National School Curriculum

TVET CURRICULUM FRAMEWORK

Classes PP-XII

School Curriculum Division
Department of School Education
Ministry of Education and Skills Development
Royal Government of Bhutan

“Your parents, relatives, and friends would be very proud of what you have achieved. At your age, to have completed your studies is your personal accomplishment. Your knowledge and capabilities are a great asset for the nation. I congratulate you for your achievements.

Finally, your capabilities and predisposition towards hard work will invariably shape the future of Bhutan. You must work with integrity, you must keep learning, keep working hard, and you must have the audacity to dream big.”

- His Majesty Jigme Khesar Namgyel Wangchuck

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Foreword

Technical and Vocational Education and Training (TVET) aims to equip learners with knowledge, skills and competencies required in particular occupations or more broadly in the labour market of today and tomorrow. High-quality vocational education and training systems that offer a strong work-based learning opportunity facilitate young people's easy transition to work and also contribute to reducing unemployment and supporting economic development of a nation. TVET is also a powerful means of empowering people to develop their full capabilities that enable them to seize social and employment opportunities, and increase the productivity of both workers and enterprises.

The role of education in social and economic progress has long been recognized. Education promotes functional and analytical ability and thereby helps in opening up opportunities for individuals and groups to achieve greater access to labour markets and better livelihoods. An educated labour force is essential if we are to meet the requirements of an efficient labour force for faster economic growth. Education is not only an instrument of enhancing efficiency but is also an effective tool of widening and augmenting participation and improving the overall quality of individual and societal life. Knowledge, skills and competencies are the engines of economic growth and social development of any country. Countries with higher and better levels of knowledge, skills and competencies respond more effectively and promptly to challenges and opportunities of globalisation.

The outputs of a well-structured TVET system have allowed countries such as Canada, Australia, Germany, Singapore and Japan to become global leaders in every aspect of their enterprises in a short period of time. The key strategy that these countries use is the promotion and marketing of TVET as an alternative to the more traditional mode of advancement and education. This is done by integrating competency-based training with academia both at the school and tertiary level.

Given the importance, the Royal Government of Bhutan has initiated to impart TVET in some vocational training institutes. The private agencies are also encouraged to offer the courses. Although some vocational courses are offered in secondary schools as optional subjects, the impact is not as desired. This has led to the need to revamp the TVET programme as an alternative pathway to education. The new approach includes sensitization programmes in the form of vocational clubs, pre-vocational orientation programmes and career guidance which are initiated right from primary level to higher secondary with proper guidelines, so as to create better awareness on TVET.

This would provide better sensitization and exposure to students and enable them to make informed decisions in choosing the right vocations/trades as optional subjects in their classes IX-XII levels of education. These courses are to be offered on a modular basis with the opportunity of credit transfer when they continue higher studies in vocational training institutes later. This opens up an

alternative pathway to education which would provide opportunity for the students to undergo certain modules of vocational subjects in the schools and at the same time avail the opportunity to continue academic studies in the tertiary institutes. This option would produce graduates who will be more flexible, analytical, adaptable, and multi-skilled in terms of responding to the changing needs in the job market. This is also intended to provide a sound foundation for learning TVET at primary, secondary and tertiary level and to develop required competencies as means of achieving lifelong learning.

Karma Galay
Director General

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1. INTRODUCTION

1.1 Background

Technical and Vocational Education and Training (TVET) means education and training which provides knowledge and skills for employment. It comprises education, training and skills development related to a wide range of occupational fields, production, services and livelihood. The School Curriculum Division (SCD), Ministry of Education and Skills Development (MoESD) envisages 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) actually 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), MoE 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 the '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 then Ministry of Labour and Human Resources and erstwhile Department of Curriculum Research and Development, MoE, Vocational Curriculum has been introduced in the schools with the assistance from TTIs since 2011. After the first MoU that was signed between the then 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 BluePrint' 2014-2024, which recommends up-scaling and diversification of TVET in schools through the provision of alternative pathways in schools and in 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 the then REC, MoE and MoLHR was also signed in 2018 to implement the programmes collaboratively.

1.2 Rationale

We live in a globally competitive and knowledge-based economy where technological changes and concern for availability and sustainability of skilled manpower are the norms. For Bhutanese youth to function, compete, and excel in this 21st century environment, they require education and training opportunities that are current, engaging, and responsive to labour market needs. The TVET will provide students with the basic skills and competencies that will allow them to transition

successfully into the workplace, apprenticeship opportunities, post-secondary education, and their daily lives.

The World Bank's 2019 World Development Report on the future of work suggests that flexibility between general and vocational education, particularly in higher education, is imperative to enable workers to compete in the changing labour market. Many countries emphasise on the role of education in preparing learners effectively for the world of work. School- based TVET is viewed as an important component in promoting economic growth in general and addressing youth unemployment in particular.

Our country also continues to experience labour shortages in the skilled trades because of a few young people opting technical/vocational related careers. Therefore, TVET can serve to address those deficiencies in the skilled trades, make our youth globally competent and encourage them to explore career options in technical/vocational fields both within and outside the country. It can also provide the students with opportunities to apply their learning using an interdisciplinary and cross-curricular approach while at the same time integrating learning from their own personal experiences.

TVET like any other subjects also contributes to the 7 key competencies of the National School Curriculum Framework like spirituality and values, language, transversal competencies, enterprising and industrious, sustainable living, health and being, and digital competencies.

In a nutshell, the introduction of TVET with proper strategy and planning will allow students to either enter the job market or pursue higher studies through certification and recognition of their prior learning through credit transfer system, thereby enhancing their employment opportunities and addressing the national demand for skilled manpower. It can also help the children to generate interests and imbibe values related to technical/vocational subjects, and thereby inculcate positive

2. GOALS

The introduction of TVET in the school education system will:

- Provide an alternative pathway of TVET to children through diversification of subjects that facilitate students to study the subjects of their interest and aptitude and build a foundation for higher technical/vocational training courses.
- Contribute to building skilled human resources to meet the national demand.
- Empower students to recognise their potential and pursue technical/vocational courses for gainful and self-employment, acquiring employability skills for an effective transition from school to work.

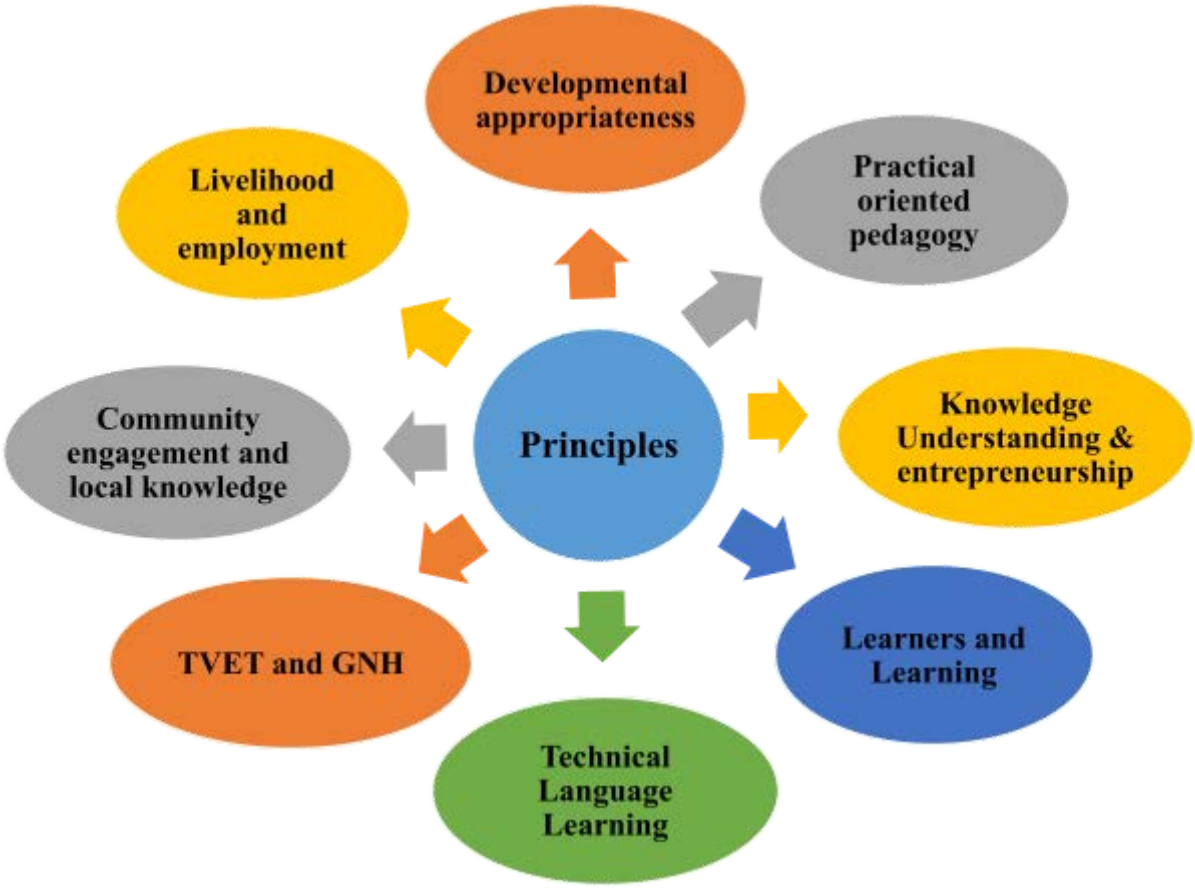
- Foster innovation, entrepreneurship and nurture creativity in children to generate diverse opportunities for socio-economic development.
- Make the students understand the importance of becoming self-reliant and lifelong learners by acquiring the skills and knowledge needed in the future.
- Provide opportunities for students in understanding Bhutanese culture better through learning traditional arts and crafts through interdisciplinary approaches.
- Promote dignity of labour, work ethic and change the attitude towards technical/vocational professions, for nation's self-reliance.
- Inculcate a sense of professionalism at work guided by the occupational health and safety standards and practices.
- Groom the youth to be skilled in the world of work and to be globally competent.

3. KEY COMPETENCIES

- Apply knowledge and skills in various situations (under guidance or with varying degree of responsibility)
- Carry out the tasks/processes in various contexts (known, familiar and unfamiliar contexts)
- Generate ideas and provide a range of responses or solutions to address the familiar/unfamiliar problems.
- Be disciplined in thought and action by being honest, diligent, and respectful without getting settled for complacency, mediocracy and indifference.
- Communicate effectively and market the products.
- Carry out new ventures meticulously and sensibly in collaboration with others.
- Exhibit multiple ideas and practical skills to succeed in life.
- Practise efficient use of resources contributing to sustainable living.
- Promote health and wellbeing through fulfilling business ventures that can bring positive change in the society.
- Keep abreast of the new technological development and mechanise the tasks for better outputs/products.
- Contribute to the 7 key competencies of the National School Curriculum Framework like spirituality and values, language, transversal competencies, enterprising and industrious, sustainable living, health and being, and digital competencies (Refer NSCF).

4. GUIDING PRINCIPLES

The development of the TVET curriculum framework is informed and guided by the following eight principles that transpired from the series of consultations with technical/vocational educators, professionals, and other stakeholders, and also optimising the global trends.



This section takes each principle in turn and shows how the TVET Curriculum Framework is linked and guided by the following principles:

4.1 Developmental Appropriateness

The TVET Curriculum Framework emphasises on the development of an appropriate curriculum, based on the knowledge and skills about how children develop and learn. It is developed considering the following theories:

i. ***Stage theory of development proposed by Jean Piaget***

During Key Stage 1, the TVET curriculum focuses on concrete everyday experiences for young learners through games, arts and crafts, drawing and model making. At Key Stage 2, higher technical/vocational related contents widen in terms of geometry, measurement, shapes, scientific concepts, and safety practices. Similarly, the level progresses in a deeper manner, enabling the children to translate their learning to their daily living, gaining knowledge and skills required for semi-skilled and skilled manpower.

ii. Bloom's taxonomy of the cognitive, psychomotor, and affective domains to inform the writing of the key learning outcomes

For example, in the lower key stages, there is more focus on learning outcomes, which require learners to be able to name, identify, recall, and describe. At higher key stages the focus changes to learning outcomes where learners are required to explain, apply, synthesise, evaluate, and create. Similarly, the psychomotor (imitation, manipulation, precision, articulation, and naturalisation) and affective (receiving, responding, valuing, organising and characterising) domains are taken care of.

iii. The outcomes of the consultation meetings

At all the stages of development, key stakeholders' views were sought ensuring TVET to be developmentally appropriate and progressive for learners and that it fulfils the needs of the Bhutanese society.

4.2 Practical Oriented Pedagogy

The approach to teaching TVET must base on theories on learning by doing, experiential learning and psychomotor focused approaches. Unlike other subjects, TVET must focus on providing learning experiences that will not only enhance knowledge but also focus on psychomotor skills and the right attitude. The curriculum must clearly specify the amount of time and engagement allotted to practical field works in labs and workshops in a progressive manner as students climb up the levels. Emphasis must be to enhance creativity, innovation, and problem-solving skills through the curriculum.

Pedagogical approaches must be supported through well-facilitated classrooms, workshops with required standard tools, models, equipment, and training materials. ICT must be integrated as an integral part of technical/vocational subjects as and when feasible to enhance the effectiveness of teaching and learning.

The pedagogical approaches should be inclusive and be able to cater to the needs of differently abled students, irrespective of gender.

