.1 IP address notation is identified (IPv4 and IPv6) 1.2 Hierarchy of IP address such as prefixes, host ID and network ID is identified 1.3 Distribution of IP addresses and their impact in Internet is identified 1.4 Use of private, public, reserved and loopback IP address are identified 1.5 Network IP address and role is clearly identified 1.6 Subnet mask/prefix, network IP and broadcast IP address is calculated from a range of IP address 1.7 IP address range is calculated from any IP address and prefix or network mask |
| 2. Assign static IP and dynamic IP address to computer | 2.1. IP address, prefix/subnet mask are determined from a valid range of IP addresses and assigned to a computer 2.2. Using Internet control message protocol (ICMP) tool assigned IP address is tested 2.3. A pool of IP addresses is assigned and DHCP/BOOTP server is configured for dynamic assignment of IP address to computer 2.4. Client computer DHCP/BOOTP client is configured for dynamic assignment of IP address 2.5. Using ICMP tools assigned IP address is tested |
| 3. Determine link layer, host name/IP address of a device and role of routing | 3.1. Using ARP tools link layer address is determined from a known IP address 3.2. Using RARP tools IP address is determined |

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| table and switching | <p>3.3. from a known link layer address</p> <p>3.3. Using DNS tools e.g. dig from a FQDN name, IP address of host is determined</p> <p>3.4. Using DNS tools e.g. dig from a IP address, FQDN name of host is determined</p> <p>3.5. Routing table and key role of each field is determined.</p> <p>3.6. Function of default gateway and specific gateway is determined.</p> <p>3.7. Functions of Switching are determined</p> |
| 4. Determine routing table and switching | <p>4.1 Workplace network, IP address, Gateway, AD value information is collected</p> <p>4.2 Routing table entries are determined</p> <p>4.3 Load Balancing (HSRP, VRRP, GLBP, EIGRP by using variance, BGP) are confirmed</p> |
| 5. Configure the router and Switch | <p>5.1 New route is added to the routing table</p> <p>5.2 Unnecessary or invalid route is deleted or updated summary route from routing table</p> <p>5.3 Switching configuration are determined</p> <p>5.4 Basic routing protocols (Static, RIP, EIGRP, OSPF, BGP.) are implemented</p> <p>5.5 VPN, DMVPN, Tunneling (GRE, IPsec, GRE over IPsec) are configured</p> <p>5.6 Metric calculation of EIGRP is calculated</p> <p>5.7 Cost Calculation of OSPF is calculated</p> <p>5.8 Path selection procedure of BGP is confirmed</p> <p>5.9 Route-map, IP-SLA, NBMA services are observed</p> <p>5.10 Basic switching functions (CAM table, VLAN, Inter-VLAN routing (by L3 switch) , Trunking method (ISL, 802.1q) are implemented</p> <p>5.11 STP, RSTP, MST, root-switch, BPDU guard, root guard, Ether channel, Stack switching, SPAN, RSPAN,ERSPAN, Virtual switching are configured</p> |
| 6. Optimize and Verify the router configuration | <p>6.1 New or updated routing table is tested using route trace and IP connectivity tools</p> <p>6.2 Performance degradation is determined for lost IP packet.</p> <p>6.3 Router configuration is optimized</p> <p>6.4 Configuration is verified according to the collected workplace information</p> |
| 7. Document the configuration | <p>7.1 Workplace specification for routing is documented</p> <p>7.2 Router configuration information is documented</p> |
| Range of Variables | |
| Variable | Range (May include but not limited to) |

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| 1. Routing | 1.1 Basic routing protocols e.g. Static, RIP, EIGRP, OSPF, BGP. 1.2 VPN, DMVPN, Tunneling (GRE, IPsec, GRE over IPsec) 1.3 Metric calculation of EIGRP 1.4 Cost Calculation of OSPF 1.5 Path selection of BGP 1.6 Route-map 1.7 IP-SLA 1.8 NBMA |
| 2. Switching | 2.1. Basic switching functions e.g. CAM table, VLAN, Inter-VLAN routing (by L3 switch) 2.2. STP, RSTP, MST, root-switch, BPDU guard, root guard 2.3. Trunking method (ISL, 802.1q) 2.4. Ether channel, Stack switching, SPAN, RSPAN, ERSPAN, Virtual switching |
| 3. Load Balancing | 3.1. HSRP 3.2. VRRP 3.3. GLBP 3.4. EIGRP(using variance) 3.5. BGP |
| 3. IP | 3.1. IPv4 and IPv6 |
| 4. Subnet Mask | 4.1 Network mask address used in IPv4, IPv6 |
| 5. Prefix | 5.1 Should be used for number of MSB bits fixed in IPv4 or IPv6 address specification for a network IP range |
| 6. Packet Loss | 6.1 IP packet loss for misconfiguration of router |
| 7. Route trace tools | 7.1 Traceroute 7.2 tracert |
| 8. IP connectivity tools | 8.1 Ping 8.2 Traceroute 8.3 tracer |
| 10. Legislation and standards | 10.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2005 National IT Policy and their subsequent amendments |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Basic knowledge about routing protocols 1.2 Basic switching functions |
| 2. Underpinning knowledge | 2.1. Assign static IP and dynamic IP address to computer 2.2. Network mask address used in IPv4, IPv6 |

