

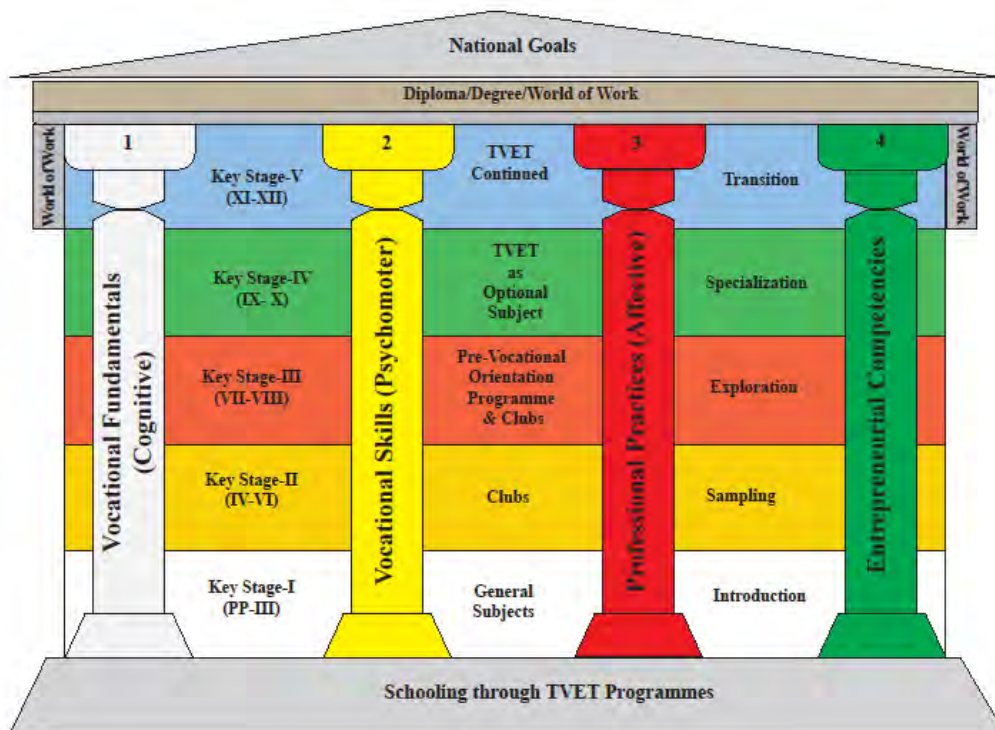
# TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

## NEW NORMAL CURRICULUM

### INSTRUCTIONAL GUIDE

#### (COMPUTER HARDWARE AND NETWORKING)

CLASS: X



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## FOREWORD

COVID-19 has suddenly caused unforgiving disruptions in the public education all over the world, and brought about threats of fragmentation due to disparities in accessibility and connectivity in many systems. In Bhutan too, continuity of education and learning has been severely affected as a result of nationwide school closures and due to restrictions and health protocols. The disruptions have led to challenges in many existing patterns and trends in education resulting in a massive shift away from learning and teaching in traditional settings with physical interactions to the maximum in terms of relevancy and efficiency. This has caused a major problem for children living in poverty worldwide, who often rely on the physical settings of their schools for educational materials, guidance, and, sometimes, the only decent meal of the day.

In the new normal education, human interaction and well-being is a priority. Technology, particularly digital technology that enables communication, collaboration and learning across distance, is a formidable tool – not a panacea but a source of innovation and expanded potentials. As we embrace this exceptional opportunity to transform the world, and as we reimagine the organization of our educational institutions and learning environments, we will need to think about where we want to go.

In the post COVID 19 era, we must prioritize the development of the whole person not just academic knowledge. Inspiration for the change can be drawn from the 1996 Delors report, *Learning the treasure within*, in its specification of four pillars of learning as “learning to know”, “to do”, “to be”, and “to live together”. Therefore, curricula must be increasingly perceived as an integrated and based on themes and problems that allows learners to learn to live in peace with our common humanity and our common planet. This has the potential in the development of a strong base of knowledge about one’s self and about the world and find purpose and be better able to participate in social and political milieu.

