

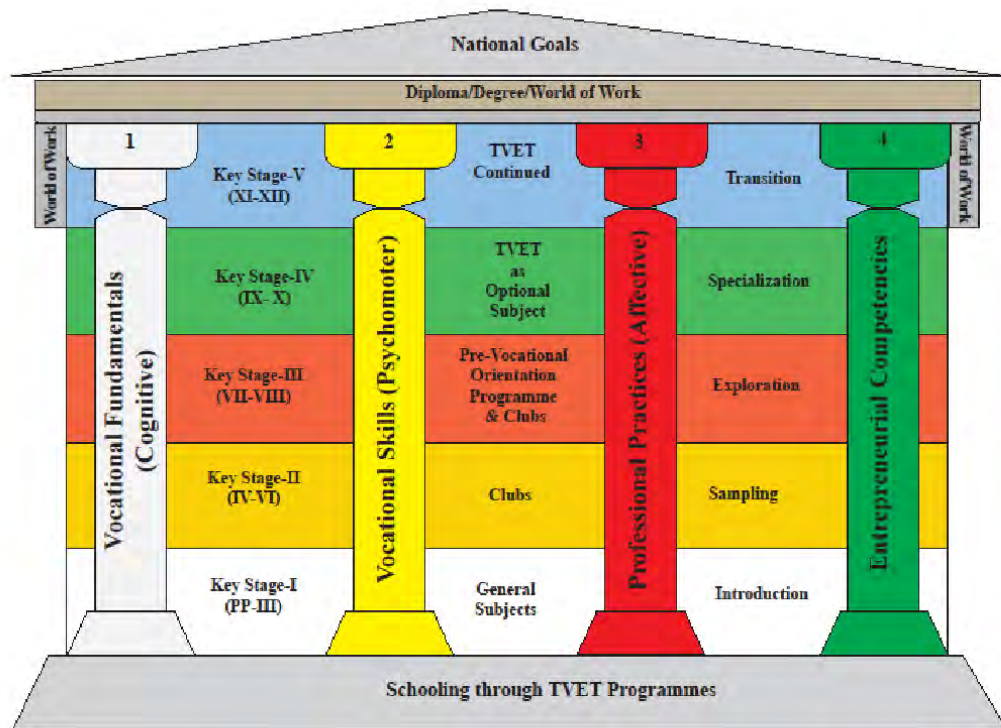
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

NEW NORMAL CURRICULUM

INSTRUCTIONAL GUIDE

(FURNITURE MAKING)

CLASS: IX



Royal Education Council

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FOREWORD

COVID-19 has suddenly caused unforgiving disruptions in 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 are 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 Rinchending) 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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Chapter 1: Practicing Occupational Health and Safety (OHS)

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

Learning objectives	Core concepts (Chapters/Topics)
1.1.1 Define 5S. 1.1.2 State the purposes of 5S. 1.1.3 Explain the principle of 5S. 1.1.4 Define OHS. 1.1.5 State the importance of OHS. 1.1.6 Explain the rights of the employee. 1.1.7 State the main causes of accidents. 1.1.8 State the safety rules. 1.1.9 Apply the principles of 5S.	1.1 Applying the principles of 5S

B. Competencies:

- ✓ Practice OHS procedures in any task for safety.

C. Pedagogy/Learning Experiences

• Contact:

- ✓ Make learners read INFORMATION SHEET 1.1
- ✓ Provide handouts to learners.
- ✓ Make learners go through the given link that explains the principles of 5S.
<https://youtu.be/n9sxq34D9HQ>.
- ✓ Make learners perform OPERATION SHEET 1.1
- ✓ Let the learners discuss in a group and do a presentation on 5S using PPT, handouts, demonstration, and short video clips to explain 5S.

• Non-contact:

- ✓ Instruct learners to read INFORMATION SHEET 1.1 through Google Classroom.
- ✓ Provide the web link <https://youtu.be/n9sxq34D9HQ> materials that explains the principles of 5S.
- ✓ Provide handouts, self-made tutorial video clips, and PPT through Google Classroom or any other relevant social media.
- ✓ Instruct learners to perform OPERATION SHEET 1.1 through Google Classroom. (The learners may arrange available tools and at home)
- ✓ Make learners discuss in a group and submit their response through google classroom or any other relevant social media.

D. Assessment:

• Contact:

- ✓ Make learners read INFORMATION SHEET 1.1 and perform OPERATION SHEET 1.1 and assess them using a checklist/performance guide. Provide necessary intervention.
- ✓ Assess learner's knowledge about 5S by asking questions.
- ✓ Conduct class tests to assess their understanding.
- ✓ Let learners carry out activities of the SAMPLE SELF CHECK 1.1
- ✓ Make the learners do a presentation and assess as per the rubric developed.

• Non-contact:

- ✓ Make learners read INFORMATION SHEET 1.1 and perform OPERATION SHEET 1.1 and ask them to send the short video as evidence through Google Classroom or any other relevant social media platforms. Assess them using a checklist/performance guide.
- ✓ Let the student solve SAMPLE SELF CHECK 1.1 and submit answers through google classroom or any other relevant social media.
- ✓ Give additional relevant questions from another resources-Text book/Google/YouTube and let learners submit answers through Google Classroom or any other social media platforms. Use the rubric to assess their answer.

E. Resources (online and offline):

- ✓ Competency-Based Learning Materials for Classes IX, REC
- ✓ Handouts
- ✓ <https://youtu.be/n9sxq34D9HQ> (Explanation on principles of 5S)

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

Learning objectives	Core concepts (Chapters/Topics)
1.2.1 Define PPE. 1.2.2 State the importance of PPE. 1.2.3 List the categories of PPE. 1.2.4 Use PPE. 1.2.5 <i>Ensure to use appropriate PPE.</i> 1.2.6 <i>Ensure safe disposal of damaged PPE.</i> 1.2.7 <i>Ensure not to use defective and damaged PPE.</i>	1.2 Using PPE

B. Competencies:

- ✓ Practice OHS procedures for safety.
- ✓ Make appropriate use of PPE.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.2
- ✓ Provide handouts to learners.
- ✓ Let learners explore PPE, through the web links <https://youtu.be/r9vp1q1L2ro>, <https://www.youtube.com/watch?v=DMBrRNV9Hrk>.
- ✓ Make learners perform OPERATION SHEET 1.2
- ✓ Let the learners discuss in a group and do a presentation on PPE using PPT, handouts, demonstration, and short video clips to explain PPE.

• **Non-contact:**

- ✓ Instruct learners to read INFORMATION SHEET 1.2 through Google Classroom.
- ✓ Make learners go through a web link that explains PPE. <https://youtu.be/r9vp1q1L2ro>, <https://www.youtube.com/watch?v=DMBrRNV9Hrk>
- ✓ Provide handouts, self-made tutorial video clips, and PPT through Google Classroom or any other relevant social media.
- ✓ Instruct learners to perform OPERATION SHEET 1.2 through Google Classroom.