4.3 Knowledge, Understanding and Entrepreneurship

Every subject area of the school curriculum must contribute to the general education of the learners so that they are:

- factually well informed;
- capable of innovating and appreciating technical/vocational objects of aesthetic significance;
- endowed with rich social and cultural values;
- able to make informed decisions in choosing the career;
- motivated to learn, be innovative, creative, and enterprising;
- aware of the importance of dignity of labour;
- aware of occupational health and safety.

The aspiration of the TVET is to inculcate in the learners the notion of the dignity of labour, imbibe entrepreneurial skills, observe occupational health and safety, be divergent in thinking guided by the technical/vocational knowledge and skills in addressing the national challenges of the skilled manpower and developing professionalism in the technical/vocational field.

Therefore, the TVET has been developed not only to give the learners a strong foundation in different technical/vocational trades, but also to develop love for technical/vocational trades, inculcate a sense of professionalism and embrace job opportunities available in technical/vocational fields. So that they are factually well informed and become skilled.

Besides becoming skilled and contributing to the national economy, they can further broaden their scope by becoming globally competent through innovation, creativity b entrepreneurial skills.

4.4 Learners and Learning

Children learn from birth, and learning continues throughout their lives. They already bring an understanding of the natural world to the technical/vocational classroom. As soon as learners start to interact with the environment, they start developing personal beliefs, concepts, and skills about the world around them. Using their innate quality, past experiences and interests, children begin to unfold their potential in different areas of work. The differently abled children also display their hidden talents, if provided opportunity. Thus, every opportunity must be created to cater to their varied capabilities as per Howard Garner's multiple intelligence and provide avenues for them to exhibit their calibre and accordingly groom them to pursue the career of their choice.

Therefore, the learning environment and avenues are provided by offering various technical/vocational trades, clubs, and pre-vocational orientation programmes to the children of diverse abilities, in all classes, to tap their interest and potential, enabling them to pursue the occupations as per their interest, choice, and calibre.

4.5 Technical Language Learning

Scientific and technical terminology is vital for learners to effectively comprehend and communicate their ideas and study findings, to the class and the wider world while studying technical/vocational subjects.

Children should learn the technical terms focused on day-to-day technical/vocational practices through defining, describing, and explaining them and be able to interpret the drawing and design in practice.

The language of technical English must be considered as per developmental stages, directly using commonly understood terms with reasoning, note taking, listening, summarising and report writing along with the elements of grammar and vocabulary as per the following key stages.

It should focus on clear communication for situations where you may be using technical language and need technical writing and speaking skills. This will provide students with the skills and technical vocabulary to discuss a broad range of technical communication.

4.6 TVET and GNH

TVET with underlying principles of GNH should cater to holistic teaching and learning which will address socio-economic challenges and encourage learners to acquire necessary life skills to face it.

A curriculum infused with GNH promises more meaningful education and the four pillars of GNH can be incorporated, including but not limited to, in the following ways.

i. Sustainable and equitable socio-economic development

- skilling for employment.
- the use of resources in a sustainable approach.
- Innovation and creativity.

ii. Conservation of environment

- Environmentally friendly practices
- Green technical/vocational education and skills
- Proper waste management
- Use of renewable resources.

iii. Good Governance

- ethics such as integrity, commitment, dedication etc.
- professionalism in delivering one's duty prescribed to occupational standard.
- technical/vocational leadership such as leading, mentoring, coaching, supervising, managing etc.
- participation in decision-making, consultation, teamwork, collaboration etc.

iv. Preservation and promotion of culture

- Unique traditional arts and crafts
- indigenous know-how
- community support and participation.

4.7 Community Engagement and Local Knowledge

TVET must optimise on the local human resources that are available to incorporate local knowledge on various trades of Technical/Vocational Education and Training (TVET). The community is an asset that can add greater value to TVET through collaboration with trade-specific local experts on carpentry, electrical, tailoring, masonry, and any other available areas to provide additional information on know-how and hands-on experience to the students.

Community engagement and local knowledge are about bringing the real-life component to the teaching of TVET and leveraging it to further motivate and encourage students to see the possibilities of livelihood and income generation.

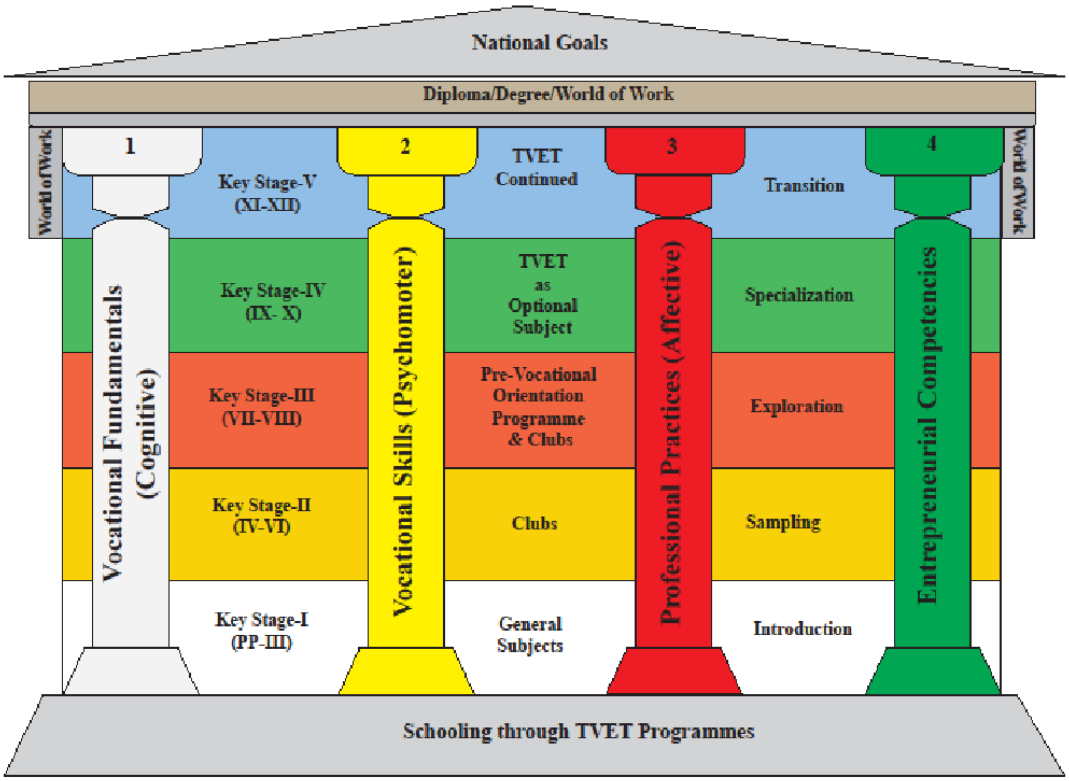
Projects and field trips aimed at the aforementioned end goals should become integral parts of TVET teaching in schools. It must also serve to preserve and promote traditional and local cultures.

In delivering the TVET curriculum, a networked approach based on collaboration with relevant stakeholders for sharing of resources, both material and human, including industry participation should be prioritised.

4.8 Livelihood and Employment

Technical/vocational Education must be guided by the current ground reality of skills mismatch. Therefore, priority must be given to skilling through the TVET to address the mismatch and enable students to avail livelihood and employment opportunities as per the changing socio-economic landscape. It should also support the interested students to pursue post-secondary technical/vocational education for national certification that will enhance their scope of employment.

The subject must incorporate entrepreneurial competencies to enable students to plan, start, and run a business in technical/vocational fields to boost self-employment and socio-economic development. A provision must also be created to those who have a passion to be technocrats, craftsmen, and artisans through programmes such as ATP, industrial attachment and recognition of prior learning (RPL) in collaboration with relevant stakeholders. As a result, this will provide a platform for lifelong learning.



5. CURRICULUM STRUCTURE AND ORGANISATION

5.1 Strands

Four strands have been identified as the main components of study right from pre-primary to class XII. Everyday teaching and learning will contribute towards the enhancement of the strands and as students progress to higher classes their understanding and competencies in each strand will accordingly get broadened.

i. **Technical/Vocational Fundamentals (Cognitive)**

Technical/Vocational Fundamentals are fundamental concepts and knowledge in both numeracy and literacy that are essential for students to learn to become an informed individual in the area of study. Students should be able to make relevant connections to cross-curricular areas, including but not limited to, sustainable development, entrepreneurship, innovation, and scientific literacy related to the subject matter.

ii. **Technical/Vocational Skills (Psychomotor)**

Technical/Vocational Skills include the basic technological know-how in the field of study that will assist students to pursue post-secondary education in the subject and enhance their scope of employment in the related industries. This strand focuses on providing practical experiences that will help children develop and hone their required skill sets necessary to pursue higher studies or to join the job market.

iii. **Professional Practices (Affective)**

Professional practices include values such as occupational health and safety, the dignity of labour, respect for work etc. that are expected to be taught and inculcated in the due course of studying the subject. This strand is expected to inculcate a positive attitude and appreciation towards technical/vocational professions.

iv. **Entrepreneurial Competencies**

Students enhance their understanding of the professional practices related to the subject matter such as issues, the scope of employment and career possibilities through attachment, career counselling, projects and field visits so that school to workplace transition is smoothened. This will also help students make informed decisions on their career prospects and develop entrepreneurial competencies such as innovation, creativity, problem solving and planning.

Note: *Since 5.1 c and 5.1 d are process strands which are not vividly captured in the content, some programmes need to be carried out at different levels of classes. The entrepreneurship modules that are offered in TTI/IZC will be taught from classes IX to XII exploring various strategies.*

5.2 Key Stages

The learning standards of the students will get enhanced as they progress to higher classes, not only through the study of technical/vocational subjects but also through the study of other subjects and programmes as described below.

i. Key Stage 1 (Classes PP-III): Introduction

This period is best described as the "symbolic mastery." What is important at this key stage is the opportunity to explore and to work intensively with materials that nourish human intelligence.

Through the study of subjects like English, Dzongkha, Mathematics and ICT, the students are introduced to basic terminologies, pictures, shapes and objects, patterns, measurements, names, sketching, colouring, and safety practices related to TVET. They will also explore their immediate surroundings and experience technical/vocational related activities through games, arts and crafts, drawing and model making.

ii. Key Stage 2 (Classes IV-VI): Sampling

The children in this key stage develop a new quality of mind. They start to understand and get better perspectives on activities related to various trades. Therefore, the children are capable of thinking logically and are ready for a deeper understanding of different subject areas.

Through the study of subjects, students will learn higher technical/vocational related contents in geometry, measurement, shapes, scientific concepts, safety practices and values that are applicable to everyday occurrences and be introduced to concepts of jobs and job markets in social studies. Moreover, they will also be introduced to farming, industry and other technical/vocational opportunities.

In addition, the Technical/Vocational sampling programme can be conducted by making the students visit other clubs besides choosing one club. It will provide them with the opportunity to support sampling and improve their awareness and understanding of the scope of technical/vocational education. Through the implementation of guidelines for the technical/vocational clubs (at least one club in a year), students will get a basic hands-on experience about a few trades.

iii. Key Stage 3 (Classes VII and VIII): Exploration

In the adolescent years, there are significant developments, mainly the movement towards abstract thinking, dealing logically with multifaceted situations and the development of meta cognitive abilities.

Through the study of various subjects, understanding of technical/vocational concepts will widen and relations can be drawn across different fields. Students will continue to associate their learning to the various concepts pertaining to technical/vocational education in a deeper manner and be able to translate their learning to their daily living.

The Pre-Vocational Orientation Programme (PVOP) will be organised (at least twice a year) in the form of talks by guest speakers, presentations, exhibitions, field visits etc. It is aimed at enhancing students' understanding of technical/vocational education with focus on various trades like plumbing, masonry, carpentry, electrical, arts and crafts etc. The institution of pre-vocational orientation program at this stage is aimed at allowing them to further explore their interests in various technical/vocational areas and make decisions that may lead to pursuing higher education in certain technical/vocational trades. It will be followed by technical/vocational club formation in the areas of their interest. The students after joining technical/vocational clubs will be taught basic concepts with a marked difference of practical learning/hands-on learning experiences. In addition, the students can be equipped better to choose the technical/vocational subjects through career counselling.

iv. Key Stage 4 (Classes IX to X): Specialisation

At this key stage, learners demonstrate significant developments in terms of logical and abstract thinking and are able to comprehend complex situations. For older children, education is for understanding, for mastering disciplines and for apprenticeship.

At this stage, students will be allowed to opt for a technical/vocational trade of their choice and interest as an elective subject for specialisation, through proper career guidance and counselling to let them make informed decisions. These students will start to study the subject in a deeper manner,

utilising the allotted time round the year for two years to enhance knowledge, skills and professional competencies, which are expected to make them semi-skilled and job ready, if they choose to join the job market. The curriculum will be offered on a modular basis with the provision for credit transfer, should the students choose to continue their education in technical/vocational institutes and others.

The focus will be more on skilling through more practical classes. When they complete the course, students are expected to be competent to carry out basic skill work in their field of study. The common competencies can be further enhanced through career counselling, professional practices, occupational health and safety, innovation, creativity, entrepreneurial skills, and related values which will be covered in the modules.

v. Key Stage 5 (Classes XI and XII): Transition

At this key stage, the learners have well developed meta cognitive abilities and an understanding of the natural world around them. Children with young and maturing minds are moving towards making critical and informed decisions about career and becoming a productive member of society.