The New Normal Curriculum is, not just a mere response to the pandemic, but also a culmination of the curriculum reform work for the last four years by the Royal Education Council. It is an attempt to transform education from the teaching of “what” to learning of “how” and “why” towards empowering learners with the transversal competencies and the 21st century skills, and preparing them to be lifelong learners. We are optimistic that this move orients our education process towards nurturing nationally rooted and globally competent citizens.

Wish all our learners and teachers a life enriching experiential teaching and learning.

**Kinga Dakpa,**

**Director General**

## INTRODUCTION

Technical and Vocational Education and Training (TVET) is education and training which provides knowledge and skills for employment. It comprises of education, training and skills development related to a wide range of occupational fields, production, services and livelihood. The Royal Education Council and Ministry of Education envisage that the TVET curriculum has a place in the mainstream education system, as it is the case in most of the education systems of the developed world. The formal Technical and Vocational Education and Training (TVET) began in 1965 at Don Bosco Technical School (DBTS), in Kharbandi (presently known as Rinchening) in Phuntsholing. Even after that, major curriculum reform was planned by the then Department of Curriculum Research and Development (DCRD) under the Ministry of Education in an attempt to make education relevant to the Bhutanese society through diversification of Secondary Education Curriculum in the schools, which included the introduction of TVET.

As per ‘National Education Framework’ developed collaboratively by the Royal Education Council (REC) and the Ministry of Education (MoE), it provides a pathway on integrating technical/vocational education in the mainstream school education curriculum and as elective subjects in higher classes (NEF, 2009; page 64).

With the collaborative efforts of the Ministry of Labour and Human Resources and the erstwhile Department of Curriculum Research and Development under Ministry of Education, Vocational Curriculum has been introduced in the schools with assistance from TTIs since 2011. After the first MoU that was signed between MoE and MoLHR in 2011, the second MoU was signed again in 2014, to improve technical/vocational courses. The technical/vocational courses offered by the TTIs/IZCs are adapted and redesigned and are offered in schools aligning to the ‘Bhutan Education Blue Print’ 2014-2024, which recommends upscaling and diversification of TVET in schools through the provision of alternative pathways in schools and the tertiary education systems, owing to the limited access to such courses, despite the growing demand for technical skills in the country.

The resolutions of the National School Curriculum Conference 2016, also strongly emphasised the need to upscale and deepen TVET. Accordingly, the TVET framework is developed from classes PP to XII, schools equipped with necessary resources and instructors trained. Tripartite MoU among REC, MoE and MoLHR was also signed in 2018 to implement the programmes collaboratively.

Although the TVET curriculum is competency based with more emphasis on hands-on experience, further improvements have been made taking care of cognitive and affective domains besides psychomotor. Teaching and learning approaches have also been enriched with the recommendation to use ICT and online resources. Since the pandemic (COVID-19) has resulted in the closure of schools, it has taught us lessons to be prepared for such an untoward situation in the future. Thus, the New Normal Curriculum Instructional Guide is prepared not only to encourage blended learning but also to facilitate remote learning. Thus, the guide would help the schools to implement the curriculum effectively without limiting to contact teaching/learning besides using a variety of pedagogies.

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**MODULE 1: PERFORMING INSTALLATION AND CONFIGURATION OF  
COMPUTER SYSTEM AND DEVICE**

**Chapter 4: Performing PC Assembly**

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
4.7.1. State functions of HDD. 4.7.2. Explain the size and capacity of storage drive. 4.7.3. Label parts of the HDD. 4.7.4. <i>Ensure to plug cables in designated ports.</i> 4.7.5. <i>Ensure to use antistatic wristband while installing HDD.</i> 4.7.6. <i>Install HDD</i>	<b>4.7 Installing Hard disk drive (HDD)</b>

**B. Competencies:**

- Install HDD when HDD fails to work or upgrading the drive capacity.

**C. Pedagogy/Learning Experiences**

**Contact:**

- Let the learners read INFORMATION SHEET 4.7
- Let the learners explore information on the types of hard disk drivers and its size. Make note of it.
- Demonstrate OPERATION SHEET 4.7
- Let the learners perform OPERATION SHEET 4.7
- Let the learners solve SAMPLE SELF SHEET 4.7
- Provide additional questions.

**Non-contact:**

- Let the learners read INFORMATION SHEET 4.7
- Provide handouts and PPT through Google Classroom/social media.