- ✓ Let the learners discuss in a group and submit their responses through google classroom or any other relevant social media.

D. Assessment:

- **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.2 and perform OPERATION SHEET 1.2 and assess them using a checklist/performance guide. Provide necessary intervention.
- ✓ Assess learner’s knowledge about PPE by asking questions.
- ✓ Conduct class tests to assess their understanding.
- ✓ Let learners carry out activities of the SAMPLE SELF CHECK 1.2
- ✓ Let the learners do a presentation and assess as per the rubric developed.

- **Non-contact:**

- ✓ Make learners read INFORMATION SHEET 1.2 and perform OPERATION SHEET 1.2 and ask them to send the short video as evidence through Google Classroom or any other relevant social media platforms. assess them using a checklist/performance guide.
- ✓ Let the student solve SAMPLE SELF CHECK 1.2 and submit answers through google classroom or any other relevant social media.
- ✓ Give additional relevant questions from another resources-Text book/Google/YouTube and let learners submit answers through Google Classroom or any other social media platforms. Use the rubric to assess their answer.

E. Resources (online and offline):

- ✓ Competency-Based Learning Materials for class IX.
- ✓ <https://www.youtube.com/watch?v=DMBRNV9Hr> and <https://youtu.be/r9vp1q1L2ro> (Explanation on PPE)

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

Learning objectives	Core concepts (Chapters/Topics)
1.3.1 Define safety precaution. 1.3.2 List different types of safety. 1.3.3 Explain workshop and personal safety. 1.3.4 State the importance of maintaining a workplace and personal safety. 1.3.5 Explain the importance of safety signs and symbols. 1.3.6 Explain the emergency exit. 1.3.7 Describe the layout of the workshop. 1.3.8 Maintain workplace safety and personal safety 1.3.9 <i>Ensure to follow OHS procedures.</i> 1.3.10 <i>Ensure to keep the workshop clean.</i> 1.3.11 <i>Ensure to ring the alarm bell before the accident spreads over.</i> 1.3.12 <i>Ensure to display safety signs and symbols.</i> 1.3.13 <i>Ensure to use appropriate PPE in the workplace.</i> 1.3.14 <i>Ensure to avoid horseplay at the workplace.</i> 1.3.15 <i>Ensure to avoid smoking and eating inside the workshop.</i>	1.3 Maintaining workplace safety and personal safety.

B. Competencies:

- ✓ Practice OHS procedures in any task for safety
- ✓ Maintain workplace safety in our day-to-day life.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.3
- ✓ Provide handouts to learners.
- ✓ The weblinks <https://www.youtube.com/watch?v=4bkr5lpKGUM> and <https://www.youtube.com/watch?v=WW0U6o1XNec> can be shared with the learners which explain the maintaining of the workplace and personal safety.
- ✓ Make learners perform OPERATION SHEET 1.3
- ✓ Let the learners discuss in a group and do a presentation on maintaining a workplace and personal safety using PPT, handouts, demonstration, and short video clips to explain maintaining of the workplace and personal safety.

• **Non-contact:**

- ✓ Instruct learners to read INFORMATION SHEET 1.3 through Google Classroom.
- ✓ Provide the web links <https://www.youtube.com/watch?v=4bkr5lpKGUM> and <https://www.youtube.com/watch?v=WW0U6o1XNec> that explain the maintaining of the workplace and personal safety.
- ✓ Provide handouts, self-made tutorial video clips, and PPT through Google Classroom or any other relevant social media.
- ✓ Instruct learners to perform OPERATION SHEET 1.3 through Google Classroom.
- ✓ Let the learners discuss in a group and submit their responses through google classroom or any other relevant social media.

D. Assessment:

• **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.3 and perform OPERATION SHEET 1.3 and assess them using a checklist/performance guide. Provide necessary intervention.
- ✓ Assess learner's knowledge about maintaining a workplace and personal safety by asking questions.
- ✓ Conduct class tests to assess their understanding.
- ✓ Let learners carry out activities of the SAMPLE SELF CHECK 1.3
- ✓ Let the learners do a presentation and assess as per the rubric developed.

• **Non-contact:**

- ✓ Make learners read INFORMATION SHEET 1.3 and perform OPERATION SHEET 1.3 and ask them to send the short video as evidence through Google Classroom or any other relevant social media platforms. assess them using a checklist/performance guide.
- ✓ Let the student solve SAMPLE SELF CHECK 1.3 and submit the answer through google classroom or any other relevant social media.
- ✓ Give additional relevant questions from another resources-Text book/Google/YouTube and let learners submit answers through Google Classroom or any other social media platforms. Use the rubric to assess their answer.

E. Resources (online and offline:

- ✓ CBLM of Classes IX and X, REC
- ✓ <https://www.youtube.com/watch?v=WW0U6o1XNec> and <https://www.youtube.com/watch?v=4bkr5lpKGUM> (Video on workplace and personal safety).

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

Learning objectives	Core concepts (Chapters/Topics)
1.4.1 Explain tools and equipment safety. 1.4.2 State the importance of maintaining tools and equipment safety. 1.4.3 List do's and don'ts of tools and equipment. 1.4.4 Maintain tools and equipment safety. 1.4.5 <i>Ensure all the tools are in workable condition</i> 1.4.6 <i>Ensure to keep tools clean and dry, and store them properly after use.</i> 1.4.7 <i>Ensure to operate the machine when instructed.</i> 1.4.8 <i>Ensure to refer manual before operation of tools and equipment</i>	1.4 Maintaining tools and equipment safety

B. Competencies:

- ✓ Practice OHS procedures in any task for safety
- ✓ Maintain hand tools and portable power tools for better performance

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.4
- ✓ Provide handouts to learners.
- ✓ Make learners go through weblinks that explain Maintaining tools and equipment safety.
- ✓ <https://www.bramptonguardian.com> or <http://www.ehsdb.com/dos-and-donts--hand-tools-equipments.php>.
- ✓ Make learners perform OPERATION SHEET 1.4
- ✓ Let the learners discuss in a group and do a presentation on Maintaining tools and equipment safety using PPT, handouts, demonstration, and short video clips to explain Maintaining tools and equipment safety.

• **Non-contact:**

- ✓ Instruct learners to read INFORMATION SHEET 1.4 through Google Classroom.
- ✓ Provide the web links <https://www.bramptonguardian.com> or <http://www.ehsdb.com/dos-and-donts--hand-tools-equipments.php> that explains about the Maintain tools and equipment safety.
- ✓ Provide handouts, self-made tutorial video clips, and PPT through Google Classroom or any other relevant social media.
- ✓ Instruct learners to perform OPERATION SHEET 1.4 through Google Classroom. (The learners may arrange available tools and materials at home)

- ✓ Let the learners discuss in a group and submit their responses through google classroom or any other relevant social media.