At this stage, students will continue to study additional modules on the trade they chose in stage 4 to specialise and develop skills to facilitate transition to the workplace or tertiary education programme. Similar to stage 4, students can transfer their modular credits for lateral entry to technical/vocational institutes and others, which would facilitate them to become skilled. This is allowed with the aim to reduce waste of time and resources for both the individual and the government, besides recognising their prior learning.

In addition, career counselling, professional practices, occupational health and safety, innovation, creativity, entrepreneurial skills, and related values incorporated in the modules can enable the graduates to further enhance their skills needed for the higher level of proficiency.

5.3 Key Stage Competency-based Standards (Strand wise)

The expected key learning standards of each strand for different key stages are mentioned below:

Strand 1: Technical/Vocational Fundamentals (Cognitive)

By the end of Key Stage 2 (Classes IV-VI) students should be able to:

- state what technical/vocational education is.
- observe different types of technical/vocational trades.
- identify basic tools and equipment
- state the uses/functions of different types of tools and equipment.
- explain the fundamental terminologies, pictures, shapes and objects, patterns, measurements, names and sketching related to trades.

By the end of Key Stage 3 (Classes VII-VIII) students should be able to:

- describe the nature of the work of different technical/vocational occupations.

- State the fundamental technical concepts involved in the particular trades.
- demonstrate one's potential required in different trades.

By the end of Key Stage 4 (Classes IX-X) students should be able to:

- describe the fundamentals of particular trades that they have opted to study.
- identify different types of tools, equipment and materials required for specific trades.
- state functions and working principles of tools, equipment, and other trade related resources.
- List basic occupational health and safety rules.
- Explain Personal Protective Equipment (PPE).
- Carry out the computation and conversion of measurement scales.
- interpret engineering drawings and symbols.
- Carry out basic calculations and estimations for particular task.

By the end of Key Stage 5(Classes XI-XII) students should be able to:

- Interpret theories of particular trade that they have opted to study in depth.
- identify additional tools, equipment and materials required for specific trades.
- explain the functions and working principles of additional tools, equipment, and other trade related resources.
- justify occupational health and safety rules.
- explain computation and conversion of measurement scales.
- carry out calculations and estimations for any given job.
- interpret basic engineering drawings and symbols.

Strand 2: Technical/Vocational Skills (Psychomotor)

By the end of Key Stage 2 (Classes IV-VI) students should be able to:

- experience different technical/vocational trades through clubs.
- get hands-on experience of basic tools related to different trades.
- develop basic models/products.
- follow safety rules to carry out activities.
- carry out measurement.
- draw sketches.
- explore their immediate surroundings and experience skill-based activities through games, arts and crafts, drawing and model making, colouring, etc.

By the end of Key Stage 3(Classes VII-VIII) students should be able to:

- get hands-on experience of different technical/vocational trades through PVOP and club activities.
- get hands-on experience of additional tools used for different trades.
- use safety rules to carry out activities.
- carry out measurement and conversion.

- draw basic technical symbols and drawings.
- demonstrate and produce additional products

By the end of Key Stage 4 (Classes IX-X) students should be able to:

- translate theoretical or scientific concepts to real world applications.
- make proper use of tools and equipment and carry out their maintenance.
- observe occupational health and safety and use PPE.
- carry out drawing and estimation of a particular task.
- draw basic engineering drawings.
- demonstrate competencies as per prescribed modules to fulfil all specified elements of competencies as per NCS.
- perform semi-skilled work in opted trades as per the national competency standard (NCS)

By the end of Key Stage 5 (Classes XI-XII) students should be able to:

- translate theoretical or scientific concepts to real world applications for additional modules.
- make use of the tools and equipment professionally and carry out their maintenance.
- apply occupational health and safety and use PPE.
- carry out drawing and estimation of a particular job.
- draw engineering drawings.
- demonstrate competencies in additional prescribed modules to fulfil all specified elements of competencies as per NCS.
- perform semi skilled work in opted trades as per the national competency standard (NCS) for additional modules.

Strand 3: Professional Practices (Affective)

By the end of Key Stage 2(Classes IV-VI) students should be able to:

- observe different kinds of technical/vocational occupations.
- justify the importance/aesthetic values of different technical/vocational occupations.
- show interest and enthusiasm in vocational trades.
- respect technical/vocational professions.
- enjoy learning by doing.

By the end of Key Stage 3 (Classes VII-VIII) students should be able to:

- justify that there are more employment opportunities in technical/vocational fields.
- appreciate the importance and aesthetic value of different technical/vocational occupations.
- Show love, respect, and positive attitude towards technical/vocational professions.
- demonstrate interest in technical/vocational knowledge and skills.
- implement safety rules.
- create and innovate designs and products.
- explain the values and importance of technical and vocational education.

By the end of Key Stage 4 (Classes IX-X) students should be able to:

- explain that technical/vocational education could open up employment and livelihood opportunities.
- appreciate the values of technical/vocational skills and traditional arts and crafts.
- value technical/vocational education as an alternative pathway for self-employment and meaningful economic activity.
- appreciate the roles of technical/vocational professions for the community and nation as a whole.
- develop a commitment to quality, integrity, enterprise, and dignity of labour.
- comply strictly with occupational health and safety.

By the end of Key Stage 5 (Classes XI-XII) students should be able to:

- justify that technical/vocational education could open up employment and livelihood opportunities and prepare mentally to transit to technical/vocational training institutes or workplace through lateral entry.
- explain the values of technical/vocational skills and traditional arts and crafts in preserving and promoting GNH and national goals.
- contribute towards fulfilling the national goal of self-reliance in a skilled workforce.
- justify technical/vocational education to be an alternative pathway for self-employment and meaningful economic activity for national prosperity.
- explain the contributions of the technical/vocational profession for the community and nation as a whole.
- show a greater commitment to quality, integrity, enterprise, and dignity of labour.
- comply strictly with occupational health and safety and be aware of the labour act.

Strand 4: Entrepreneurial Competencies

By the end of Key Stage 2 (Classes IV-VI) students should be able to:

- state opportunities in different technical/vocational trades and work environments.
- nurture innovation and creativity through learning by doing.

By the end of Key Stage 3(Classes VII-VIII) students should be able to:

- explain opportunities in different technical/vocational trades.
- state the requirements to become technical/vocational professionals.
- explain the work environment.
- demonstrate innovation and creativity through learning by doing.

By the end of Key Stage 4 (Classes IX-X) students should be able to:

- make an informed choice of the technical/vocational subject through career guidance and counselling.
- apply innovation and creativity in the technical/vocational field to carry out project work.
- gain experience of working in a real time environment for the particular trade.

- experiment problem solving through innovation and creativity in fixing minor issues related to their trade.
- explore work opportunities available in the locality for short term or long-term engagement.
- justify the importance of teamwork and collaboration.
- justify that through innovation and creativity, technical/vocational education can lead to individual and collective economic success.

By the end of Key Stage 5 (Classes XI-XII) students should be able to:

- prepare themselves for national certifications and lifelong learning for career progression.
- make an informed choice of the technical/vocational subject through internship and work experience.
- apply problem solving through innovation and creativity in a real work situation.
- work in a real time environment for the particular trade.
- capitalise on entrepreneurial knowledge and skills to start a business.
- collaborate with others and work in a team.
- explain that through innovation and creativity, technical/vocational education can lead to greater individual and collective economic success.

5.4 Class-wise Competencies (Annexure I to IX)

5.5 Learning Objectives, Core concepts (Chapters/Topics) and Process Essential Skills (Annexure I to IX)

The content areas with instructional hours, class-wise competencies and learning objectives for each class are specified for different chapters as per the trades that are offered. Since they differ from trade to trade, they are mentioned differently as annexures. They can be accordingly developed for new trades in future as per need.

6. TEACHING AND LEARNING APPROACHES

Progressive education is focused on creating critical thinkers and inquirers who are active learners. According to John Dewey and other educators, progressive education must prepare learners for active participation in education. The focus of education must be creating critical thinkers and inquirers who are active learners. Most progressive education programs have the following qualities in common:

a. Blended learning- use of ICT and online resources
b. Use of 21st century skills.
c. Integration of entrepreneurship into education
d. Highly personalised learning with differentiated instruction accounting for each individual's personal needs and goals
e. Integration of community service and projects into the curriculum
f. Content based on knowledge and skills needed both in the present and future society

g. Emphasis on lifelong learning and social skills

Therefore, the TVET curriculum must be implemented following the progressive educational approaches:

Place Based Education

Place Based Education (PBE) is an approach that connects learning and communities to increase student engagement, academic outcomes, and community impact**.** PBE emphasises on "hands-on, real-world learning experiences" and gives students opportunities to connect to the culture, ecology, and economy of local places. The PBE concept is explained through ten principles – community as classroom, interdisciplinary learning, design thinking, connections, enquiry-based learning, real-world challenges, partnerships, learner-centred, content rich, and local to global. In the Bhutanese context, a place can relate to the ecology, economy, culture, and governance system of a place.

Competency Based Education

Competency Based Education (CBE) refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating that they have learned the expected knowledge and skills as they progress through their school education. The CBE concept is based on five design principle:

a. Learners advanced to higher-levels upon demonstration of mastery and not age. They are assessed on performance or the application of the skills;
b. Learning objectives are explicit and measurable and are shared with the learners. Students take responsibility for their learning, thereby increasing their engagement and motivation. Learning expands beyond the classroom.
c. Assessment is meaningful and supports positive learning experiences for students. Teachers assess skills or concepts in multiple contexts and in multiple ways. Focus is on student learning and not student grades.
d. Students receive timely and differentiated support.
e. Learning outcomes emphasise application and creation of knowledge. Learners are required to apply skills and knowledge to new situations to demonstrate mastery and to create knowledge.

Dimensions of Effective Pedagogy

The following are some of the dimensions of effective pedagogy that can be taken into consideration.

a. Creating an enabling and conducive learning environment.

Learning and development do not occur in a sequential linear fashion nor is one approach of learning equally effective to all, therefore, teachers should work towards setting up learning environments which appeal to children's interests and are relevant to their day-to-day experiences. The pedagogical approaches should create a positive psychosocial ambience where the individual learners feel included and safe. This may call for teachers to use differentiated instructions and a

variety of teaching strategies to make learning accessible to all. Direct hands-on experiences encourage children for interaction, engagement, and involvement, which in turn, lead to improved understanding, recall and the development of mental representations. This approach supports children and young people as they move from concrete, tangible experiences to symbolic and abstract notions. As children develop their learning, dynamic learning environments provide a context for dealing with issues in depth and from multiple perspectives. Therefore, schools should create school environments that meet the educational, social, emotional, physical, and recreational needs of students.

b. Making learning relevant and meaningful

Relevance is a crucial factor in all kinds of learning. Students learn best when they feel that what they are studying is worth learning because it is meaningful and relevant to their lives. At the same time students must see the usefulness and potential application of this knowledge to their everyday lives. Effective teachers use pedagogies that connect classroom learning to the relevance of that learning in life, thus making learning more meaningful. Students should also be exposed to contexts and contents that are local, regional, and international which would be of relevance to them in their further education and career opportunities, thus making them part of the global village.

Learning can also be made relevant and meaningful by connecting prior learning to new learning. Learners come to the classroom with a broad range of pre-existing knowledge, skills, beliefs, and attitudes, which influence how they interpret and organise new information. How they process and integrate this information will, in turn, affect how they remember, think, apply, and create new knowledge. Since new knowledge and skill is dependent on pre-existing knowledge and skill, knowing what learners know and can do when they come into the classroom or before they begin a new topic of study, can help us craft instructional activities that build off of student strengths and acknowledge and address their weaknesses.

Once prior knowledge and skill is assessed, there is a range of potential responses, depending upon the type of course, the uniformity of results, and the availability and type of supplemental materials and alternatives. Another way of making learning relevant and meaningful is by using pedagogies that facilitate cooperative, collaborative, and shared learning. Students learn best when engaging in shared activities and work in cooperation and collaboration with other learners. In shared activities everyone, including the teacher becomes a learner. Through this, learners share their opinions, remain engaged and take the ownership of their own learning.

c. Fostering reflective practices

Effective pedagogies leave rooms for learners to reflect on their learning process. One of the ways to do this is by using pedagogies that allow learners to participate in empowering activities in which they understand that learning is a process and mistakes are a natural part of learning. Teachers incorporate learner experiences, interests, and real-life situations in instructions. Reflection, particularly at the higher levels, can lead to greater self-awareness, which in turn is a first step to positive change. Taking time to reflect can help students identify approaches that have worked well, and in that way reinforce good practice and reflect on why some approaches did not

work. Such metacognitive strategies can enable students to transfer learning to other disciplines and domains.

d. Promote inquisitiveness

Effective pedagogies should support and encourage learner's commitment to initiate and complete complex, inquiry-based learning requiring creative and critical thinking with attention to problem solving. Teachers orchestrate effective classroom discussion, questioning, and learning tasks that promote higher-order thinking skills. Teacher challenges learners to think deeply about problems and encourages and or models a variety of approaches to a solution. Teachers integrate a variety of learning resources with classroom instruction to increase learning options. Teachers clarify and share with students learning intentions/targets and criteria for success. Through these strategies students become, among others, self-directed learners. All pedagogical approaches that teachers use should be based on evidence of efficacy.

e. Autonomy and flexibility

The curriculum should be flexible to accommodate localised school-based innovation and creativity for effective implementation and delivery. It should allow flexibility to teachers to customise the curricular contents to local context and adopt different teaching strategies to develop their professional knowledge and apply them accordingly. Teachers should have the autonomy to come up with alternative assessment tools to assess learners' competencies as they learn and to inform future learning.