- Share the web link <https://www.youtube.com/watch?v=f2kcJH8ASN8&t=106s> to learn how to install a hard disk drive.
  - ✓ Let the learner make notes from the watched video.
  - ✓ Share their understanding or doubts with the teacher.
- Let the learners solve SAMPLE SELF CHECK 4.7.

**D. Assessment:**

**Contact:**

- Assess the learners while performing OPERATION SHEET 4.7 using rubric or checklist. Provide necessary feedback.
- Conduct class tests to assess their concept understanding on installing hard disk drives.

**Non-contact:**

- Assess the learner's notes uploaded in the Google Classroom using a checklist and provide necessary feedback accordingly.
- Assess the learner's response on SAMPLE SELF CHECK 4.7
- Assess the learner's answer submitted on Google Classroom/Social media using the rubric.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=f2kcJH8ASN8&t=106s> (Explanation on how to install HDD.)

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
4.8.1 Categorize types of optical drive. 4.8.2 Explain the jumper setting of optical drives. 4.8.3 Label the parts of optical drive. 4.8.4 <i>Ensure to plug cables in designated port.</i>	<b>4.8 Installing optical drive</b>

<p>4.8.5 <i>Ensure to use antistatic wrist band while installing optical drive.</i></p> <p>4.8.6 <i>Ensure screws are properly tightened.</i></p> <p>4.8.7 <i>Install optical drive</i></p>	
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**B. Competencies:**

- Install Optical drive when optical drive malfunctions or while upgrading

**C. Pedagogy/Learning Experiences**

**Contact:**

- Let the learners read INFORMATION SHEET 4.8
- Demonstrate OPERATION SHEET 4.8
- Let the learners perform OPERATION SHEET 4.8
- Let the learners solve SAMPLE SELF-CHECK 4.8
- Give additional questions.

**Non-contact:**

- Let the learners read INFORMATION SHEET 4.8
- Provide handouts.
- Share the web link <https://www.youtube.com/watch?v=Pc1lUgf0b7M> to learners which explains installing an optical drive.
  - ✓ Let the learner make notes from the watched video.
  - ✓ Let the learners explore on types of an optical drive and make note of it
  - ✓ Send the notes through google classroom or social media.
- Let the learners solve SAMPLE SELF CHECK 4.8

**D. Assessment:**

**Contact:**

- Assess the learners' performance on OPERATION SHEET 4.8 using the rubric.
- Assess the learners' response on SAMPLE SELF CHECK 4.8.



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**Non-contact:**

- Assess the learner’s work uploaded in the Google Classroom using a checklist and provide necessary feedback accordingly.
- Assess the learners’ response on SAMPLE SELF CHECK 4.8.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=Pc1lUgf0b7M> (Explanation on how to install different types of an optical drive.)

**A. Learning objectives/Broad theme / Strand/Chapter:**

<b>Learning objectives</b>	<b>Core concepts (Chapters/Topics)</b>
4.9.1 Define SMPS. 4.9.2 Classify types of SMPS and its connectors. 4.9.3 Locate internal components of SMPS. 4.9.4 State voltage rating of SMPS connectors. 4.9.5 <i>Ensure SMPS is connected with correct connections.</i> 4.9.6 <i>Ensure proper handling of tools and equipment.</i> 4.9.7 <i>Ensure connections are correct and firmly fixed.</i> 4.9.8 <i>Install SMPS</i>	<b>4.9 Installing Switch Mode Power Supply (SMPS)</b>

**B. Competencies:**

- Install SMPS when SMPS malfunction or upgrading

**C. Pedagogy/Learning Experiences****Contact:**

- Let the learner read INFORMATION SHEET 4.9
  - Demonstrate OPERATION SHEET 4.9
  - Let the learner perform OPERATION SHEET 4.9
-

- 
- Let the learners solve SAMPLE SELF CHECK 4.9

**Non-contact:**

- Let the learner read INFORMATION SHEET 4.9
- Provide handouts and PPT through google classroom/social media.
- Share the weblink: [https://www.youtube.com/watch?v=Q\\_NPF\\_4Kvc4&t=133s](https://www.youtube.com/watch?v=Q_NPF_4Kvc4&t=133s) and <https://www.slideshare.net/anishrockrdas/switch-mode-power-supply> to the learners which explain how to install SMPS/
- Let the learner explore types of SMPS and its connectors in the group (Group to be divided by a teacher and communication can be done within a group through social media) and make notes in a group. Send the notes through Google Classroom or social media.
- Let the learners solve SAMPLE SELF CHECK 4.9
- Provide additional questions.