D. Assessment:

- **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.4 and perform OPERATION SHEET 1.4 and assess them using a checklist/performance guide. Provide necessary intervention.
- ✓ Assess learner’s knowledge about maintaining tools and equipment safety by asking questions.
- ✓ Conduct class tests to assess their understanding.
- ✓ Let learners carry out activities of the SAMPLE SELF CHECK 1.4
- ✓ Let the learners do a presentation on maintaining tools and equipment safety and assess as per the rubric developed.

- **Non-contact:**

- ✓ Make learners read INFORMATION SHEET 1.4 and perform OPERATION SHEET 1.4 and ask them to send the short video as evidence through Google Classroom or any other relevant social media platforms. Assess them using a checklist/performance guide.
- ✓ Let the student solve SAMPLE SELF CHECK 1.4 and submit the answer through google classroom or any other relevant social media.
- ✓ Give additional relevant questions from another resources-Text book/Google/YouTube and let learners submit answers through Google Classroom or any other social media platforms. Use the rubric to assess their answer.

E. Resources (online and offline):

- ✓ Competency-Based Learning Materials for Classes IX, REC
- ✓ <https://www.bramptonguardian.com> or <http://www.ehsdb.com/dos-and-donts--hand-tools-equipments.php> (Explanation on maintaining tool and equipment safety)

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

Learning objectives	Core concepts (Chapters/Topics)
1.5.1 Define fire extinguisher. 1.5.2 Label the parts of the fire extinguisher. 1.5.3 Explain the types of fires. 1.5.4 Explain the types of fire extinguishers. 1.5.5 State the methods of combating/extinguishing fires. 1.5.6 Use fire extinguisher. 1.5.7 <i>Ensure to read the instructions provided on the fire extinguisher.</i> 1.5.8 <i>Ensure appropriate use of PPE.</i>	1.5 Using fire extinguisher

B. Competencies:

- ✓ Practice OHS procedures in any task for safety
- ✓ Make use of the standard procedure to operate the Fire extinguisher.
- ✓ Make appropriate use of PPE while handling fire extinguishers.

C. Pedagogy/Learning Experiences

- **Contact**
 - ✓ Make learners read INFORMATION SHEET 1.5
 - ✓ Provide handouts to learners.
 - ✓ Make learners go through the link that explains the usage of fire extinguishers.
<https://www.youtube.com/watch?v=PQV71INDaqY>
 - ✓ Make learners perform OPERATION SHEET 1.5
 - ✓ Let the learners discuss in a group and do a presentation on how to use fire extinguishers using PPT, handouts, demonstration, and short video clips to explain the usage of fire extinguishers.

- **Non-contact:**
 - ✓ Instruct learners to read INFORMATION SHEET 1.5 through Google Classroom.
 - ✓ Provide the web link <https://www.youtube.com/watch?v=PQV71INDaqY> that explains about usage of fire extinguishers.
 - ✓ Provide handouts, self-made tutorial video clips, and PPT through Google Classroom or any other relevant social media.
 - ✓ Instruct learners to perform OPERATION SHEET 1.5 through Google Classroom. (The learners may arrange available tools and materials at home)
 - ✓ Make the learners discuss in a group and submit their response through google classroom or any other relevant social media.

D. Assessment:

- **Contact:**
 - ✓ Make learners read INFORMATION SHEET 1.5 and perform OPERATION SHEET 1.5 and assess them using a checklist/performance guide. Provide necessary intervention.
 - ✓ Assess learner's knowledge about how to use fire extinguishers by asking questions.
 - ✓ Conduct class tests to assess their understanding.
 - ✓ Let learners carry out activities of the SAMPLE SELF CHECK 1.5
 - ✓ Let the learners do a presentation on using of fire extinguisher and assess as per the rubric developed.

- **Non-contact:**
 - ✓ Make learners read INFORMATION SHEET 1.5 and perform OPERATION SHEET 1.5 and ask them to send the short video as evidence through Google Classroom or any other relevant social media platforms. Assess them using a checklist/performance guide.
 - ✓ Let the student solve SAMPLE SELF CHECK 1.5 and submit the answer through google classroom or any other relevant social media.
 - ✓ Give additional relevant questions from another resources-Text book/Google/YouTube and let learners submit answers through Google Classroom or any other social media platforms. Use the rubric to assess their answer.

E. Resources (online and offline):

- ✓ CBLM for Classes IX, REC
- ✓ <https://www.youtube.com/watch?v=PQV71INDaqY> (Video on how to use fire extinguisher)

Chapter 2: Maintaining hand tools and portable power tools
A. Learning objectives/ Broad theme / Strand/Chapter/topic:

Learning objectives	Core concepts (Chapters/Topics)
2.1.1 Define blade. 2.1.2 List the types of planes. 2.1.3 Identify the parts of the plane. 2.1.4 Identify the types of plane blades. 2.1.5 State the function of the plane and its parts. 2.1.6 Explain the purpose of soaking oil stone in water. 2.1.7 State the purpose of maintaining a sharpening angle range. 2.1.8 State the purpose of applying oil on the blade. 2.1.9 State the purpose of setting plane blade. 2.1.10 Sharpen plane/chisel blade 2.1.11 <i>Ensure safe while checking the sharpness of the blade.</i>	2.1 Sharpening plane/chisel blade

B. Competencies:

- ✓ Sharpen plane blade to achieve smooth cutting.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make the students read information sheet 2.1
- ✓ Make the students perform operation sheet 2.1 individually after guided practice.
- ✓ Demonstrate how to sharpen the blade.
- ✓ Explain the following content:
 - Purpose of soaking oil stone in water.
 - Purpose of maintaining sharpening angle range.
 - Purpose of applying oil on the blade.
 - Purpose of setting plane blade.

• **Non-contact:**

- ✓ Make learners go through the notes provided on the following content through Google classroom:
 - Purpose of soaking oil stone in water.
 - Purpose of maintaining sharpening angle range.
 - Purpose of applying oil on the blade.
 - Purpose of setting plane blade.
- ✓ Make learners go through the given link that shows the process of sharpening the blade.

<https://www.youtube.com/watch?v=GN4yr7vp4I4>

D. Assessment:

• **Contact:**

- ✓ The teacher may design the rubrics to assess their work by judging their assigned works (chisel/plane blade).
- **Non-contact:**
 - ✓ Teacher to assess the given work through social media (Telegram, Wechat, Google classroom, Messenger, and through emails).