7. ASSESSMENT AND REPORTING

Educational assessment is the process of documenting, usually in measurable terms, outcomes of knowledge, skills, attitudes, and beliefs of the learners. This includes the processes of gathering and interpreting information about the progress of their learning. For the assessment to be valuable to individuals and organisations, the assessment must be accurate and objective. The learners should be well informed about what will be assessed and how it will be assessed. This makes the teacher's expectations clear to the learners to set appropriate learning outcomes. The teachers can play an important role in the learners' achievement by effectively monitoring their learning and giving them constructive feedback on how they can improve, and providing the necessary scaffolding for the needy learners as identified through the reliable assessment techniques and tools. Evidence based online assessment systems can be initiated wherever possible for transparency and proper record.

Assessment is an integral part of the teaching and learning process because it:

a. helps improve the learners' learning through the provision of constructive feedback and comments by teachers.
b. enables the teachers to incorporate varied teaching and learning strategies and resources to ensure quality learning in the learners.
c. empowers the learners to be self-reflective who monitors and evaluates their own progress.

d. assesses the strengths and weaknesses of the learners.
e. helps to diagnose the special needs of the learners.
f. provides evidence to grade and promote the learners to a higher level.
g. helps to inform parents and other stakeholders about the achievements of the learners.

The achievements and performances of the learners in VC are assessed on the following three domains:

► ***Technical/vocational knowledge***
► ***Technical/vocational skills***
► ***Technical/vocational values, attitude, and entrepreneurial competencies***

These are assessed through the following schemes of assessment:

7.1 Continuous Formative Assessment (CFA)

Formative assessment is used to provide feedback to teachers and learners, so that teaching and learning can be improved through the provision of regular feedback and remedial learning opportunities for the learners when needed. It also enables the teachers to understand what teaching methods and materials work best.

CFA facilitates the teachers to diagnose the learning needs of the learners and recognize the individual differences in learning. Through the constructive feedback provided, the learners can understand their strengths and weaknesses. It also empowers them to be self-reflective who monitor and evaluate their own progress.

CFA should happen daily throughout the teaching-learning processes of the academic year. It is NOT graded, as it is to give continuous feedback to the learners.

The suggested techniques for CFA for the three domains are:

~ ***Technical/vocational knowledge:*** *Class work, homework, written tests without grades, observations, immediate interaction with the students, etc.*
~ ***Technical/vocational skills:*** *Demonstrations, model making, practical observation, Question and answer, homework, class work, etc.*
~ ***Technical/vocational values, attitude, and entrepreneurial competencies:*** *Viva, Observations of students' behaviour and work, conduct, sense of responsibility and ownership.*

The tools identified for CFA are checklists and anecdotal records.

7.2 Continuous Summative Assessment (CSA)

Continuous Summative Assessment is another form of continuous assessment. It helps in determining the learner's performance and the effectiveness of instructions. This assessment helps to improve the learners learning and mandates the teachers to incorporate varied teaching strategies and resources to ensure quality teaching and learning. It empowers learners to be self-reflective learners who monitor and evaluate their own progress.

In CSA, the learner's performances and achievements are graded. This ensures active participation of learners in the teaching and learning processes.

The suggested techniques for CSA for the three domains are:

~ ***Technical/vocational knowledge:*** *Project work, homework, case study, viva, and written tests.*

~ ***Technical/vocational skills:*** *Project work, homework, skill test, observation, modular assessment.*

~ ***Technical/vocational values, attitudes, and entrepreneurial competencies:*** *Observation of the learners' conduct, viva, assessment of students' behaviour, work and conduct, assessment of sense of responsibility and ownership.*

The main tools for CSA are rubrics and paper pencil tests.

7.3 Summative Assessment

Summative assessment consists of written exams, practical exams, and CSA all of which are carried out during both the terms.

Summative assessment (S) marks are summed up at the end of the year to determine the level of learning outcomes achieved by individual learners. The teachers use information gathered to grade the learners for promotion, to report to parents and other stakeholders.

The questions for the written examinations should cover all three domains of the curriculum, keeping in mind the learning objectives. Bloom's taxonomy should be referred to when designing test items to ensure proportionate distribution of questions across all levels of the cognitive domain.

Relevant and appropriate rubrics will have to be developed for assessing class work, homework, and project work for authentic assessment of all the strands.

Weighting for summative assessment (IX to XII)

Sl. No.	Type	Weighting	
1	Term I	50%	A. Written exam 5 %
			B. Practical exam 35%
			C. CA 10%
2	Term II	50%	A. Written exam 5 %
			B. Practical exam 35%
			C. CA 10%
Total		**100%**	**A+B+C**

A. Written = 10
B. Practical = 70
C. CA = 20

Details of CA

The CA should comprise of 20% theory and 80% practical (2/10 for theory and 8/10 for practical from CW, HW and PW)

Continuous Assessment (10%)	
Continuous Assessment for the term I /II (10%)	**Weighting**
1. Class Work	3
2. Homework	3
3. Project Work	4

NB: BCSEA or the external examiner will administer the written and practical exams for terminal classes (Classes X and XII) and also consider the CA marks submitted by the school. The CA will be 20% while the external marks will be 80% (10% theory and 70 % practical).

Considering the credit transfer of the courses covered in the schools, the remaining courses/OJT can be undertaken at technical institutes. Accordingly, final assessment of NC2/NC3 will be carried out by the relevant agency (BQPCA).

Weighting for strands

To ensure that all four strands are captured during the time of theoretical and practical assessment, the weighting as suggested in the table below can be considered.

1. Examinations	**Strand 1 (Concepts)**	**Strand 2 (Skills)**	**Strand 3 &4 (Values, attitudes and entrepreneurial competencies)**	**Total**
Written exam	80%	10%	10%	100
Practical exam	10%	80%	10%	100
Average	45%	45%	10%	100

2. Continuous Assessment	Strand 1 (Concepts)	Strand 2 (Skills)	Strand 3 &4 (Values, attitudes and entrepreneurial competencies)	Total
Theory 1. Class participation 2. Assignments (class /homework) **3.** Project /field trips (write up)	60%	20%	20%	100
Practical 1. Class **2.** Project	20%	60%	20%	100
Average	40%	40%	20%	100

8. ENABLING CONDITIONS

The school supported by relevant agencies must create an enabling environment that facilitates achievement of the objectives with which the subject of TVET is being introduced in the country. The environment along with textbooks as one of the tools will only help achieve the outcomes.

The context for the change will need the following:

	One Week				One Year (32 weeks)	Remarks
Class	Allotted periods (minutes)	Clubs (1 period)	Saturdays (2 hours)	Total	Total	
IX	50 x 3= 150	60	120	330	330 x 32=10560 minutes= 176 hours	New Normal Curriculum 132
X	”	”	”	”	176 hours	132
Total (IX and X)					**352 hours**	**264**
XI	50 x 6= 300	60	120	480	480 x 32= 15360 minutes= 256 hours	192
XII	40 x 6= 240	”	”	”	256 hours	192
Total (XI to XII)					**512 hours**	**384**
Total (IX to XII)					**864 hours (352+512)**	**648**

a. School leadership that understands and believes the importance of preparing the students with knowledge, skills and abilities providing the required time. The suggestive time is as mentioned below.

b. Learning environment built around a student in the constructivist approach that complements the textbooks and includes the infrastructure, workshop, tools, equipment, and training materials that are required to practice the knowledge and skills. The minimum resources required for each trade are worked out in annexures X-XVIII.

c. Recruitment of trained instructors/trainers and their capacity building continually, working in collaboration with nearby TTIs/IZC.

d. Assessment and evaluation that are designed to capture the learning outcomes in its various domains of learning and inform the learner and facilitators in real time to take corrective action.

e. An inclusive environment that encourages equity in diversity in all aspects including gender, ability, culture etc.

f. Partnerships of stakeholders, especially practitioners to enrich the learning experiences where the trainer/instructor might not have all the knowledge and experiences.

g. Student leadership for engagement as active learners.

9. CROSS CURRICULAR STUDIES

Cross curricular studies refer to the interdisciplinary linkages, as no subject can be treated as stand alone. The learning experiences acquired in one subject must supplement and compliment other subjects. Teaching of school-based TVET could contribute to reinforce and enrich the knowledge, skills and values taught in other subjects just as the knowledge, skills and values acquired from other learning areas can be transferred to TVET. For example, acquiring knowledge and skills of Occupational Health and Safety, studying scientific/mathematical concepts, laws and principles can scaffold the students' acquisition of information and experiences expected in other subjects like Science and Mathematics. The entrepreneurship module can be directly related to the business plans and skills that are there in Economics, Commerce and Accountancy. Similarly, skills such as teamwork, time management, research work, innovation, technology competence are brought to the fore as are values such as ethics, respect, responsibility, aestheticism, industry, innovation including Gross National Happiness principles through the study of TVET.

10. GLOSSARY

ATP: Apprenticeship Programme
BCSEA: Bhutan Council for School Examinations and Assessment
CA: Continuous Assessment
CFA: Continuous Formative Assessment
CBC: Competency Based Curriculum
CBLM: Competency Based Learning Materials
CSA: Continuous Summative Assessment
DCPD: Department of Curriculum and Professional Development
DCRD: Department of Curriculum Research and Development
DWPSD: Department of Workforce Planning and Skills Development
GNH: Gross National Happiness
ICT: Information and Communication Technology
IZC/CZC: Institute of Zorig Chusum/College of Zorig Chusum
MoESD: Ministry of Education and Skills Development
MoLHR: Ministry of Labour and Human Resources
MoU: Memorandum of Understanding
NC: National Certificate (Level I, II and III)
NCS: National Competency Standard
PP: Pre-Primary
PVOP: Pre-Vocational Orientation Programme
REC: Royal Education Council
RPL: Recognising Prior Learning
SA: Summative Assessment
TTI: Technical Training Institute
TVE: Technical and Vocational Education
TVET: Technical and Vocational Education and Training

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ANNEXURE I: FURNITURE MAKING

Content mapping

Class	Module	Chapter	Lesson	Theory (Hrs)	Practical (Hrs.)	Total Duration (Hrs.)
IX	**Module 1 Performing Manual Woodwork**	**Chapter 1 Practising Occupational Health and Safety (OHS)**	1.1. Applying Principles of 5s	1	2	17
			1.2. Applying OHS Practices	1	2	
			1.3. Using personal Protective equipment(PPE)	1	1	
			1.4. Maintaining workplace and personal safety	1	2	
			1.5. Maintaining tools and equipment safety	1	2	
			1.6. Using fire extinguisher	1	2	
		Chapter 2 Maintaining hand tools and portable power tools	2.1. Sharpening plane and chisel blades	2	10	52
			2.2. Sharpening saw blade	2	8	
			2.3. Grinding hand tools	1	2	
			2.4. Making handle	0.5	4	
			2.5. Sharpening auger bit	0.5	3	
			2.6. Sharpening knife	0.5	3	
			2.7. Changing portable planer blade	1	3	
			2.8. Changing circular saw blade	1	3	
			2.9. Replacing jigsaw blade	1	3	
			2.10. Replacing router bit	0.5	3	
		Chapter 3 Carrying out basic woodwork	3.1 Performing cross cut	2	8	80
			3.2 Performing rip cut	1	8	
			3.3 Planing work piece	2.5	24	
			3.4 Chiselling work piece	2.5	20	
			3.5 Drilling hole	1	4	
			3.6 Sanding work piece	2	5	

Engineering drawing				3	24	27
TOTAL				**30**	**146**	**176**
X	**Module 1 Performing manual woodwork**	**Chapter 3 (Continued) Carrying out basic woodwork**	3.7 Cutting glass	1	3	12
			3.8 Performing timber seasoning	5	3	
		Chapter 4 Performing wood joints	4.1 Making butt joint	1	5	134
			4.2 Making half lap joint	2	8	
			4.3 Making 'T' lap joint	2	8	
			4.4 Making mortise and tenon joint	2	14	
			4.5 Making miter joint	1	14	
			4.6 Making finger joint	2	14	
			4.7 Making dovetail joint	2	14	
			4.8 Performing sash joint	1.5	14	
			4.9 Making haunch joint	2	14	
			4.10 Making dowel joint	0.5	6	
			4.11 Performing basic estimation of materials	2	5	
Engineering drawing				10	20	30
TOTAL				**34**	**142**	**176**
XI	**Module 2 Making table and chair**	**Chapter 1 Making table**	1.1 Preparing table components	3	16	103
			1.2 Making table joints	4	24	
			1.3 Assembling table component	2	14	
			1.4 Making drawer	1	18	
			1.5 Assembling drawer component	1	8	
			1.6 Performing finishing work	2	10	
		Chapter 2 Making chair	2.1 Preparing chair components	3	16	59
			2.2 Making chair joint	3	20	
			2.3 Assembling chair component parts	2	15	
		Chapter 3 Making chokdrom	3.1 Preparing chokdrom components	3	24	75
			3.2 Making chokdrom joints	4	24	

			3.3 Assembling chokdrom components	2	18	
		Engineering drawing		4	15	19
Total				**34**	**222**	**256**
XII	**Module 3 Making bed and sofa frames**	**Chapter: 1 Making bed**	1.1 Preparing bed components	3	24	82
			1.2 Making bed joints	5	30	
			1.3 Assembling bed components	2	18	
		Chapter: 2 Making sofa frame	2.1 Preparing sofa components	5	23	87
			2.2 Preparing sofa joints	7	32	
			2.3 Assembling sofa components	3	18	
	Module 4 Making storage cabinet	**Chapter:1 Preparing cabinet**	1.1 Preparing cabinet components	1	18	50
			1.2 Making cabinet joints	2	10	
			1.3 Assembling cabinet components	1	18	
		Chapter:2 Making shutter joints and assemble parts	2.1 Preparing shutter components	1	12	37
			2.2 Making shutter joints	2	12	
			2.3 Assembling shutter	1	9	
			Total	**33**	**223**	**256**
			Grand Total	**131**	**733**	**864**

5.4 Class-wise Competencies

1) CLASS IX COMPETENCIES

1. Practise OHS to maintain workplace and personal safety.
2. Maintain hand tools and portable power tools for better performance.
3. Carry out basic woodwork to produce quality products.
4. Carry out basic engineering drawing properly.