**D. Assessment:**

**Contact:**

- Assess the learner's performance on OPERATION SHEET 4.9.
- Assess the learners' response on SAMPLE SELF CHECK 4.9.

**Non-contact:**

- Assess the learner's note submitted in the Google Classroom using a rubric and provide necessary feedback accordingly.
- Assess the learners' response on SAMPLE SELF CHECK 4.9.
- Assess the learner's conceptual understanding of installing SMPS base on the answers submitted in google classroom/social media.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
  - Handouts
-

- 
- [https://www.youtube.com/watch?v=Q\\_NPF\\_4Kvc4&t=133s](https://www.youtube.com/watch?v=Q_NPF_4Kvc4&t=133s)
  - <https://www.slideshare.net/anishrockrdas/switch-mode-power-supply> (Explanation on how to install different types of SMPS in the different system unit.)

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
4.10.1 Define front panel. 4.10.2 List types of front panel ports connectors. 4.10.3 State the purpose of front panel connector. 4.10.4 State the function of Front panel connector. <i>4.10.5 Ensure to use anti-static wristband and gloves.</i> <i>4.10.6 Ensure to plug the connector in the right connection.</i> <i>4.10.7 Configuring the front panel connection</i>	<b>4.10 Configuring the front panel connection</b>

**B. Competencies:**

Configure front panel connection when assembling PC

**C. Pedagogy/Learning Experiences**

**Contact:**

- Let the learner read INFORMATION SHEET 4.10
- Let the learner do a presentation on types of front-panel connectors and its functions in a group divide by the teacher.
- Demonstrate OPERATION SHEET 4.10
- Let the learner perform OPERATION SHEET 4.10
- Let the learners solve SAMPLE SHEET 4.10

**Non-contact:**

- Let the learner read INFORMATION SHEET 4.10
-

- 
- Provide handouts.
  - Share the web link <https://www.youtube.com/watch?v=7nMVK6Lpge0> to learners which explains how to configure the front panel connection.
    - ✓ Let the learner will take note of what each front panel connection's function is and submit it in google classroom.
  - Let the learners solve SAMPLE SHEET 4.10

**D. Assessment:**

**Contact:**

- Assess the learner's performance on OPERATION SHEET 4.10 using Checklist.
- Assess the learners base on the note submitted through Google Classroom/social media.
- Assess the learner's response on SAMPLE SELF CHECK 4.10

**Non-contact:**

- Assess the learners' conceptual understanding of configuring front panel connection by conducting the online test.
- Assess the learner's note uploaded in the Google Classroom using a checklist and provide necessary feedback accordingly.
- Assess the learners' response on SAMPLE SELF CHECK 4.10 uploaded in Google Classroom.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=7nMVK6Lpge0> (Explanation on how front panel connection functions and it should be a connection with the motherboard.)

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**A. Learning objectives/Broad theme / Strand/Chapter:**

<b>Learning objectives</b>	<b>Core concepts (Chapters/Topics)</b>
4.11.1 List types of BIOS manufacturer and its beep codes. 4.11.2 List devices that are detected in BIOS program. 4.11.3 List inbuilt diagnostic software tools to diagnose faults. <i>4.11.4 Ensure to use anti-static wristband and gloves.</i> <i>4.11.5 Ensure not to make any critical changes in BIOS without having knowledge.</i> <i>4.11.6 Conduct test for PC assembly</i>	<b>4.11 Conducting test for PC assembly</b>

**B. Competencies:**

- Conduct test for PC assembly when devices are malfunctioned or not detected.

**C. Pedagogy/Learning Experiences**

**Contact:**

- Let the learner read INFORMATION SHEET 4.11
- Provide handouts and PPT.
- Demonstrate OPERATION SHEET 4.11
- Let the learner perform OPERATION SHEET 4.11
- Let the learners solve SAMPLE SELF-CHECK 4.11

**Non-contact:**

- Let the learner read INFORMATION SHEET 4.11
  - Provide handouts.
  - Let the learners solve SAMPLE SELF-CHECK 4.11
  - Provide additional questions.
-

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**D. Assessment:**

**Contact:**

- Assess the learners' performance on OPERATION SHEET 4.11
- Assess the learners' response on SAMPLE SELF CHECK 4.11.
- Conduct class tests to assess learner's ability understanding on conducting a test on PC assembly.