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=GN4yr7vp4I4> (Process of sharpening blade)

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

Learning objectives	Core concepts (Chapters/Topics)
2.2.1 State the function of the saw. 2.2.2 List the types of saw. 2.2.3 List types of saw setting tools. 2.2.4 Explain the method of sharpening and setting saw teeth. 2.2.5 Sharpen saw blade. 2.2.6 <i>Ensure safe handling of the saw.</i> <i>Ensure appropriate use of PPE.</i>	2.2 Sharpening saw blade

B. Competencies:

- ✓ Sharpen saw blade to improve its efficiency.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make the students read information sheet 2.2
 - ✓ Make the students perform operation sheet 2.2
- **Non-contact:**
 - ✓ Make learners refer notes from the given link which explains the process to sharpen saw blades using a file
<https://sensibledigs.com/how-to-sharpen-saw-blades/>

D. Assessment:

- **Contact:**
 - ✓ Teacher to assess learners' performance using rubrics.
 - ✓ Check learner's understanding by conducting a class test.
- **Non-contact:**
 - ✓ Teacher to assess the questions on saw given through goggle classroom and social media.

E. Resources (online and offline):

- ✓ CBLM

- ✓ <https://sensible digs.com/how-to-sharpen-saw-blades/>(Process to sharpen saw)

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

Learning objectives	Core concepts (Chapters/Topics)
2.3.1 State the function of a grinding machine. 2.3.2 List the safety precaution. 2.3.3 State the function of the safety guard. 2.3.4 Explain the working principle of the grinding machine. 2.3.5 Grind hand tools 2.3.6 <i>Ensure to follow safety precautions.</i> 2.3.7 <i>Use to maintain cutting edge at an angle of 25° approximately.</i> 2.3.8 <i>Ensure appropriate use of PPE.</i>	2.3 Grinding hand tools

B. Competencies:

- ✓ Grind any tool using a grinding machine.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make students read information sheet 2.3
- ✓ Make students perform operation sheet 2.3
- ✓ Make learners volunteer to talk about safety precautions on the grinding machine.
- ✓ Teacher to show video on grinding machine.

• **Non-contact:**

- ✓ Make learners watch video from the given link showing the process of using a grinding machine

<https://www.youtube.com/watch?v=y1pm9jNO3JE>

D. Assessment:

• **Contact:**

- ✓ Check learner's understanding by conducting the class test.
- ✓ Assess their given task (Grind hand tools).

• **Non-contact:**

- ✓ The teacher assesses the given work.
- ✓ Make learners do audio records on what they understood on Grinding hand tools from the video.

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=y1pm9jNO3JE> (Operation of grinding machine)

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

Learning objectives	Core concepts (Chapters/Topics)
2.4.1 Identify the materials used for the handle. 2.4.2 State the purpose of the handle. 2.4.3 Explain the method of the fitting handle. 2.4.4 Make handle 2.4.5 <i>Ensure proper disposal of waste.</i> 2.4.6 <i>Ensure safe handling of tools.</i>	2.4 Making handle

B. Competencies:

- ✓ Make a handle of any tool.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make the learners read information sheet 2.4
- ✓ Make learners share how they make handle at their home.
- ✓ Make learners perform operation sheet 2.4 individually.

• **Non-contact:**

- ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on sharpening the saw blade.
- ✓ Make learners watch video from the given link that shows the process of making hammer handle

<https://www.youtube.com/watch?v=Ld499Y6WjHI>

D. Assessment:

• **Contact:**

- ✓ Check learner's understanding by conducting the class test.
- ✓ Assess their handles using a rubric.

• **Non-contact:**

- ✓ The teacher assesses the given work through google classroom and social media.

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=Ld499Y6WjHI> (Process of making hammer handle)

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

Learning objectives	Core concepts (Chapters/Topics)
2.5.5 Define augur bit. 2.5.6 Identify the size of the auger bit. 2.5.7 Label the parts of the auger bit. 2.5.8 State the function of the auger bit. 2.5.9 Sharpen augur bit 2.5.10 <i>Ensure not to change the angle of the bevel from the originally sharpened bit.</i>	2.5 Sharpening augur bit

2.5.11	Ensure to avoid lifting the brace end to prevent the damaging of the bevel edge.	
2.5.12	Ensure safe handling of sharpening bits.	
2.5.13	Ensure appropriate use of PPE.	

B. Competencies:

- ✓ Sharpen the auger bit for better performance.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make the students read information sheet 2.5
 - ✓ Make the students perform operation sheet 2.5
- **Non-contact:**
 - ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on sharpening Auger bit.
 - ✓ Make learners watch video from the given link on sharpening auger bit (<https://www.youtube.com/watch?v=MsAs5zFp-9U>)

D. Assessment:

- **Contact:**
 - ✓ The teacher assesses the given task by using the rubric.
 - ✓ Check learner's understanding by conducting class tests and through question-answer sessions.
- **Non-contact:**
 - ✓ The teacher assesses the given work through Google classroom and social media.

D. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=MsAs5zFp-9U> (Process of sharpening auger bit)

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

Learning objectives	Core concepts (Chapters/Topics)
2.6.1 Define knife. 2.6.2 Identify the types of knives. 2.6.3 Sharpen knife. 2.6.4 <i>Ensure safe handling of the knife.</i>	2.6 Sharpening knife

B. Competencies:

- ✓ Sharpen any knife for better performance.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make students read information sheet 2.6
 - ✓ Make students perform operation sheet 2.6

- **Non-contact:**
 - ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on sharpening a knife.
 - ✓ Make learners make a short video on how to sharpen the knife with the help of their parents.

D. Assessment:

- **Contact:**
 - ✓ Assess learners through the given task (sharpen knife) by using the rubric.
- **Non-contact:**
 - ✓ The teacher assesses the given work through Google classroom and social media (short video on sharpening knife).

E. Resources (online and offline):

- ✓ CBLM

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

Learning objectives	Core concepts (Chapters/Topics)
2.7.1 State the portable planer safety precaution. 2.7.2 State the function of portable planer. 2.7.3 Operate portable planer machine. 2.7.4 Change portable planner blade. 2.7.5 <i>Ensure to follow safety precautions.</i> 2.7.6 <i>Ensure safe handling of power tools.</i> 2.7.7 <i>Ensure appropriate use of PPE.</i> 2.7.8 <i>Ensure the blade is aligned with the notch of the cutter block.</i>	2.7 Changing portable planer blade

B. Competencies:

- ✓ Change portable planner blade as required.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make the students read information sheet 2.7
 - ✓ The teacher explains the parts of the planer machine followed by letting some volunteers explain it.
 - ✓ Make the students perform operation sheet 2.7
 - ✓ Teacher to demonstrate on changing planer blade.
 - ✓ Make learners do the individual practice.
- **Non-contact:**
 - ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on changing circular saw blade.
 - ✓ Make learners watch a video from the given link showing the process of changing planer blade.
https://www.youtube.com/watch?v=uj_6U46pnn8
 - ✓ The learner watches the video and summarize.