2) CLASS X COMPETENCIES

1. Perform a variety of wood joints as required for durable products.
2. Carry out estimation of the materials using BSR.
3. Draw isometric blocks and orthographic projections.

3) CLASS XI COMPETENCIES

1. Make table of good quality with basic components.

2. Make chair of good quality with basic components.
3. Make chokdrom of good quality with basic components.
4. Draw objects before carrying out the tasks.

4) CLASS XII COMPETENCIES

1. Make a bed of good quality with required components.
2. Prepare the components to make a new bed/repair a bed.
3. Prepare sofa frames of different designs using a lathe machine.
4. Prepare cabinets of different designs.
5. Prepare shutter components of different designs.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
MODULE 1: PERFORMING MANUAL WOOD WORK		**IX**
Chapter 1: Practising Occupational Health and Safety (OHS) and Personal Protective Equipment (PPE)		
1. Define 5S 2. State the purposes of 5S 3. Explain the Principles of 5S 4. Define OHS 5. State the importance of OHS 6. Explain the rights of employee 7. State the main causes of accidents 8. State the safety rules	**1.1 Applying principles of 5S**	
1. Define PPE 2. State the importance of PPE 3. List the categories of PPE *4. Ensure to use appropriate PPE* *5. Ensure safe disposal of damage PPE* *6. Ensure not to use defective and damaged PPE*	**1.2 Using PPE**	
1. Define safety precaution 2. List different types of safety 3. Explain workshop and personal safety 4. State the importance of maintaining workplace and personal safety 5. Explain the importance of safety signs and symbols 6. Explain the emergency exit	**1.3 Maintaining workplace safety**	

7. Describe the layout of the workshop 8. *Ensure to follow OHS procedures* 9. *Ensure to keep the workshop clean* 10. *Ensure to ring the alarm bell before the accident spreads over* 11. *Ensure to display safety signs and symbols* 12. *Ensure to use appropriate PPE in workplace* 13. *Ensure to avoid horseplay at workplace* 14. *Ensure to avoid smoking and eating inside the workshop* 15. *Ensure to avoid working under influence of alcohol*		
1. Explain tools and equipment safety 2. State the importance of maintaining tools and equipment safety 3. List dos and don'ts of tools and equipment 4. *Ensure all the tools are in workable condition* 5. *Ensure to keep tools clean and dry, and tore them properly after use* 6. *Ensure to operate the machine when instructed* 7. *Ensure to refer manual prior to operation of tools and equipment*	**1.4 Maintaining tools and equipment safety**	
1. Define fire extinguisher 2. Label the parts of fire extinguisher 3. Explain the types of fire 4. List types of fire extinguishers 5. State the method of combating/extinguishing fires 6. *Ensure to read the instructions provided on the fire extinguisher* 7. *Ensure appropriate use PPE*	**1.5 Using fire extinguisher**	
Chapter 2: **Maintaining hand tools and portable power tools**		
1. Define blade	**2.1 Sharpening plane/chisel blade**	

2. Identify the types of plane blade 3. Define plane and function of plane 4. List the types of plane 5. Identify the parts of plane and their function 6. Define sharpening stone 7. Explain the purpose of soaking oil stone in water 8. State the purpose of maintaining sharpening angle range 9. State the purpose of applying oil on the blade 10. State the purpose of setting plane blade 11. *Ensure safe while checking the sharpness of the plane or chisel blade*		
1. Define saw 2. State the function of saw 3. List the types of saws 4. List types of saw setting tools 5. Explain the method of sharpening and setting saw teeth 6. *Ensure safe handling of saw* 7. *Ensure appropriate use of PPE*	**2.2 Sharpening saw blade**	
1. Define Grinding 2. State the function of a grinding machine 3. List the safety precaution 4. State the function of safety guard 5. Explain the working principle of grinding machine 6. *Ensure to follow safety precautions* 7. *Use to maintain cutting edge at an angle of 25° approximately* 8. *Ensure to appropriate use of PPE*	**2.3 Grinding hand tools**	
1. Identify the materials used for handle 2. State the purpose of handle 3. Explain the method of fitting handle *4. Ensure proper disposal of waste* 5. *Ensure safe handling to tools*	**2.4 Making handle**	
1. Define augur bit	**2.5 Sharpening auger bit**	

2. Identify the size of auger bit 3. Label the parts of auger bit 4. State the function of auger bit *5. Ensure not to change the angle of the bevel from the originally sharpened bit* *6. Ensure to avoid lifting the brace end to prevent the damaging of bevel edge* *7. Ensure safe handling of sharpen bits* 8. *Ensure appropriate use of PPE*		
1. Define knife 2. Identify the types of knives 3. *Ensure safe handling of knife*	**2.6 Sharpening knife**	
1. State the function of portable planer 2. Identify the parts of planer machine 3. State the portable planer safety precaution ***4. Operate portable planer machine*** 5. *Ensure to follow safety precautions* 6. *Ensure safe handling of power tools* 7. *Ensure appropriate use of PPE* 8. *Ensure the blade is aligned with the notch of the cutter block*	**2.7 Changing portable planner blade**	
1. Define of circular saw machine 2. List the parts of circular saw machine 3. State the type of saw blades ***4. Operate circular saw*** 5. *Ensure appropriate use of PPE* 6. *Ensure that the stock is well supported to prevent getting the kerf close, binding the blade, and causing a kickback* 7. *Ensure to support thin materials near the cut* 8. *Ensure to adjust the depth of cut, so that the ends of three teeth are extended to ¼" (6 mm)* 9. *Ensure to check the base and angle adjustments are tightened before using a saw*	**2.8 Changing circular saw blade**	

10. Ensure to let the blade touch the workpiece only after the machine is switched on *11. Ensure to hold the machine by both hands if two handles are provided* *12. Ensure the saw blade has stopped running before resting it on the workbench* *13. Ensure to unplug the power cable while making adjustment or to changing blade* *14. Ensure to use sharp blades and keep the blade guard functional* *15. Ensure to avoid overextending or overreaching and losing balance while using the portable circular saw*		
1. State the function of jig saw machine 2. Identify the parts of jigsaw machine ***3. Operate jigsaw machine*** *4. Ensure to cut the workpiece at normal speed* 5. *Ensure safe handling of power tools* 6. *Ensure appropriate use of PPE*	**2.9 Replacing jigsaw blade**	
1. State the function of router machine 2. State the types of router bit ***3. Use router machine*** *4. Ensure to cut the workpiece at normal speed* 5. *Ensure safe handling of power tools* 6. *Ensure to use PPE*	**2.10 Replacing router bit**	
Chapter 3: Carrying out basic wood work		
1. Define crosscut saw 2. State the purpose of cross cutting 3. *Ensure safe handling of tools* 4. *Ensure safe use of hand saw* 5. *Ensure appropriate use of PPE*	**3.1 Performing cross-cut**	
1. State the function of rip cut saw 2. State the application of rip cut saw 3. *Ensure safe handling of tools* 4. *Ensure safe use of hand saw* 5. *Ensure appropriate use of PPE*	**3.2 Performing rip cutting**	

1. Define plane 2. List the types of marking tools 3. State the preventive measure for distortion of work piece 4. Explain the grains and textures of wood 5. *Ensure safe handling of planes* 6. *Ensure to place the plane side wise* 7. *Ensure appropriate use of PPE*	**3.3 Planing work piece**	
1. State the functions of chisel 2. Identify the different types of chisels 3. Explain the methods of chiselling 4. *Ensure safe handling of chisel* 5. *Ensure appropriate use of PPE*	**3.4 Chiselling work piece**	
1. Define drilling bit 2. List the sizes of drill bit 3. State the purpose of drilling 4. Explain the types of boring tools ***5. Operate drilling machine*** 6. *Ensure safe handling of tools and equipment* 7. *Ensure appropriate use of PPE*	**3.5 Drilling hole**	
1. Define sanding 2. State the purposes of sanding 3. Explain types of sandpaper 4. Explain the types of sandpaper grits 5. State the methods of sanding ***6. Use portable power sanding machine*** 7. *Ensure safe handling of tools* 8. *Ensure to follow safety precautions* 9. *Ensure appropriate use of PPE*	**3.6 Sanding work piece**	
Chapter 3: Carrying out basic wood work		**X**
1. Define glass 2. State the function of glass cutter 3. State the types of glass cutter 4. *Ensure proper handling of glass* 5. *Ensure proper disposal of waste glasses* 6. *Ensure to use PPE*	**3.7 Cutting glass**	

7. *Ensure to cut glass without breaking any edges*		
1. Define wood 2. Classify types of woods 3. State the characteristics of wood 4. Explain the spices of trees in Bhutan 5. State the properties of wood 6. Explain cross section of timber 7. Explain conversion of timber 8. Explain preservation of timber 9. Explain timber defects 10. Define timber seasoning 11. Explain purpose of seasoning 12. State the types of seasoning 13. Explain the methods of seasoning 14. Explain moisture content in the timber ***15. Use moisture meter*** *16. Ensure proper stacking of timber* *17. Ensure to work in team* *18. Ensure appropriate use of PPE*	**3.8 Performing timber seasoning**	
Chapter 4: Performing wood joints		
1. Define wood joints 2. Explain the purpose of butt joint 3. State the application of butt joint 4. State the requirement of wood joint 5. Explain the types of butt joint *6. Ensure safe handling of hand tools* *7. Ensure appropriate use of PPE*	**4.1 Making butt joint**	
1. Define half lap joint 2. State the purpose of half-lap joint 3. State the types of half lap joints 4. Interpret drawing 5. *Ensure safe handling of hand tools* 6. *Ensure appropriate use of PPE*	**4.2 Making half lap joint**	
1. Define “T” joints 2. State the application of “T” joint 3. State the types of “T” joint 4. *Ensure safe handling of hand tools* 5. *Ensure appropriate use of PPE*	**4.3 Performing “T” Joint**	

1. Define mortise and tenon joint 2. State the application of mortise and tenon joint 3. State the types of mortise and tenon joint 4. Interpret drawing 5. *Ensure safe handling of hand tools* 6. *Ensure appropriate use PPE*	**4.4 Performing mortise and tenon joint**	
1. Define miter joint 2. State the application of miter joint 3. Explain the types of miter joint 4. Explain the characteristics of miter joint 5. Interpret drawing 6. *Ensure safe handling of hand tools* 7. *Ensure appropriate use of PPE*	**4.5 Making miter joint**	
1. Define finger joint 2. List types of finger joints 3. State the application of finger joint 4. Interpret drawing *5. Ensure safe handling of hand tools* 6. *Ensure appropriate use of PPE*	**4.6 Making finger joint**	
1. Define Dovetail joint 2. Explain the characteristics of dovetail joint 3. List the types of dovetail joint 4. List the application of dovetail joint 5. Interpret drawing *6. Ensure safe handling of hand tools* 7. *Ensure appropriate use of PPE*	**4.7 Performing dovetail joint**	
1. Define sash joint 2. Explain the purpose of sash joint 3. State the characteristics of sash joint 4. State the application of sash joint 5. Interpret drawing *6. Ensure safe handling of hand tools* 7. *Ensure appropriate use of PPE*	**4.8 Performing sash joint**	
1. State the purpose of haunch joint 2. State the application of haunch joint 3. Interpret drawing 4. *Ensure safe handling of hand tools*	**4.9 Making haunch joint**	

5. *Ensure appropriate use PPE*		
1. Define Dowel joint 2. State the application of dowel joint 3. State the purpose of dowel plate 4. *Ensure safe handling of hand tools* 5. *Ensure to use PPE*	**4.10 Making dowel joint**	
1. Define estimation and costing 2. State the types of estimation and costing 3. Explain the purpose of estimation through Bhutan Schedule of Rate (BSR) 4. Estimate basic cost of wooden component product 5. *Ensure correct dimensions are extracted from the drawings* 6. *Ensure correct code and estimation are executed*	**4.11 Performing basic estimation of materials**	
MODULE 2: MAKING TABLES AND CHAIR **Chapter 1: Making table**		XI
1. Define table 2. Interpret drawing 3. State the components of table 4. State the function of the circular saw machine 5. Label the parts of circular saw machine 6. State the purpose of surface planer machine 7. Label the parts of surface planer machine 8. State the functions of thicknesser machine 9. Label the parts of thicknesser machine ***10. Use surface planer machine*** ***11. Use thicknesser machine*** ***12. Operate circular saw machine*** ***13. Operate planer machine*** *14. Ensure safe handling of machines* 15. *Ensure to use PPE*	**1.1 Preparing table components**	