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| 3. Underpinning skill | 3.1. Router configuration is optimized 3.2. Load Balancing is implemented |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.4 Relevant Tools, Equipment and physical facilities required to perform activities 5.5 Materials and consumables are related to the activities Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
| 7. Context of assessment | 7.1 Competencies may be assessed in the work place or a simulated work place |
| Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB. | |

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

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| Unit Code and Title | ITSUP1023A1: Apply basic data storage concept |
| Nominal Hours | 50 hours |
| Unit Descriptor | This unit of competency specifies the knowledge, skills and attitude required to apply basic data storage concept and management of data storage system. |
| Elements of Competency | Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables |
| 1. Collect information, Identify and plan for storage requirement of workplace | 2.1. Storage requirement of workplace is collected and documented 2.2. According to workplace information type and amount of storage is identified 2.3. Storage system implement plan is revised |
| 2. Identify type of storage, Prepare and deploy storage media | 4.1 Type of storage is identified according to workplace policy 4.2 Storage media is identified 4.3 Storage media is prepared for data storage according to the plan 4.4 Data storage system is deployed |
| 3. Plan, prepare and deploy backup storage | 6.1 According to workplace policy a plan is made for backup storage 6.2 Backup system is selected and prepared according to the plan 6.3 Backup storage is deployed |
| 4. Monitor, analyse, tune performance and upgrade data storage and backup storage system | 8.1 Performance of the data storage and backup storage system is monitored and analyzed. 8.2 Configuration is adjusted if performance degradation is identified 8.3 Existing data storage and backup storage is upgraded |
| 5. Complete documents | 10.1 Data storage plan, backup storage plan, configuration and deployment process is documented and preserved for future use. |
| Range of Variables | |
| Variable | Range (May include but not limited to) |
| 1. Type of storage* | 1.1 SAN 1.2 NAS 1.3 Customized RAID system 1.4 Non-RAID 1.5 Stable storage |
| 2. Storage media | Hard disk: 2.1. USB Storage 2.2. NAS |

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| | 2.3. Tape 2.4. optical disk 2.5. Disaster recovery centre |
| 3. Prepare | 3.1. partitioning of media 3.2. formatting of media 3.3. file system creation (NTFS, EXT4) 3.4. network connectivity |
| 4. Deploy | 4.1 Implementation which involves required hardware and software installation 4.2 Configuration 4.3 initialization of storage system |
| 5. Workplace policy | 5.1 Instructions 5.2 Policy 5.3 motivation given by the organisation, |
| 6. Type of backup system | 6.1 incremental or plain backup for standalone or network storage system |
| 7. Upgrade | 7.1 adding new storage media to the existing storage system 7.2 replace faulty media 7.3 storage media software up-gradation, changing in configuration file |
| 8. Degradation | 8.1 Performance of the storage system is degraded or not as expected due to mis-configuration, faulty storage or other faulty components |
| 9. Legislation and Standards | 9.1 Legislation relevant to this unit of competency standard include but not limited to the Copyright ACT 2000 National IT Policy and their subsequent amendments. |
| Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | 1.1 Knowledge about file system creation 1.2 type of storage, partitioning of media, formatting of media |
| 2. Underpinning knowledge | 2.1. Implementation which involves required hardware and software installation 2.2. Data storage policy |
| 3. Underpinning skill | 3.1. Configuration and initialization of storage system |
| 4. Required attitude | 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness |

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| | 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace |
| 5. Resource implication | Following resources must be provided- 5.1 Relevant Tools, Equipment and physical facilities required to perform activities 5.2 Materials and consumables are related to the activities 5.3 Relevant drawings, manuals, charts and diagrams |
| 6. Methods of assessment | 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book |
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