D. Assessment:

• **Contact:**

- ✓ Make learners label the parts of circular saw machine to check learners understanding.
- ✓ Teacher assess learners by letting them change circular saw blade individually.

• **Non-contact:**

- ✓ Teacher to assess the given work through Google classroom and social media.

E. Resources (online and offline):

- ✓ CBLM
- ✓ https://www.youtube.com/watch?v=uj_6U46pnn8 (process to change planer blade).

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

Learning objectives	Core concepts (Chapters/Topics)
<p>2.8.1 State the function of the circular saw machine.</p> <p>2.8.2 List the parts of the circular saw machine.</p> <p>2.8.3 State the type of saw blades.</p> <p>2.8.4 Operate circular saw.</p> <p>2.8.5 Change circular saw blade.</p> <p>2.8.6 <i>Ensure appropriate use of PPE.</i></p> <p>2.8.7 <i>Ensure that the stock is well supported to prevent getting the kerf close, binding the blade, and causing a kickback.</i></p> <p>2.8.8 <i>Ensure to support thin materials near the cut.</i></p> <p>2.8.9 <i>Ensure to adjust the depth of cut, so that the ends of three teeth are extended to ¼” (6 mm)</i></p> <p>2.8.10 <i>Ensure to check the base and angle adjustments are tightened before using a saw.</i></p> <p>2.8.11 <i>Ensure to let the blade touch the workpiece only after the machine is switched on.</i></p> <p>2.8.12 <i>Ensure to hold the machine by both hands if two handles are provided.</i></p> <p>2.8.13 <i>Ensure the saw blade has stopped running before resting it on the workbench.</i></p> <p>2.8.14 <i>Ensure to unplug the power cable while adjusting or changing the blade.</i></p> <p>2.8.15 <i>Ensure to use sharp blades and keep the blade guard functional.</i></p>	<p>2.8 Changing the circular saw blade</p>

2.8.16 *Ensure to avoid overextending or overreaching and losing balance while using the portable circular saw.*

B. Competencies:

- ✓ Change circular saw blade as required

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make the students read information sheet 2.8
- ✓ Make the students perform operation sheet 2.8
- ✓ Teacher to demonstrate on changing circular saw blade.

• **Non-contact:**

- ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on changing circular saw blade.
- ✓ The given link shows how to change circular saw blade
<https://www.youtube.com/watch?v=NDAYE2I8AIU>
- ✓ Based on the information obtained from watching the video from the given link, make learners answer the questions uploaded in the Google Classroom.

D. Assessment:

✓ **Contact:**

- ✓ Teacher assess by making learners change circular saw blade individually.
- ✓ Check learner's understanding by conducting a class test.
- ✓ Ask questions to assess their understanding.

✓ **Non-contact:**

- ✓ The teacher assess the given work through Google classroom and social media (questions).

E. Resources (online and offline):

- ✓ <https://www.youtube.com/watch?v=NDAYE2I8AIU> (Change the circular saw blade).
- ✓ CBLM

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

Learning objectives	Core concepts (Chapters/Topics)
2.9.2 State the function of the jig saw machine. 2.9.3 Label the parts of the jigsaw machine. 2.9.4 Operate jigsaw machine. 2.9.5 Replace jigsaw blade 2.9.6 <i>Ensure to cut the workpiece at normal speed.</i> 2.9.7 <i>Ensure safe handling of power tools.</i>	2.9 Replacing jigsaw blade

B. Competencies:

- ✓ Replace jigsaw blade as required.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make the students read information sheet 2.9
- ✓ Make the students perform operation sheet 2.9
- ✓ The teacher demonstrates replacing the jig saw machine.

• **Non-contact:**

- ✓ Make learners make notes on jigsaw (Parts of jigsaw machine) from a textbook.
- ✓ Make learners watch video from given the link showing the process of changing the jigsaw blade
<https://www.youtube.com/watch?v=L68Js3FefCc>

D. Assessment:

• **Contact:**

- ✓ The teacher assesses learners by making learners change jigsaw blades individually.
- ✓ Make learners do presentations on parts of the jigsaw machine.
- ✓ Check learner's understanding by conducting the test.

• **Non-contact:**

- ✓ The teacher assesses the given work through Google classroom and social media (Notes on jigsaw blade).
- ✓ Make learner answer the questions provided.

E. Resources (online and offline):

- ✓ <https://www.youtube.com/watch?v=L68Js3FefCc> (Process of changing the jigsaw blade).
- ✓ CBLM

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

Learning objectives	Core concepts (Chapters/Topics)
2.10.1 State the function of the router machine. 2.10.2 State the types of the router bit. 2.10.3 Use router machine. 2.10.4 Replace Router bit 2.10.5 <i>Ensure to cut the work piece at normal speed.</i> 2.10.6 <i>Ensure safe handling of power tools.</i> 2.10.7 <i>Ensure to use PPE.</i>	2.10 Replacing Router bit

B. Competencies:

- ✓ Replace Router bit as required.
- C. Pedagogy/Learning Experiences**
- **Contact:**
 - ✓ Make the students read information sheet 2.10
 - ✓ Make the students perform operation sheet 2.10
 - **Non-contact:**
 - ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on sharpening Auger bit.
 - ✓ Make learners explore on types of the router bit and make notes.
 - ✓ Make learners watch the video from a given link (changing router bit)
 - https://www.youtube.com/watch?v=5Xs_ukSEKQo
- D. Assessment:**
- **Contact:**
 - ✓ Make learners change the router bit individually.
 - ✓ Check learner's understanding by conducting a class test or having a quiz.
 - **Non-contact:**
 - ✓ Teacher assess work submitted on google classroom and any other social media (notes on types of the router bit).
- E. Resources (online and offline):**
- ✓ CBLM
 - ✓ https://www.youtube.com/watch?v=5Xs_ukSEKQo (Process of changing router bit).

Chapter 3: Carrying out basic woodwork

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

Learning objectives	Core concepts (Chapters/Topics)
3.1.1 Define crosscut saw. 3.1.2 State the application of sawing. 3.1.3 State the purpose of cross-cutting. 3.1.4 Perform cross-cut 3.1.5 <i>Ensure safe handling of tools.</i> 3.1.6 <i>Ensure safe use of hand saw.</i> 3.1.7 <i>Ensure appropriate use of PPE.</i>	3.1 Performing cross-cut

B. Competencies:

- ✓ Perform cross-cut techniques to produce different products.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make the students read information sheet 3.1
 - ✓ Make the students perform operation sheet 3.2
- **Non-contact:**

- ✓ Make learners go through the link on the cross cut saw and rip cut saw
<https://www.youtube.com/watch?v=6RuhVhKIDcQ>
- ✓ Make learners summarize the content from the video and submit it through google classroom.