1. State the types of joint 2. State the purpose of pedestal drill machine 3. Label the parts of pedestal drilling machine 4. State the function of mortise machine 5. Label the parts of mortise machine 6. ***Use pedestal drilling machine*** ***7. Use mortise machine*** ***8.*** *Ensure proper handling of machines* *9. Ensure to use appropriate PPE*	**1.2 Making table joints**	
1. State the purpose of nail and screw 2. Types of nails 3. Types of screws 4. State the purpose of clamp 5. State the types of clamps 6. State the purpose of glue 7. State the types of adhesives 8. State the importance of pre-assembling 9. Interpret designed drawing 10. *Ensure proper handling of clamps* 11. *Ensure to use appropriate PPE*	**1.3 Assembling table components**	
1. Define drawer 2. State the purpose of drawer 3. State the types of joints 4. *Ensure safe handling of hand tools machines* 5. *Ensure to use appropriate PPE*	**1.4 Making drawer**	
1. Interpret design drawing *2. Ensure proper handling of clamps* *3. Ensure the safety while using clamps* *4. Ensure to use appropriate PPE*	**1.5 Assembling drawer components**	
1. State the function of sanding machine 2. State types of sanding machine 3. State the purpose of wood filler 4. State the purpose of polish 5. State the types of polish ***6. Use sanding machine*** **7.** *Ensure proper handling of machine* **8.** *Ensure to use appropriate PPE*	**1.6 Performing finishing work**	

Chapter 2: Making chair		
1. Define chair 2. State the types of chairs 3. Label the components of chair *4. Ensure proper handling of machines* *5. Ensure to follow safety precautions while operating the machine* 6. *Ensure to use PPE*	**2.1 Preparing chair components**	
1. State the types of joint *2. Ensure proper handling of machines* *3. Ensure to use appropriate PPE*	**2.2 Making chair joint**	
1. Interpret design drawing *2. Ensure proper handling of clamps* *3. Ensure the safety while using clamps* *4. Ensure to use PPE*	**2.3 Assembling chair component parts**	
Chapter 3: Making simple chokdrom		
1. Define chokdrom 2. Label the components of chokdrom *3. Ensure proper handling of machines* *4. Ensure to follow safety precautions while operating the machine* 5. *Ensure to use appropriate PPE*	**3.1 Preparing chokdrom components**	
1. State the types of joints 2. Define spindle moulder machine 3. State the function of spindle moulder machine 4. Label the parts of spindle machine ***5. Use spindle moulder machine*** *6. Ensure safe handling of hand tools and machines* *7. Ensure to use appropriate PPE*	**3.2 Making chokdrom joints**	
1. Interpret design drawing 2. Assemble the Chokdrom components *3. Ensure safe handling of hand tools and machines* *4. Ensure to use appropriate PPE*	**3.3 Assembling chokdrom components**	
MODULE 3: MAKING BED AND SOFA FRAMES **Chapter 1: Making bed**		XII
1. Define bed 2. State the types of beds	**1.1 Preparing bed components**	

3. Label the components of bed 4. State the size of bed 5. Interpret drawing 6. Prepare cutting list 7. *Ensure proper handling of machines* 8. *Ensure to use appropriate PPE*		
1. State the types of joints 2. *Ensure safe handling of hand tools and machines* 3. *Ensure to use appropriate PPE*	**1.2 Making bed joints**	
1. Define ironmongery 2. State the types of fasteners 3. State the types of hardware fittings of bed 4. State the importance of diagonal checking *5. Ensure proper handling of clamp* *6. Ensure to use appropriate PPE*	**1.3 Assembling components of bed**	
Chapter 2: Making sofa frame		
1. Define sofa 2. State the types of sofas 3. Label the components of sofa 4. Interpret drawings 5. Prepare cutting list 6. State the function of wood turning lathe machine 7. Label the parts of wood turning lathe machine ***8. Use wood turning lathe machine*** *9. Ensure proper handling of machine* *10. Ensure to use appropriate PPE*	**2.1 Preparing sofa components**	
1. State the types of joints 2. State the function of band saw machine 3. Label the parts of band saw machine 4. State the function of jigs and fixture ***5. Use band sawing machine*** *6. Ensure proper handling of tools* *7. Ensure appropriate use of PPE*	**2.2 Preparing sofa joints**	

1. Interpret design drawing 2. State the importance of alignment 3. State the purpose of furniture stability *4. Ensure proper handling of machines* *5. Ensure to use appropriate PPE*	**2.3 Assembling sofa components**	
MODULE 4: MAKING STORAGE CABINET **Chapter 1: Preparing cabinet**		
1. Define cabinet 2. State the types of cabinet 3. Label the components of cabinet 4. Interpret drawing 5. *Ensure safe use of machines* 6. *Ensure to use appropriate PPE*	**1.1 Preparing cabinet components**	
1. State the types of joints 2. *Ensure safe use of machines* 3. *Ensure to use appropriate PPE*	**1.2 Making cabinet joints**	
1. Interpret design drawing 2. State the importance of checking diagonal and alignment *3. Ensure safe use of machines* *4. Ensure to use appropriate PPE*	**1.3 Assembling cabinet components**	
Chapter 2: Making shutter joints and assemble parts		
1. Interpret drawing 2. State the function of shutter 3. State the types of shutters 4. Label the components of shutter 5. *Ensure safe handling of machines* 6. *Ensure to use appropriate PPE*	**2.1 Preparing shutter components**	
1. State the types of shutter joints 2. *Ensure safe handling of machines* 3. *Ensure to use appropriate PPE*	**2.2 Making shutter joints**	
1. Interpret design drawing 2. State the types of shutter hardware fittings 3. State the application of shutter hardware fittings ***4. Fix hardware fitting on shutter*** 5. *Ensure safe handling of machines* 6. *Ensure to use appropriate PPE*	**2.3 Assembling shutter**	

Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills-ENGINEERING DRAWING

Learning objectives	Core concepts (Chapters/Topics)	Class
Chapter: 1 Interpreting Basic Engineering Drawing		IX
1. Define engineering drawing 2. State the purposes of engineering drawing 3. List the types and uses of drawing instruments 4. List the sizes of drawing papers 5. *Ensure clean and neatness of drawing* 6. *Ensure proper handling of drawing instruments*	**1.1 Using drawing instrument**	
1. Define the layout of a drawing sheet 2. Define the title block *3. Ensure clean and neatness of drawing* *4. Ensure Proper handling of drawing instruments*	**1.2 Laying out drawing sheet**	
1. Define signs and symbols 2. Define abbreviation *3. Ensure clean and neatness of drawing* 4. *Ensure Proper handling of drawing instruments*	**1.3 Drawing engineering signs, symbols, and abbreviations**	
1. Define line 2. State the types of line and its application *3. Ensure clean and neatness of drawing* *4. Ensure Proper handling of drawing instruments*	**1.4 Drawing types of lines**	
1. Define lettering and numbering 2. Classify the styles of letters 3. List the types of letters 4. Define freehand lettering 5. List the sizes of letters 6. State the rules for lettering and numbering	**1.5 Drawing a letter and number**	

7. *Ensure clean and neatness of drawing* 8. *Ensure Proper handling of drawing instruments*		
1. Define dimension 2. State the types of dimensions 3. Explain the system of dimensions 4. State the terminologies of dimensions 5. State the rules for dimensioning 6. *Ensure clean and neatness of drawing* 7. *Ensure Proper handling of drawing instruments*	**1.6 Providing dimension**	
Chapter 2: Drawing isometric projections		X
1. Define drawing scale 2. List the types of scale 3. *Ensure clean and neatness of drawing* 4. *Ensure Proper handling of drawing instruments*	**2.1 Converting scale for drawing**	
1. Define isometric drawing 2. State the isometric terminologies 3. *Carry out free hand sketching* 4. *Ensure clean and neatness of drawing* 5. *Ensure Proper handling of drawing instruments*	**2.2 Drawing isometric blocks**	
1. Draw Orthographic projections 2. Draw six principle views 3. Explain the method of obtaining six principle views 4. Explain four quadrants with the help of diagrams 5. Differentiate between first and third angle projections 6. Ensure clean and neatness of drawing 7. Ensure proper handling of drawing instruments	**2.3 Drawing an orthographic projections**	
Chapter 3: Interpreting technical drawing		XI
1. Define elevations (front, right, left, rear) 2. Define sections 3. *Draw elevations*	**3.1 Drawing stool**	

4. Draw sections *5. Ensure clean and neatness of drawing* *6. Ensure Proper handling of drawing instruments*		
1. Draw chair elevations 2. Draw chair sections *3. Ensure clean and neatness of drawing* *4. Ensure proper handling of drawing instruments*	**3.2 Drawing chair**	
1. Draw elevations 2. Draw sections *3. Ensure clean and neatness of drawing* *4. Ensure proper handling of drawing instruments*	**3.3 Drawing table**	

ANNEXURE II: ELECTRICAL

Content mapping

Class	Modules covered	Chapters	Lessons	Theory (Hrs)	Practical (Hrs)	Total duration (Hrs)
IX	**Module 1: Applying fundamentals of electricity**	**Chapter 1: Practising Occupational Health and Safety (OHS)**	1.1.Applying Principles of 5S and OHS practice.	1	2	**15**
			1.2.Using Personal Protective 1.3. Equipment (PPE).	1	2	
			1.4.Maintaining workplace & personal safety.	1	2	
			1.5.Maintaining tools & equipment safety.	1	2	
			1.6.Using Fire extinguisher	1	2	
		Chapter 2: Applying Basic electrical theory theory	2.1. Testing conductor, semiconductor and insulator	1	4	40
			2.2. Performing instrument reading	1	4	
			2.3. Measuring resistance	1	4	
			2.4. Measuring voltage	1	4	
			2.5. Measuring Current	1	4	
			2.6. Measuring Power	1	4	
			2.7. Measuring Frequency	1	4	
			2.8. Measuring Energy	1	4	

		Chapter 3: Verifying DC circuits	3.1. Verifying Ohm's law	2	7	**63**
			3.2. Verifying characteristics of series circuits.	2	8	
			3.3. Verifying characteristics of parallel circuits.	2	9	
			3.4. Verifying characteristics of series parallel combined circuits.	2	9	
			3.5. Verifying Kirchhoff's current law	2	9	
			3.6. Verifying Kirchhoff's voltage law.	2	9	
		Chapter 4: Verifying AC circuits	4.1. Verifying characteristics of AC and DC.	3	10	**58**
			4.2. Checking phase sequence of three phase supply	2	8	
			4.3. Verifying characteristics of balanced and unbalanced load in star connection	2	15	
			4.4. Verifying characteristics of balanced delta load connection	3	1	
Total hours				**35**	**141**	**176**
Class	**Module covered**	**Chapters**	**Lessons**	**Theory**	**Practical (Hrs)**	**Total duration (Hrs)**
X	**Module 2: Carrying out installation of panel board**	**Chapter 1: Installing protective device for single phase**	1.1. Installing distribution board for single phase	1.5	2.5	**18**
			1.2. Installing MCB for single phase	1.5	2	
			1.3. Installing RCCB for single phase	1.5	2	

			1.4.Installing ELCB for single phase	1.5	2	
			1.5.Installing changeover switch for single phase	1.5	2	
		Chapter 2: Installing protective device for three phase	2.1.Installing MCB for three phase	1	7	**55**
			2.2.Installing bus bar	1.5	7	
			2.3.Installing Distribution board for three phase	1	7.5	
			2.4.Installing RCCB for three phase	1	5.5	
			2.5.Installing ELCB for three phase	1	6	
			2.6.Installing MCCB	1	5.5	
			2.7.Installing change over switch for three phase	1	9	
		Chapter 3: Installing earthing	3.1.Installing plate Earthing	1	15	**61**
			3.2.Installing pipe Earthing	1	15	
			3.3.Installing slab Earthing	1	12	
			3.4.Installing Building lightning arrester	1	15	
		Chapter 4 Applying engineering drawing	4.1.Laying out drawing sheet	1	1	**42**
			4.2.Drawing title block	1	1	

			4.3.Drawing single stroke letter	1	1	
			4.4.Drawing lines	1	1	
			4.5.Dimensioning the objects	1	1	
			4.6.Drawing triangle	1	1	
			4.7.Drawing cube	1	1	
			4.8.Drawing octagon	1	1	
			4.9.Drawing ellipse	1	1	
			4.10.Drawing the Orthographic projection	1	7	
			4.11.Drawing isometric views	1	3	
			4.12.Drawing full section of an object	1	3	
			4.13.Drawing half section of an object	1	3	

			4.14.Drawing partial section of an object	1	3	
Total hours				**35**	**141**	**176**
Class	**Modules covered**	**Chapters**	**Lessons**	**Theory (Hrs)**	**Practical (Hrs)**	**Nominal duration (Hrs)**
XI	**Module 3: Carrying out installation of security and communication system**	**Chapter 1 Applying engineering drawing for electrical**	1.1.Drawing electrical signs and symbols	1	2	86
			1.2.Drawing layout plan of lighting points	1	2.5	
			1.3.Drawing layout plan of power points	1	2	
			1.4.Drawing conduit layout plan of lighting points	2	3.5	
			1.5.Drawing conduit layout plan of power points	1	4	
			1.6.Drawing plate earthing layout plan	1.5	4	
			1.7.Drawing final circuit (SB-points) wiring diagram	1	4	
			1.8.Drawing sub-main distribution board (SMDB) wiring diagram	1	4	
			1.9.Drawing Main Distribution Board (MDB) Wiring Diagram	0.5	3.5	
			1.10.Drawing Staircase Wiring	1	4	
			1.11.Drawing Go-down Wiring diagram	1.5	4	
		Chapter 1: Installing security system	1.1.Preparing Bio Net Connector (BNC)	1	2	