**Non-contact:**

- Assess the learners' response on SAMPLE SELF CHECK 4.11.
- Assess the learner's answer posted in the Google Classroom/social media.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts

**Chapter 5: Installing peripherals devices**

**A. Learning objectives/Broad theme / Strand/Chapter:**

<b>Learning objectives</b>	<b>Core concepts (Chapters/Topics)</b>
5.1.1 Define driver software tool. 5.1.2 State function of driver software tool. 5.1.3 List types of software tool. 5.1.4 Check service tag and serial number. 5.1.5 <i>Ensure to browse safe websites.</i> 5.1.6 <i>Download device drivers using software</i>	<b>5.1 Downloading device drivers using software</b>

**B. Competencies:**

- Download device driver using software when devices are malfunction or device driver is missing

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### C. Pedagogy/Learning Experiences

#### Contact:

- Let the learner read INFORMATION SHEET 5.1
- Demonstrate operation sheet 5.1
- Let the learner perform OPERATION SHEET 5.1
- Let the learners solve SAMPLE SELF CHECK 5.1
- Provide questions.

#### Non-contact:

- Let the learner read INFORMATION SHEET 5.1
- Provide handouts.
- Share the web link <https://www.youtube.com/watch?v=sEzsYwtScow&t=81s> to learners which how to download device drivers using the software.
  - ✓ Let the learner take note of the steps to update the driver for any device on a desktop/laptop.
- Let the learners solve SAMPLE SELF CHECK 5.1

### D. Assessment:

#### Contact:

- Assess the learners' performance on OPERATION SHEET 5.1 using the rubric.
- Assess the learners' response on SAMPLE SELF CHECK 5.1.
- Assess the learner's answer posted in the Google Classroom/social media.

#### Non-contact:

- Assess the learners' notes by developing rubrics.
- Assess the learner's response on SAMPLE SELF CHECK 5.1 uploaded in Google Classroom.

### E. Resources (online and offline):

- Competency-Based Learning Materials for Classes IX and X, REC
  - Handouts
  - <https://www.youtube.com/watch?v=sEzsYwtScow&t=81s> (Explanation how to install driver easy and how to update driver using driver easy software.)
-

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**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
5.2.1. Define printer. 5.2.2. Explain the types of printers. 5.2.3. List types of printer cartridge. 5.2.4. Explain methods of installing the printer. 5.2.5. <i>Ensure to connect USB/COM cable in the right port.</i> 5.2.6. <i>Ensure to verify print setup.</i> 5.2.7. <i>Install printer</i>	<b>5.2 Installing printer</b>

**B. Competencies:**

- Install printer when the printer driver is missing or printer is newly installed.

**C. Pedagogy/Learning Experiences**

**Contact:**

- Let the learners read INFORMATION SHEET 5.2
- Let the learners explore the internet to look for information on the type of printer and methods of installing the printer in a group and present the information to the class.
- Demonstrate OPERATION SHEET 5.2
- Let the learners perform OPERATION SHEET 5.2 in a group.
- Let the learners solve SAMPLE SELF CHECK 5.2

**Non-contact:**

- Let the learners read INFORMATION SHEET 5.2
- Share the web link <https://www.youtube.com/watch?v=daexOAz5To> to learners which explains how to connect the printer with your laptop/desktop.



- Let the learner take note of the steps to connect the printer with any computer and submit it through google classroom.
- Let the learners solve SAMPLE SELF CHECK 5.2
- Provide questions.

**D. Assessment:**

**Contact:**

- Assess learner’s presentation using rubric or checklist. Provide necessary intervention following the correction of learner’s work.
- Assess learners while performing operation sheet 5.2 using checklist/rubric.
- Assess the learners’ response on SAMPLE SELF CHECK 5.2.

**Non-contact:**

- Assess the learners’ notes by developing rubrics.
- Assess the learner’s response on SAMPLE SELF CHECK 5.2 uploaded in Google Classroom.
- Assess the learners base on the answers posted in the google classroom/social media.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=daexOAez5To> (Explanation on how to connect the printer with a computer.)