D. Assessment:

- **Contact:**
 - ✓ Check learners understanding by conducting class test and quiz.
 - ✓ Assess learners task (crosscut).
- **Non-contact:**
 - ✓ Teacher assess the given work through Google classroom and social media.
 - ✓ Conduct online test on Rip cut and crosscut.

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=6RuhVhKIDcQ> (Explanation on cross cut and rip cut)

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

Learning objectives	Core concepts (Chapters/Topics)
3.2.1 State the function of rip cut saw. 3.2.2 State the application of rip cut saw. 3.2.3 Perform rip cutting 3.2.4 <i>Ensure safe handling of tools.</i> 3.2.5 <i>Ensure safe use of hand saw.</i> 3.2.6 <i>Ensure appropriate use of PPE.</i>	3.2 Performing rip cutting

B. Competencies:

- ✓ Perform rip-cut technique to produce different products.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make the students read information sheet 3.2
 - ✓ The teacher explains the main differences between rip cut and cross-cut.
 - ✓ Make the students perform operation sheet 3.2
- **Non-contact:**
 - ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on rip cut.
 - ✓ Make learners point out the differences between cross-cut and rip-cut submit in Google classroom.

D. Assessment:

- **Contact:**
 - ✓ The teacher assesses the given task (rip cut workpiece)

- ✓ Check learner's understanding by conducting class tests and quiz.

- **Non-contact:**

- ✓ Teacher assess the given work through Google classroom and social media (Differences between rip saw and crosscut saw).

E. Resources (online and offline):

- ✓ CBLM

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

Learning objectives	Core concepts (Chapters/Topics)
3.3.1 Define plane. 3.3.2 List the types of marking tools. 3.3.3 State the preventive measure for distortion of a work piece. 3.3.4 Explain the grains and textures of wood. 3.3.5 Plane workpiece 3.3.6 <i>Ensure safe handling of planes.</i> 3.3.7 <i>Ensure to place the plane side-wise.</i> 3.3.8 <i>Ensure appropriate use of PPE.</i>	3.3 Planing workpiece

B. Competencies:

- ✓ Apply planning techniques to produce different products.
- ✓ Identify the grains of any wood.

C. Pedagogy/Learning Experiences

- **Contact:**

- ✓ Make the students read information sheet 3.3
- ✓ Make the students perform operation sheet 3.3

- **Non-contact:**

- ✓ Make learners go through/explore the grains of wood from the given link <https://www.woodmagazine.com/materials-guide/lumber/understanding-wood-grain>
- ✓ Make learners take notes on marking tools and their respective functions.

D. Assessment:

- **Contact:**

- ✓ Assess learners by observing the presentation on marking tools and their applications.
- ✓ Question and answer session on the preventive measure for distortion of a work piece.
- ✓ Teachers assess learners' understanding by conducting class tests and quiz.
- ✓ Assess learners through planed workpieces using the rubric.

- **Non-contact:**

- ✓ Teacher to conduct the online test on grains of wood.

- ✓ The teacher assesses the given work through Google classroom and social media submitted by learners.

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.woodmagazine.com/materials-guide/lumber/understanding-wood-grain> (Grains of wood)

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

Learning objectives	Core concepts (Chapters/Topics)
3.4.1 State the functions of a chisel. 3.4.2 Identify the different types of a chisel. 3.4.3 Chisel workpiece 3.4.4 <i>Ensure safe handling of a chisel.</i> 3.4.5 <i>Ensure appropriate use of PPE.</i>	3.4 Chiseling workpiece

B. Competencies:

- Apply chiseling technique to produce different products.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make the students read information sheet 3.4
 - ✓ The teacher explains the concept on chiselling.
 - ✓ Make the students perform operation sheet 3.4
- **Non-contact:**
 - ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on chiseling a workpiece.
 - ✓ Teacher to let learners explore types of the chisel through the textbook and other resources available.
 - ✓ Make learners go through the link given about handling the chisel
<https://www.youtube.com/watch?v=MOD-IYVkAgA>

D. Assessment:

- **Contact:**
 - ✓ Check learner's understanding by a question and answer session on types of chisel and their application.
 - ✓ The teacher assesses the given task by using the rubric.
- **Non-contact:**
 - ✓ The teacher assesses the given work through Google classroom and social media (Types of chisel).

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=MOD-IYVkAgA> (Handling of chisel)

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

Learning objectives	Core concepts (Chapters/Topics)
3.5.1 Define drilling bit. 3.5.2 List the sizes of drill bit. 3.5.3 State the purpose of drilling. 3.5.4 Explain the types of boring tools. 3.5.5 Drill holes 3.5.6 <i>Ensure safe handling of tools and equipment.</i> 3.5.7 <i>Ensure appropriate use of PPE.</i>	3.5 Drilling holes

B. Competencies:

- ✓ Operate drilling machine using different bits in different areas as per requirement.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make the students read information sheet 3.5
- ✓ Make the students perform operation sheet 3.5
- ✓ The teacher demonstrates using a drilling machine.

• **Non-contact:**

- ✓ The teacher provides relevant material (Video link, download content, handouts, and textbook, etc) on drill holes.
- ✓ The teacher gives slides on types of drilling bit and learners take notes.
- ✓ Make learners go through the given link showing the operation of cordless drilling machine

<https://www.youtube.com/watch?v=r59gnrhiCrw>

D. Assessment:

• **Contact:**

- ✓ Check learner's understanding by letting learners label the parts of the drilling machine.
- ✓ The teacher assesses the given task.

• **Non-contact:**

- ✓ Conducting online tests on types of drilling bit with its applications.
- ✓ The teacher assesses the given questions through Google classroom and social media (the type of drilling bit and process to operate drill holes).
- ✓ Make learners do audio records on the process to drill holes.

E. Resources (online and offline):

- ✓ <https://www.youtube.com/watch?v=r59gnrhiCrw> (Operation of cordless drilling machine)
- ✓ CBLM

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

Learning objectives	Core concepts (Chapters/Topics)
3.6.1 Define sanding. 3.6.2 State the purposes of sanding. 3.6.3 Explain types of sandpaper. 3.6.4 Explain the types of sandpaper grits. 3.6.5 State the methods of sanding. 3.6.6 State the function of a portable power sanding machine. 3.6.7 Sand workpiece 3.6.8 Use a portable power sanding machine. 3.6.9 Ensure safe handling of tools. 3.6.10 Ensure to follow safety precautions. <i>Ensure appropriate use of PPE.</i>	3.6 Sanding workpiece

B. Competencies:

- ✓ Carry out sanding work in any product.