			1.2.Installing CCTV	3	8	
			1.3.Installing Burglar alarm	1	5	
			1.4.Installing Hooter/Siren	1	3	
			1.5.1Installing Fire Alarm System	1	5	
		Chapter 2: Installing communication system	2.1.Preparing LAN cable	1	5.5	**26**
			2.2.Installing I/O box	1	5.5	
			2.3.Preparing Balun plug	1	3.5	
			2.4.Connecting RF connector	1	3.5	
			2.5.Installing TV socket	1	3	
		Chapter 3: Testing security and communication system	3.1.Testing BNC	1	3	
			3.2.Testing Modular Jack	1	3.5	
			3.3.Testing LAN	1	3.5	
			3.4.Testing Fire Alarm	1	3.5	
			3.5.Testing Burglar Alarm	1	3.5	
			3.6.Testing CCTV	1	4	

		Module 4: Carrying out domestic waring Chapter 1: Preparing wire joints	1.1. Preparing rat-tail joint	1	3	**117**
			1.2. Preparing T-joint	0.5	3	
			1.3. Preparing S straight joint	1	3	
		Chapter 2: Performing lighting and power circuit wiring	2.1.Performing PVC (Poly Vinyl Chloride) Casing Capping wiring for two lighting	3	11	
			2.2.Performing PVC conduit wiring for two lighting and one power load	3	11	
			2.3.Performing MS conduit wiring for three lighting and one power load	3	11	
			3.1. Repairing water boiler	1.5	7	
			3.2. Repairing geyser	1	7	
			3.3. Repairing washing machine	1	7	
			3.4. Repairing electric iron	1	7	
			3.5. Repairing curry cooker	1	7	
			3.6. Repairing rice cooker	1	7	
		Chapter 3: Repair home appliances	3.7. Repairing ceiling fan	1	6	
			3.8. Repairing electric heater	1	7	
Total hours				**52**	**204**	**256**

Class	**Modules covered**	**Chapters**	**Lessons**	**Theory (Hrs)**	**Practical(Hrs)**	**Nominal duration (Hrs)**
XII		**Chapter 4: Performing lighting and power circuit wiring**	4.1 Laying concealed conduit	4	12	**80.5**

			4.2 Performing stair case wiring	3	13	
			4.3 Performing hostel wiring	4	13	
			4.4 Performing call bell wiring	4	12	
			4.5 Performing go down wiring	3.5	12	
		Chapter 5: Performing installation test	5.1 Performing IR test	2	6	
			5.2 Performing continuity test	2	6	
			5.3 Performing Polarity test	2	6	
			5.4 Performing earth continuity test	2.5	6	
			5.5 Performing earth resistance test	2	6	
			5.6 Performing soil resistivity test	2	8	
		Chapter 6: Troubleshooting building wiring	6.1 Troubleshooting fluorescent lamp/LED and fittings	3	8	
			6.2 Troubleshooting Fan and fitting	2	8	
			6.3 Troubleshooting HID lamp and fitting	2	8	
		Chapter 7: Estimating materials	7.1 Estimating materials for PVC Casing Capping wiring	4	20	**94**
			7.2 Estimating materials for PVC conduit wiring	4	20	

			7.3 Estimating materials for MS conduit wiring	3	20	
			7.4 Estimating materials for concealed HDPE pipe wiring	3	20	
Total hours				**52**	**204**	**256**
						864

5.4 Class-wise Competencies

1) CLASS IX COMPETENCIES

1. Practise OHS procedures in any task for safety.
2. Maintain hand tools and portable power tools for better performance.
3. Perform basic electrical tasks.
4. Verify DC circuits accurately.
5. Verify AC circuits accurately.

2) CLASS X COMPETENCIES

1. Install protective device for single phase properly.
2. Install protective device for three phase properly.
3. Carry out different installations of earthing.
4. Apply engineering drawing as required.

3) CLASS XI COMPETENCIES

1. Apply engineering drawing for electrical points as required.
2. Install various security systems.
3. Carry out installation of communication systems.
4. Test security and communication systems.
5. Prepare different wire joints.
6. Repair home appliances.

4) CLASS XII COMPETENCIES

1. Perform lighting and power circuit wiring.
2. Perform installation test.
3. Troubleshoot building wiring.
4. Estimate materials.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
MODULE 1: APPLYING FUNDAMENTAL OF ELECTRICITY **Chapter 1: Practising Occupational Health and Safety (OHS)**		**IX**
1. Define 5S 2. State the purposes of 5S 3. Explain the principles of 5S 4. Define OHS 5. State the importance of OHS 6. Explain the rights of employee 7. State the main causes of accidents 8. State the safety rules *9. Be responsible and vigilant while following OHS* *10. Ensure safe handling of materials and equipment*	**1.1 Applying principles of 5S**	
1. Define PPE 2. State the importance of PPE 3. List the categories of PPE 4. *Ensure safe handling of PPE*	**1.2 Using Personal Protective Equipment (PPE)**	
1. Define safety precaution 2. List the different types of safety 3. Explain workshop and personal safety 4. State the importance of maintaining workplace and personal safety 5. Explain the importance of safety signs and symbols 6. Explain the emergency exit 7. Describe the layout of the workshop 8. *Ensure safe handling of equipment* 9. *Ensure correct operation of fire extinguisher* 10. *Ensure safe working environment*	**1.3 Maintaining workplace & personal safety**	
1. Explain tools and equipment safety 2. State the importance of maintaining tools and equipment 3. List Dos and don'ts of maintaining tools and equipment	**1.4 Maintaining tools & equipment safety**	

4. *Be responsible and vigilant while maintaining tools and equipment* 5. *Ensure safe handling of tools and equipment*		
1. Define fire extinguisher 2. Label the parts of fire extinguisher 3. Explain the types of fire 4. List types of fire extinguishers 5. State the methods of combating/extinguishing fires 6. Explain the types of fire extinguishers 7. State the methods of combat/extinguisher fires 8. *Be responsible and vigilant while using fire extinguisher* 9. *Ensure safe handling fire extinguisher*	**1.5 Using fire extinguisher**	
Chapter 2: Applying basic electrical theory		
1. Explain generation of electricity 2. Describe trends and scope of Domestic wiring technician 3. Define conductor, insulator and semiconductor 4. Explain the properties of conductor, insulator and semiconductor 5. Differentiate among conductors, insulators and semiconductors ***6. Use multimeter*** ***7. Use IR Tester*** *8. Be responsible and vigilant while following testing* *9. Ensure safe handling of instruments.*	**2.1 Testing conductor, semiconductor and insulator**	
1. Define instrument 2. List types of scale 3. List the types of electrical measuring instruments 4. State the functions of measuring instruments 5. List signs & symbols of instruments 6. Explain the errors in the instruments. *7. Be responsible and vigilant while performing instrument reading* *8. Ensure safe handling of instrument*	**2.2 Performing instrument reading**	

1. Define resistance, resistor and resistivity (unit and symbol) 2. State the factors affecting resistance 3. List the types of resistors 4. List the application of resistors 5. Determine the value of resistors using colour coding chart ***6. Use multimeter*** *7. Ensure safe handling of measuring instruments* *8. Ensure to select correct range of the meters*	**2.3 Measuring resistance**	
1. Define voltage (unit and symbol) 2. State the difference between AC and DC source 3. List the types of voltmeters ***4. Use voltmeter*** ***5. Use multimeter*** *6. Ensure safe handling of measuring instruments.* *7. Ensure to select the correct range of the meters.*	**2.4 Measuring voltage**	
1. Define Current (unit and symbol) 2. State types of current 3. Explain the effects of current 4. List the types of ammeters ***5. Use Ammeter*** ***6. Use clamp on multimeter*** *7. Ensure safe handling of measuring instruments* *8. Ensure to select correct range of the meters*	**2.5 Measuring current**	
1. Define Power (unit and symbol) 2. State the relation between current, voltage and power 3. List the types of power 4. Explain power triangle 5. Define power factor ***6. Use Wattmeter*** *7. Ensure safe handling of measuring instruments* *8. Ensure to select correct range of the meters*	**2.6 Measuring power**	

1. Define frequency (unit and symbol) 2. State the relation between time and frequency ***3. Use Frequency Meter*** *4. Ensure safe handling of measuring instruments* *5. Ensure to select correct range of the meters*	**2.7 Measuring frequency**	
1. Define Electrical Energy (unit and symbol) 2. Calculate energy consumed 3. Calculate electricity tariff 4. List the types of electrical load ***5. Use Energy Meter*** *6. Ensure safe handling of measuring instruments* *7. Ensure to select correct range of the meters*	**2.8 Measuring energy**	
Chapter 3: Verifying DC circuits		
1. State Ohm's law 2. State the application of Ohm's law 3. State the limitations of Ohm's law *4.* ***Use ammeter*** *5.* ***Use voltmeter*** 6. *Ensure safe handling of meters* 7. *Ensure to check the connection of meters* 8. *Ensure to verify the circuit connection*	**3.1 Verifying Ohm's law**	
1. Define series circuit 2. Explain the characteristics of series circuit 3. State the advantages and disadvantages of series circuit 4. List the application of series circuit *5.* ***Use ammeter*** *6.* ***Use voltmeter*** 7. *Ensure safe handling of meters* 8. *Ensure to check the connection of meters* 9. *Ensure to verify the circuit connection*	3.2 **Verifying characteristics of series circuit**	
1. Define parallel circuit 2. Explain the characteristics of parallel circuit 3. State the advantages and disadvantages of parallel circuit 4. List the applications of parallel circuit *5.* ***Use ammeter*** *6.* ***Use voltmeter*** *7.* ***Interpret circuit diagram***	**3.3 Verifying characteristics of parallel circuit**	

8. *Ensure safe handling of instruments* 9. *Ensure to check the connection of meters* 10. *Ensure to verify the circuit connection*		
1. State the advantages and disadvantages of series parallel combined circuit 2. State the application of series parallel combined circuit 3. Differentiate between series and parallel circuit *4.* ***Use ammeter*** *5.* ***Use voltmeter*** 6. *Ensure safe handling of instruments* 7. *Ensure to check the connection of meters* 8. *Ensure to verify the circuit connection*	**3.4 Verifying characteristics of series parallel combined circuit**	
1. State Kirchhoff's current law 2. Explain sign-convention in applying Kirchhoff's current law 3. State the limitations of Kirchhoff's current law 4. State applications of Kirchhoff's current law *5.* ***Use ammeter and voltmeter*** 6. *Ensure safe handling of instruments* 7. *Ensure to check the connection of meters* 8. *Ensure to verify the circuit connection*	**3.5 Verifying Kirchhoff's current law**	
1. State Kirchhoff's voltage law 2. Explain sign-convention in applying Kirchhoff's voltage law 3. State the limitations of Kirchhoff's voltage law 4. State applications of Kirchhoff's voltage law *5.* ***Use ammeter*** *6.* ***Use voltmeter*** 7. *Ensure safe handling of instruments* 8. *Ensure to check the connection of meters* 9. *Ensure to verify the circuit connection*	**3.6 Verifying Kirchhoff's voltage law**	
	Chapter 4: Verifying AC circuits	
1. Explain characteristics of AC and DC 2. List the advantages of AC over DC 3. List the advantages of DC over AC	**4.1 Verifying characteristics of AC and DC**	

4. State the application of Cathode Ray Oscilloscope (CRO) 5. Explain the types of sources ***6. Use CRO*** ***7. Operate function generator*** ***8. Use Multimeter*** *9. Ensure safe handling of tools and equipment* *10. Be responsible and vigilant while operating the CRO*		
1. State difference between single and polyphase 2. List advantages of polyphase over single phase 3. List the types of polyphase circuit 4. State the purpose of checking phase sequence ***5. Use phase sequence meter*** 6. *Ensure safe handling of instruments* ***7.*** *Ensure to check the connection of meters* ***8.*** *Ensure to verify the circuit connection*	**4.2 Checking phase sequence of three phase supply**	
1. State the purpose of interconnection of three phase 2. Differentiate between star and delta connection 3. Explain the characteristics of balanced star load 4. Explain the characteristics of unbalanced star load in 3-wire and 4-wire supply system *5.* ***Use multimeter*** *6.* ***Use clamp on meter*** 7. *Ensure safe handling of instruments* 8. *Ensure to check the connection of meters* 9. *Ensure to verify the circuit connection*	**4.3 Verifying characteristics of balanced and unbalanced load in star connection**	
1. State the advantages and disadvantages of delta connection 2. Explain the characteristics of balanced delta load 3. State the application of delta connected load *4.* ***Use multimeter*** *5.* ***Use clamp on meter*** 6. *Ensure safe handling of instruments*	**4.4 Verifying characteristics of balanced delta load connection**	

7. *Ensure to check the connection of meters* 8. *Ensure to verify the circuit connection*		
MODULE 2: CARRYING OUT INSTALLATION OF PANEL BOARD **Chapter 1: Install protective devices for single phase**		**X**
1. List the types of distribution board 2. State the function of distribution board **3. Use drilling machine**	**1.1 Installing distribution board for single phase**	
1. Define MCB 2. List the types of MCB 3. Explain the working principle of MCB 4. State the application of MCB 5. Select MCB as per requirement 6. Select wire size for the connection of single phase MCB 7. Select colour coding for the connection of single phase MCB *8.* ***Use Multimeter*** 9. *Ensure safe handling of instruments* 10. *Ensure to verify the circuit connection*	**1.2 Installing miniature circuit breaker for single phase**	
1. Define RCCB 2. Explain working principle of RCCB 3. State the application of RCCB 4. Select RCCB as per requirement ***5. Use multimeter*** *6. Ensure safe handling of instruments* *7. Ensure to verify the circuit connection*	**1.3 Installing residual current circuit breaker for single phase**	
1. Define ELCB 2. Explain the working principle of ELCB 3. State the function of ELCB 4. State the importance of setting tripping current ***5. Set tripping current*** ***6. Use multimeter*** *7. Ensure safe handling of instrument* *8. Ensure to verify the circuit connection*	**1.4 Installing earth leakage circuit breaker for single phase**	
1. Define changeover switch 2. List the types of changeover switch 3. State the application of changeover switch 4. Select changeover switch as per the current rating ***5. Use drilling machine***	**1.5 Installing changeover switch for single phase**	