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
5.3.1 Define scanner. 5.3.2 List types of scanners. 5.3.3 Explain methods of installation. 5.3.4 <i>Ensure to install the right utility software.</i>	<b>5.3 Installing scanner</b>

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**B. Competencies:**

- Install scanner when documents need to be scanned

**C. Pedagogy/Learning Experiences****Contact:**

- Let the learner read INFORMATION SHEET 5.3
- Demonstrate OPERATION SHEET 5.3
- Let the learner perform OPERATION SHEET 5.3 in a group.
- Let the learner solve SAMPLE SELF CHECK 5.3

**Non-contact:**

- Let the learner read INFORMATION SHEET 5.3
- Let the learner look for information on types of the scanner and different methods to connect the scanner with any desktop/laptop. Make note of it and submit it through Google Classroom/social media.
- Let the learner solve SAMPLE SELF CHECK 5.3
- Provide questions.

**D. Assessment:****Contact:**

- Assess learners while OPERATING SHEET 5.3 using the rubric.
- Provide necessary intervention following the correction of learner's work.
- Assess the learners' response on SAMPLE SELF CHECK 5.3.
- Conduct a question-answer session to assess their conceptual understanding of installing scanners.

**Non-contact:**

- Assess the learners' notes by developing rubrics.
- Assess the learner's response on SAMPLE SELF CHECK 5.3 uploaded in Google Classroom.
- Assess the learners base on the answers posted on Google Classroom/social media.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
-

- Handouts

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
5.4.1 Define projector 5.4.2 List components of the projector <b>5.4.3 Use drilling machine.</b> 5.4.4 Ensure VGA cable is securely tightened. 5.4.5 Ensure bracket is installed securely. 5.4.6 Ensure the screw is tightened securely into the wall. 5.4.7 Ensure appropriate use of PPE.	<b>5.4 Installing projector</b>

**B. Competencies:**

- Install projector during the projection of slides or film

**C. Pedagogy/Learning Experiences**

**Contact:**

- Let the learners read INFORMATION SHEET 5.4
- Let the learners draw and label the components of the projector given in class IX textbook page 194.
- Let the learners perform SKILL SHEET 5.4
- Let the learner’s OPERATION SHEET 5.4 in a group.
- Let the learners solve SAMPLE SELF-CHECK 5.4

**Non-contact:**

- Let the learners read INFORMATION SHEET 5.4
- Provide handouts.

- Share the weblink: <https://www.youtube.com/watch?v=SrPmvP9Zulg> and <https://www.youtube.com/watch?v=DihU8gjjmwo> to learners which explain how to mount the projector on the wall/ceiling.
  - ✓ Let the learner take note of the different types of drilling machines and how the projector is mounted on the wall.
- Let the learners solve SAMPLE SELF-CHECK 5.4
- Provide additional questions.

**D. Assessment:**

**Contact:**

- Assess the learner’s performance on SKILL SHEET 5.4 and OPERATION SHEET 5.4 using Checklist.
- Assess the learner’s response on SAMPLE SELF CHECK 5.4

**Non-contact:**

- Assess the learners’ notes by developing rubrics.
- Assess the learners’ response on SAMPLE SELF CHECK 5.4 uploaded in Google Classroom.
- Assess the learners’ baes on the answers posted on google classroom/social media.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=SrPmvP9Zulg> (Explanation on how to use drilling machine.)
- <https://www.youtube.com/watch?v=DihU8gjjmwo> (Explanation on how to mount the projector on the wall or ceiling.)

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
5.5.1 Define barcode reader.	<b>5.5 Installing barcode reader</b>
5.5.2 Explain the types of barcode readers.	
5.5.3 State the functions of barcodes reader.	

5.5.4 <i>Ensure to install right utility software.</i>	
5.5.5 <i>Ensure proper handling of a barcode reader.</i>	

**B. Competencies:**

- Install barcode reader when barcode driver is missing/corrupt.

**C. Pedagogy/Learning Experiences****Contact:**

- Let the learners read INFORMATION SHEET 5.5
- Demonstrate OPERATION SHEET 5.5
- Let the learners perform OPERATION SHEET 5.5
- Let the learners solve SAMPLE SELF-CHECK 5.5

**Non-contact:**

- Let the learners read INFORMATION SHEET 5.5
- Provide handouts.
- Share the web link <https://www.youtube.com/watch?v=O412g19Vf8E> to learn how to install a barcode reader.
- Let the learners explore the internet to look for information on the type of barcode reader and take note of it.
- Let the learners solve SAMPLE SELF-CHECK 5.5
- Provide additional questions.