C. Pedagogy/Learning Experiences

• **Contact:**

- ✓ Make the students read information sheet 3.6
- ✓ The teacher explains the methods of sanding and the grit of sanding paper.
- ✓ Make the students perform operation sheet 3.6

• **Non-contact:**

- ✓ Make learners go through the following content from the textbook:
 - The process to operate a sanding machine.
 - Methods of the sanding workpiece.
- ✓ Given the link shows detail of the sanding machine
<https://www.youtube.com/watch?v=fXFnzZg-SPo>
- ✓ Make learners go through uncovered topics on sanding workpieces.
- ✓ Make learners go through the given link on grits of sandpaper and let them take notes. <https://www.youtube.com/watch?v=qLEVoEUELbM>

D. Assessment:

• **Contact:**

- ✓ Making learners differentiate the grits of sandpaper by providing the sand paper.
- ✓ The teacher assesses the given task (workpiece after sanding).

• **Non-contact:**

- ✓ Teachers provide different scenarios and letting learners choose the accurate grit of sandpaper with the reason (Case study).
- ✓ The teacher assesses the given work through Google classroom and social media.

E. Resources (online and offline):

- ✓ CBLM
- ✓ <https://www.youtube.com/watch?v=fXFnzZg-SPo> (Details of the portable sanding machine)
- ✓ <https://www.youtube.com/watch?v=qLEVoEUELbM> (Explanation on the grits of sandpaper)

ENGINEERING DRAWING

Module 1: Interpreting Engineering Drawing

Chapter 1: Interpreting Basic Engineering Drawing.

A. Learning Objectives/Strand/Broad theme/Chapter/ topics

Learning objectives	Core concepts (Chapters/Topics)
1.1.1 Define engineering drawing. 1.1.2 State the purposes of engineering drawing. 1.1.3 List the types of drawing instruments. 1.1.4 State uses of drawing instruments. 1.1.5 List types and sizes of drawing papers. 1.1.6 <i>Ensure clean and neatness of drawing.</i> 1.1.7 <i>Ensure proper handling of drawing instruments.</i>	1.1 Use drawing instruments

B. Competencies:

- ✓ Carry out basic engineering drawing
- ✓ Handle the drawing instrument properly.

C. Pedagogy/Learning experiences

• Contact:

- ✓ Make learners read INFORMATION SHEET 1.1
- ✓ Make learners perform OPERATION SHEET 1.1.
- ✓ Exhibit the real instruments to the learners which are required for the drawing.
- ✓ Make learners go through the given web link <https://youtu.be/0Q6QwvtjVm8> that explains the types of the drawing instrument) and learners take notes.
- ✓ Make learners go through the given link https://youtu.be/kLe_brmh774 that explains the types of drawing instrument and their uses)

• Non-Contact

- ✓ Share the weblink <https://youtu.be/0Q6QwvtjVm8> that explains the types of the drawing instrument)
- ✓ Share the weblink https://youtu.be/kLe_brmh774 that explains the types of drawing instrument and their uses)
- ✓ Provide handouts

D. Assessment

- **Contact:**
 - ✓ Assess the learner's conceptual understanding of different types of drawing instruments and their function by conducting a class test.
 - ✓ Make learners answer the SAMPLE SELF CHECK 1.1 and given additional questions.
- **Non-Contact:**
 - ✓ Based on the information gathered from the videos and handouts, the learners develop videos that explain the functions of the different drawing instruments.

E. Resources (Online and offline)

- ✓ Competency-Based Learning Materials
- ✓ Handout
- ✓ <https://youtu.be/0Q6QwvtjVm8> (Explanation on the types of drawing instrument and their uses)
- ✓ https://youtu.be/kLe_brmh774 (Explanation on the types of drawing instrument and their uses)

A. Learning objectives/Broad theme/Strand/chapter/topics:

Learning Objectives	Core Concepts(Chapters/topic)
1.2.1 Define the layout of a drawing sheet. 1.2.2 Define the title block. 1.2.3 Layout drawing sheet.	1.2 Layout drawing sheet

B. Competencies:

- ✓ Layout the drawing sheet as per the required dimension.

C. Pedagogy/Learning Experiences

- **Contact:**
 - ✓ Make learners read INFORMATION SHEET 1.2
 - ✓ Share the weblink <https://youtu.be/FzMPAiW8O-s> that explains the layout of the drawing sheet).
 - ✓ Make learners perform OPERATION SHEET 1.2
 - ✓ Demonstrate the layout of the drawing sheet according to OPERATION SHEET 1.2 and make learners do it in a group followed by individual practices.
- **Non-contact:**
 - ✓ Provide handouts to learners through Google Classroom or any other social media platforms.
 - ✓ Make learners go through the web link <https://youtu.be/FzMPAiW8O-s> that explains the layout of drawing sheet).
 - ✓ The teacher makes a video of the layout of the drawing sheet and uploads it in google classroom or any other social media platform.

D. Assessment

- **Contact:**
 - ✓ Make learners design layout of the drawing sheet referring to OPERATION SHEET 1.2.
 - ✓ Assess the learner's conceptual understanding by letting the learners answer the SAMPLE SELF CHECK 1.2. Based on the assessment, provide necessary intervention.
- **Non-Contact:**
 - ✓ Assess the learner's conceptual understanding by letting the learners answer the SAMPLE SELF CHECK 1.2 and make learners submit through google classroom or any other social media platforms.
 - ✓ Make learners perform OPERATION SHEET 1.2 and submit/ upload the layout sheet through Google Classroom or any other social media platforms.

E. Resources (Online and Offline)

- ✓ Competency-Based Learning Materials
- ✓ Handout
- ✓ <https://youtu.be/FzMPAiW8O-s> (Explanation on the layout of drawing sheet)

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

Learning objectives	Core concepts(Chapters/Topic)
1.3.1 Define signs and symbols. 1.3.2 Define abbreviation. 1.3.3 Draw engineering signs, symbols, and abbreviations.	1.3 Interpret Engineering Sign, symbols, and abbreviation

B. Competencies

- ✓ Interpret signs and symbols as required.

C. Pedagogy/learning experience

- **Contact:**
 - ✓ An instructor may carry out the instructional practice on interpreting Engineering signs, symbols, and abbreviation through the following order.
 - ✓ Make the learners read INFORMATION SHEET 1.3
 - ✓ Make the learners go through OPERATION SHEET 1.3
 - ✓ Make learners go through the given web link <https://youtu.be/MfNoq0y1LLY> that explains the engineering signs and symbols)
 - ✓ The learner watches the video from the weblinks and gathers information on the engineering signs, symbols, and abbreviations.
- **Non-contact**
 - ✓ Make learners go through the given web link <https://youtu.be/MfNoq0y1LLY> that explains the engineering signs and symbols).
 - ✓ The learner watches the video or goes through the learning resource.

- ✓ Based on the information obtained from the learning resources, the learner develops notes.