**D. Assessment:****Contact:**

- Assess the learners while they perform OPERATION SHEET 5.5 using the rubric.
- Assess the learners' response on sample SELF CHECK 5.5.
- Conduct viva to assess their understanding of installing a barcode reader.

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**Non-contact:**

- Assess the learner’s understanding of installing barcode and type of barcode reader based on the note submitted in the Google Classroom using a rubric and provide necessary feedback and intervention.
- Assess the learners’ response on sample SELF CHECK 5.5
- Assess the learners ‘conceptual understanding base on the notes submitted.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=O412g19Vf8E> (Explanation how to install barcode reader.)

**MODULE 2: PERFORMING TROUBLESHOOTING OF COMPUTER SYSTEM AND DEVICES**

**Chapter 1: Diagnosing PC faults**

**A. Learning objectives/Broad theme / Strand/Chapter:**

<b>Learning objectives</b>	<b>Core concepts (Chapters/Topics)</b>
1.1.1. Define software update. 1.1.2. State the purpose for updating. 1.1.3. State the differences between software upgrades and updates. <b>1.1.4. Browse Control Panel.</b> <i>1.1.5. Be patient while updating software.</i>	<b>1.1 Checking software update</b>

**B. Competencies:**

- Check software update popup notification for the update, as and when required for a security update.

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### C. Pedagogy/Learning Experiences

#### Contact

- Let the learners read INFORMATION SHEET 1.1
- Demonstrate OPERATION SHEET 1.1
- Let the learners perform OPERATION SHEET 1.1
- Let the learners solve SAMPLE SELF CHECK 1.1

#### Non-contact:

- Let the learners read INFORMATION SHEET 1.1
- Provide handouts and PPT.
- Share the weblink [https://www.youtube.com/watch?v=1\\_onjfv7VH4](https://www.youtube.com/watch?v=1_onjfv7VH4) to learn how to update the system software.
- Let the learners solve SAMPLE SELF CHECK 1.1
- Conduct quiz in Google Classroom to assess their conceptual understanding on checking software updates.

### D. Assessment:

#### Contact:

- Assess the learner's performance on OPERATION SHEET 1.1
- Assess the learner's response on SAMPLE SELF CHECK 1.1
- Conduct class tests to assess learner's ability to understand software updates.

#### Non-contact:

- Assess the learner's response on SAMPLE SELF CHECK 1.1
- Assess learners based on the quiz conducted.

### E. Resources (online and offline):

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- [https://www.youtube.com/watch?v=1\\_onjfv7VH4](https://www.youtube.com/watch?v=1_onjfv7VH4) (Explanation on how to update the system software.)

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**A. Learning objectives/Broad theme / Strand/Chapter:**

<b>Learning objectives</b>	<b>Core concepts (Chapters/Topics)</b>
1.2.1. Define computer virus. 1.2.2. List the type of viruses. 1.2.3. Explain the scanning method. 1.2.4. State the purpose of scanning. 1.2.5. <i>Ensure to use genuine antivirus software</i>	<b>1.2 Performing system scan</b>

**B. Competencies:**

- Perform system scan when the computer is affected by the virus.

**C. Pedagogy/Learning Experiences**

**Contact**

- Let the learners read INFORMATION SHEET 1.2
- Demonstrate OPERATION SHEET 1.2
- Let the learners perform OPERATION SHEET 1.2
- Let the learners solve SAMPLE SELF CHECK 1.2

**Non-contact:**

- Let the learners read INFORMATION SHEET 1.2
- Provide handouts.
- Share the web link <https://www.youtube.com/watch?v=ZSoaPn7moC0> to learners which explains how to perform a system scan,
- Let the learners solve SAMPLE SELF CHECK 1.2
- Assign project work related to computer viruses, types of virus, and prevention of the virus.

**D. Assessment:**

**Contact:**

- Assess the learner's performance on OPERATION SHEET 1.2
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- Assess the learner’s response on SAMPLE SELF CHECK 1.2

**Non-contact:**

- Assess the learner’s response on SAMPLE SELF CHECK 1.2
- Assess learners based on the project work submitted using the rubric.

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=ZSoaPn7moC0> (Explanation on performing a system scan of any computer.)

**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
1.3.1. Define continuity test. 1.3.2. State the purpose of testing. 1.3.3. List tools to test continuity. <i>1.3.4. Ensure proper handling of tools and materials.</i> <i>1.3.5. Ensure to connect the jacks firmly and securely.</i> <i>1.3.6. Ensure to use the right probe in the right terminal.</i>	<b>1.3 Performing continuity test</b>

**B. Competencies:**

- Perform continuity test when the flow of electrons is not continuous due to damaged components.

**C. Pedagogy/Learning Experiences**

**Contact**

- Let the learners read INFORMATION SHEET 1.3
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- Demonstrate SAMPLE SELF CHECK
  - Let the learners perform OPERATION SHEET 1.3
  - Let the learners solve SAMPLE SELF-CHECK 1.3
  - Provide additional questions

**Non-contact:**

- Let the learners read INFORMATION SHEET 1.3
- Provide handouts.
- Share the web link <https://www.youtube.com/watch?v=5G622WDZaHg> to learn how to perform a continuity test of a circuit.
- Let the learners solve SAMPLE SELF-CHECK 1.3
- Provide additional questions.

**D. Assessment:**

**Contact:**

- Assess the learner's performance on OPERATION SHEET 1.3
- Assess the learner's response on SAMPLE SELF CHECK 1.3
- Assess the learner's answers submitted in google classroom/social media using the rubric.

**Non-contact:**

- Assess the learner's response on SAMPLE SELF CHECK 1.3
- Assess learners understanding on performing continuity test based on answers submitted in google classroom or social media

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.youtube.com/watch?v=5G622WDZaHg> (Explanation on how to perform a continuity test to diagnose the faulty circuit.)

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**A. Learning objectives/Broad theme / Strand/Chapter:**

Learning objectives	Core concepts (Chapters/Topics)
1.4.1 Define boot error. 1.4.2 List the types of boot errors. 1.4.3 Explain the causes of boot error. 1.4.4 <i>Ensure proper handling of tools and materials.</i> 1.4.5 <i>Ensure to use ESD wrist band.</i>	<b>1.4 Diagnosing boot error</b>

**B. Competencies:**

- Diagnose boot error when window fails to boot.

**C. Pedagogy/Learning Experiences**

**Contact**

- Let the learners read INFORMATION SHEET 1.4
- Let the learners perform OPERATION SHEET 1.4
- Demonstrate OPERATION SHEET 1.4
- Let the learners solve SAMPLE SELF CHECK 1.4
- Give additional questions.

**Non-contact:**

- Let the learners read INFORMATION SHEET 1.4
- Provide handouts and PPT
- Share the weblink:
  - ✓ <https://www.slideshare.net/AbrarAhmed133/computer-booting-troubleshooting>
  - ✓ [https://www.youtube.com/watch?v=IsqINCxx\\_Ik](https://www.youtube.com/watch?v=IsqINCxx_Ik) to learners which explains
- Let the learners solve SAMPLE SELF CHECK 1.4
- Provide additional questions.

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**D. Assessment:**

**Contact:**

- Assess the learner's performance on OPERATION SHEET 1.4
- Assess the learner's response on SAMPLE SELF CHECK 1.4
- Assess the learner's work submitted in google classroom/social media
- Conduct viva to assess their conceptual understanding of diagnosing boot error.

**Non-contact:**

- Assess the learner's response on SAMPLE SELF CHECK 1.4
- Assess learners understanding of diagnosing boot error based on work submitted in google classroom or social media

**E. Resources (online and offline):**

- Competency-Based Learning Materials for Classes IX and X, REC
- Handouts
- <https://www.slideshare.net/AbrarAhmed133/computer-booting-troubleshooting> (Explanation on how to perform diagnosing boot error.)
- [https://www.youtube.com/watch?v=IsqINCxx\\_Ik](https://www.youtube.com/watch?v=IsqINCxx_Ik) (Explanation on how to diagnose self-check of your computer/laptop.)

## **RESOURCES**

- 1) Technical and Vocational Education and Training (TVET) New Normal Curriculum Framework.
- 2) Curriculum-Based Learning Material (CHN)