D. Assessment

- **Contact**
 - ✓ Make learners perform OPERATION SHEET 1.3
 - ✓ Make learners solve the SAMPLE SELF CHECK 1.3
 - ✓ Give additional questions.
- **Non-contact**
 - ✓ Make learners solve the SAMPLE SELF CHECK 1.3
 - ✓ Give additional questions from CBLM and other resources- Google/YouTube.

E. Resources(online and offline)

- ✓ CBLM
- ✓ <https://youtu.be/MfNoq0y1LLY> (Explanation on the engineering signs and symbols).

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

Learning objectives	Core concepts(Chapters/Topic)
1.4.1 Define line.	1.4 Draw different types of lines
1.4.2 State types of line and their applications.	
1.4.3 <i>Ensure clean and neatness of drawing.</i>	
1.4.4 <i>Ensure Proper handling of drawing instruments.</i>	

B. Competencies :

- ✓ Draw different types of lines as per their application.

C. Pedagogy/Learning experiences

- **Contact:**
 - ✓ Make learners read INFORMATION SHEET 1.4
 - ✓ Make learners perform OPERATION SHEET 1.4
 - ✓ The teacher asks learners to watch the following videos:
 - Share the weblink <https://youtu.be/SaOoKpLBfYo> that explains the different types of lines)
 - Share the weblink <https://youtu.be/E6OXZ9OHpVk> that explains the application of lines withdrawing)
 - ✓ The learner notes the different types of line, their application, and their symbols.
 - ✓ Using the information from the videos, the learner develops a drawing containing all the lines.
- **Non-contact:**
 - ✓ An instructor may ask learners to watch the following videos:
 - <https://youtu.be/SaOoKpLBfYo> that explains the different types of lines.

- ✓ Share the weblink <https://youtu.be/E6OXZ9OHpVk> that explains the application of lines withdrawing)
- ✓ The learner takes note of the different types of line and their application. Based on the information, the learner draws the symbols of different types of lines using a drawing instrument.
- ✓ The learner compares the different types of lines and explains their uses.

D. Assessment

- **Contact:**

- ✓ Assess notes and drawing containing different types of lines using a rubric or a checklist. Provide necessary intervention based on the assessment

- **Non- Contact**

- ✓ Assess the work uploaded in the Google Classroom to assess learner’s understanding of different types of lines. Provide necessary intervention following the assessment.

E. Resources (Online or offline)

- ✓ Competency-Based Learning Materials for Classes IX and X, REC
- ✓ <https://youtu.be/SaOoKpLBfYo> (Explanation on the different types of lines)
- ✓ <https://youtu.be/E6OXZ9OHpVk> (Explanation on the application of lines withdrawing)

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

Learning objectives	Core concepts(Chapters/Topics)
1.4.5 Define lettering and numbering. 1.4.6 Classify letters style. 1.4.7 List the types of letters. 1.4.8 Define freehand lettering. 1.4.9 List the size of letters. 1.4.10 State the rules for lettering and numbering. 1.4.11 <i>Ensure clean and neatness of drawing.</i> 1.4.12 <i>Ensure Proper handling of drawing instruments.</i>	1.5 Draw letters and numbers

B. Competencies

- ✓ Draw letters and numbers as per the given scale.

C. Pedagogy/Learning experience

- **Contact:**

- ✓ Make learners read INFORMATION SHEET 1.5
- ✓ Make the learners perform OPERATION SHEET 1.5
- ✓ Share the weblink <http://ednotebook.hostgator.co.in/basics-of-engineering-drawing> that explains the techniques of lettering and numbering)
- ✓ The learner gathers the information from the web links.

- **Non-contact**
 - ✓ The following web link can be shared with the learners or other learning resources (articles, online content, etc.)
<http://ednotebook.hostgator.co.in/basics-of-engineering-drawing> (Explains the techniques of lettering and numbering)
 - ✓ Make learners go through the given link <https://youtu.be/onJIaSAkiEs> (describe the ways to write letters and numbers)
 - ✓ Based on the information obtained from the learning resources, the learner develops notes.

D. Assessment

- **Contact**
 - ✓ Make learners solve the SAMPLE SELF CHECK 1.5
 - ✓ Give additional questions from CBLM and other resources- Google/YouTube.
 - ✓ Assess learner’s ability to transfer conceptual knowledge into developing a model using a checklist/rubric. Provide necessary intervention based on the assessment.
- **Non-contact**
 - ✓ Assess the learner's conceptual understanding of lettering and numbering by assessing the answers to questions of SAMPLE SELF CHECK 1.5 uploaded in the Google Classroom. Provide necessary intervention following the assessment.
 - ✓ Provide additional questions from CBLM

E. Resources(online and offline)

- ✓ Competency-Based Learning Material for Classes IX & X, REC
- ✓ <http://ednotebook.hostgator.co.in/basics-of-engineering-drawing> (Explanation on the techniques of lettering and numbering)
- ✓ <https://youtu.be/onJIaSAkiEs> (description on the ways to write letters and numbers)

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

Learning objectives	Core concepts(Chapters/Topic)
i. Define dimension. ii. State the types of dimensions. iii. Explain the system of dimensions. iv. State the terminologies of dimensions. v. State the rules for dimensioning. vi. Carryout dimensioning.	1.6 Provide dimensions

B. Competencies

- ✓ Provide dimensions as per the standard.

C. Pedagogy/learning experience

- **Contact:**

An instructor may carry out the instructional practice on lettering and numbering through the following order.

- ✓ Make the learners read INFORMATION SHEET 1.6
- ✓ Make the learners go through OPERATION SHEET 1.6
- ✓ Share the weblink <https://youtu.be/XS0lJsmY-qg> that explains the types of dimensioning and systems of dimensioning).

- **Non-contact**

- ✓ Make learners go through the given web link <https://youtu.be/XS0lJsmY-qg> that explains the types of dimensioning and systems of dimensioning) and take notes.

D. Assessment

- **Contact**

- ✓ Assess learner's ability to identify types of dimensions and the learner's conceptual understanding of systems of dimensioning. Provide necessary intervention if needed.

- **Non-contact**

- ✓ Make learners perform OPERATION SHEET 1.6
- ✓ Assess the learner's conceptual understanding of dimensioning by assessing the answers to questions of SAMPLE SELF CHECK 1.6 uploaded in the Google Classroom. Provide necessary intervention following the assessment.
- ✓ Provide additional questions from CBLM and other resources- Google/YouTube and let learners submit answers through Google Classroom or any other social media platforms

E. Resources(online and online)

- ✓ CBLM
- ✓ <https://youtu.be/XS0lJsmY-qg> (Explanation on the types of dimensioning and systems of dimensioning).

RESOURCES

- 1) Technical and Vocational Education and Training (TVET) New normal Curriculum Framework (Classes: PP-XII)
- 2) Competency Based Learning Materials (Furniture Making)