6. Use multimeter *7. Ensure safe handling of instruments* *8. Ensure to verify the circuit connection*		
Chapter 2: Installing protective devices for three phase		
1. Explain the working principle of three phase MCB 2. State the application of three phase MCB 3. Select three phase MCB as per requirement 4. Select wire size for the connection of three phase MCB 5. Select colour coding for the connection of three phase MCB 6. Connect three Phase MCB *7.* ***Use Multimeter*** 8. *Ensure safe handling of instruments* *Ensure to verify the circuit connection*	**2.1 Installing MCB for three phase**	
1. Define bus bar 2. Select bus bar	**2.2 Installing bus bar**	
1. List the types of distribution board for three phase	**2.3 Installing Distribution board for three phase**	
1. Select RCCB for Three phase load 2. State the advantages and limitations of RCCB ***3. Use multimeter*** 4. *Ensure safe handling of instruments* 5. *Ensure to verify the circuit connection*	**2.4 Installing RCCB for three phase**	
1. State the importance of setting tripping current 2. Select ELCB for three phase ***3. Set tripping current*** ***4. Use multimeter*** 5. *Ensure safe handling of instruments* 6. *Ensure to verify the circuit connection*	**2.5 Installing ELCB for three phase**	
1. Define MCCB 2. State the function for MCCB 3. Select MCCB as per requirement ***4. Use multimeter*** *5. Ensure safe handling of instruments* *6. Ensure to verify the circuit connection*	**2.6 Installing MCCB**	
1. Select current rating of changeover switch for three phase ***2. Use multimeter***	**2.7 Installing changeover switch for three phase**	

3. Use drilling machine *4. Ensure safe handling of instruments* *5. Ensure to verify the circuit connection*		
Chapter 3: Installing earthing		
1. Introduce earthing 2. List the types of earthing 3. State the factors affecting soil resistivity 4. State the purpose of watering arrangement 5. State the purpose of using charcoal and salt 6. Explain the artificial treatment of soil 7. Select the size of earth lead 8. State the purpose of bonding earth electrode ***9. Interpret drawing*** ***10. Perform basic masonry work*** *11. Ensure efficient use of materials* *12. Ensure proper disposal of waste*	**3.1 Installing plate earthing**	
1. List the advantages of pipe earthing 2. List the application of pipe earthing ***3. Interpret drawing*** ***4. Perform masonry work*** *5. Ensure efficient use of materials* *6. Ensure proper disposal of waste*	**3.2 Installing pipe earthing**	
1. Define slab earthing 2. State the application of slab earthing 3. List the advantages of slab earthing 4. State the importance of neutral earthing system ***5. Use welding machine*** ***6. Use spanner*** *7. Ensure efficient use of materials* *8. Ensure proper disposal of waste*	**3.3 Installing slab earthing**	
1. Define LA 2. List the types of building LA 3. State the application of building LA ***4. Interpret drawing*** ***5. Use drilling machine*** ***6. Use IR tester*** ***7. Use earth tester*** *8. Ensure safe handling of testing kits.*	**3.4 Installing building lightning arrester**	

9. *Ensure efficient use of materials* 10. *Ensure proper disposal of waste*		
Chapter 4: Applying engineering drawing		
1. Stare importance of drawing margin 2. List types and sizes of drawing sheet 3. state standard gap between margin and edge of the drawing sheet ***4. Use set square*** ***5. Use T scale*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments.*	**4.1 Laying out drawing sheet**	
1. Define title block 2. State the importance of title block 3. Explain formats of title block ***4. Use set square*** ***5. Use T scale*** *6. Ensure clean and neatness of drawing.* *7. Ensure proper handling of drawing instruments*	**4.2 Drawing title block**	
1. Define lettering 2. Define single stroke lettering 3. State the characteristics of type A and type B 4. State the purpose of drawing grid lines 5. List the types of pencil ***6. Use pencil*** ***7. Use set square*** ***8. Use T scale*** *9. Ensure clean and neatness of drawing.* *10. Ensure proper handling of drawing instruments*	**4.3 Drawing single stroke letter**	
1. List the types of lines in engineering drawing 2. List the Application of lines 3. ***Use set square*** 4. ***Use T scale*** 5. *Ensure clean and neatness of drawing.* 6. *Ensure proper handling of drawing instruments*	**4.4 Drawing lines**	

1. List the rules of dimensioning 2. State the elements of dimensioning 3. State the methods of indicating dimensions 4. State the arrangement of dimensions 5. State dimensioning of geometrical shapes 6. ***Use set square*** 7. ***Use T scale*** 8. ***Use Protractor*** 9. *Ensure clean and neatness of drawing.* 10. *Ensure proper handling of drawing instruments*	**4.5 Dimensioning the objects**	
1. Define triangle 2. List the types of triangle 3. ***Use set square*** 4. ***Use T scale*** 5. ***Use compass*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments*	**4.6 Drawing triangle**	
1. Define cube 2. ***Use set square*** 3. ***Use T scale*** 4. ***Use protractor*** 5. *Ensure clean and neatness of drawing.* 6. *Ensure proper handling of drawing instruments*	**4.7 Drawing cube**	
1. Define octagon 2. State the methods of constructing octagon 3. ***Use set square*** 4. ***Use T scale*** 5. ***Use compass*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments*	**4.8 Drawing octagon**	
8. Define ellipse 9. State the types of ellipse 10. Define eccentricity 11. Define focus 12. Define vertex 13. Define quadrant	**4.9 Drawing ellipse**	

14. State the methods of construction of ellipse 15. ***Use set square*** 16. ***Use T scale*** 17. ***Use compass*** 18. *Ensure clean and neatness of drawing.* 19. *Ensure proper handling of drawing instruments*		
1. State the types of projection 2. State the application of projection 3. State the features of project 4. Draw the types of view from an object(front view top view, ,right side view ,left side view ,rear view) 5. E*nsure proper handling of drawing instrument* 6. *Ensure proper disposal of waste*	**4.10 Drawing the orthographic Projection**	
1. State axonometric projection 2. Explain principal of isometric projection 3. List the types of lines in an isometric projection 4. Explain dimensioning of isometric projection 5. ***Use set square*** 6. ***Use T scale*** 7. ***Use compass*** 8. ***Use mini drafter*** 9. *Ensure clean and neatness of drawing.* 10. *Ensure proper handling of drawing instruments*	**4.11Drawing isometric view**	
1. Define full sectioning 2. State the purpose of sectioning 3. List the types of cutting plane 4. List the rules of sectioning 5. ***Use set square*** 6. ***Use T scale*** 7. ***Use mini drafter*** 8. *Ensure clean and neatness of drawing.* 9. *Ensure proper handling of drawing instruments*	**4.12 Drawing full section of an object**	
1. Define half sectioning 2. State the difference between full section and half section	**4.13 Drawing half section of an object**	

3. ***Use set square*** 4. ***Use T scale*** 5. ***Use mini drafter*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments*		
1. Define partial sectioning 2. State the difference between half section and partial section 3. ***Use set square*** 4. ***Use T scale*** 5. ***Use mini drafter*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments*	**4.14 Drawing partial section of an object**	

Chapter 1: Applying engineering drawing for electrical		**XI**
1. List the types of electrical signs and symbols 2. State the application of electrical signs and symbols ***3. Use set square*** ***4. Use T scale*** ***5. Use compass*** ***6. Use mini drafter*** 7. *Ensure clean and neatness of drawing*. 8. *Ensure proper handling of drawing instruments*.	**1.1 Drawing electrical signs and symbol**	
1. State the types of lighting load 2. State the purpose of lighting layout plan 3. State the colour coding and wire size for lighting point ***4. Use set square*** ***5. Use T scale*** ***6. Use compass*** ***7. Use mini drafter*** *8. Ensure clean and neatness of drawing* 9. *Ensure proper handling of drawing instruments*.	**1.2 Drawing layout plan of lighting load**	
1. State the purpose of layout plan of powerpoint 2. State the colour coding and wire size for powerpoint 3. Describe the requirement for lettering.	**1.3 Drawing layout plan of powerpoint**	

4. ***Use set square*** ***5.*** ***Use T scale*** ***6.*** ***Use compass*** ***7.*** ***Use mini drafter*** 8. *Ensure clean and neatness of drawing.* 9. *Ensure proper handling of drawing instruments.*		
1. State the purpose of conduit layout plan ***2.*** ***Use set square*** ***3.*** ***Use T scale*** ***4.*** ***Use compass*** 5. *Ensure clean and neatness of drawing.* 6. *Ensure proper handling of drawing instruments.*	**1.4 Drawing conduit layout plan of lighting points**	
1. State the purpose of conduit layout plan 2. Describe the requirement for lettering. ***3.*** ***Use set square*** ***4.*** ***Use T scale*** ***5.*** ***Use mini drafter*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments.*	**1.5 Drawing conduit layout plan of power points**	
1. Define earthing 2. List types of earthing 3. List components of plate earthing 4. State purpose of earthing ***5.*** ***Use set square*** ***6.*** ***Use T scale*** ***7.*** ***Use compass*** ***8.*** ***Use mini drafter*** 9. *Ensure clean and neatness of drawing.* 10. Ensure *proper handling of drawing instruments.*	**1.6 Drawing plate earthing layout plan**	
1. Define legend 2. State the purpose of legend 3. List types of wire 4. List size of wire 5. ***Use set square*** 6. ***Use T scale*** 7. ***Use mini drafter*** 8. ***Ensure clean and neatness of drawing.*** 9. ***En****sure proper handling of drawing instruments.*	**1.7 Drawing final circuit (SB points) wiring diagram**	
1. Define SMDB 2. State the function of SMDB 3. projection.	**1.8 Drawing SMDB wiring diagram**	

4. Use set square ***5. Use T scale*** ***6. Use mini drafter*** 7. *Ensure clean and neatness of drawing.* 8. *Ensure proper handling of drawing instruments.*		
1. Define wiring diagram 2. State the purpose of Main Distribution board (MDB) ***3. Use set square*** ***4. Use T scale*** ***5. Use mini drafter*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments.*	**1.9 Drawing MDB wiring diagram**	
1. State the application of staircase wiring ***2. Use set square*** ***3. Use T scale*** ***4. Use mini drafter*** ***5. Use divider*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments.*	**1.10 Drawing staircase wiring**	
1. State the application of godown wiring ***2. Use set square*** ***3. Use T scale*** ***4. Use mini drafter*** ***5. Use divider*** 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments.*	**1.11 Drawing godown wiring**	
MODULE 3: CARRYING OUT INSTALLATION OF SECURITY AND COMMUNICATION SYSTEM **Chapter 1: Installing security system**		
1. List the types of BNC 2. List the application of BNC 3. Explain constructional parts of BNC 4. Explain the types of Coaxial cable based on size 5. Explain constructional parts of coaxial cable 6. State the importance of of using BNC 7. ***Use BNC crimping tool***	**1.1 Preparing bio-net connector**	
1. Explain security system 2. State the types of security system 3. State the importance of security system 4. List the types of CCTV system	**1.2 Installing CCTV**	

5. List the application of CCTV 6. Explain the component in a CCTV system and its function 7. State the types and features of CCTV camera 8. State the types and features of CCTV recorders 9. Explain the consequences of inappropriate selection and location of camera 10. Interpret drawing 11. Use multimeter 12. Us***e drilling machine***		
1. Define burglar alarm 2. List the components of burglar alarm 3. List the types of burglar alarm system 4. Identify the types of alarms and sensors 5. Explain typical alarm circuit diagram ***6. Interpret drawing*** ***7. Use multimeter*** ***8. Use drilling machine***	**1.3 Installing burglar alarm**	
1. Define hooter and siren 2. State the types of hooters and siren 3. List the application of hooter and siren ***4. Interpret drawing*** ***5. Use multimeter*** ***6. Use drilling machine***	**1.4 Installing hooter/siren**	
1. Define fire alarm 2. Identity the types of fire alarm 3. Identify the types of sensors and detectors ***4. Use drilling machine***	**1.5 Installing fire alarm**	
Chapter 2: Installing communication system		
1. Define communication system 2. List the types of communication system 3. List the types of communication cable 4. State the difference between RJ11 and RJ45 connector 5. State the function of individual pins 6. List the types of LAN cable connection 7. List the types of LAN cable 8. State the application of LAN cable ***9. Use LAN cable tester*** ***10. Use LAN crimping tools***	**2.1 Preparing local area network cable**	
1. Read colour coding of modular jack	**2.2 Installing I/O box**	

2. State the purpose of I/O box ***3. Use impact tool***		
1. List the types of coaxial cable 2. List the types of balun plug 3. State the application of balun plug ***4. Use multimeter***	**2.3 Preparing balun plug**	
1. List the types of RF connector 2. State the purpose of RF connector 3. State the application of RF connector ***4. Use crimping tools***	**2.4 Connecting radio frequency connector**	
1. List the types and size if coaxial cable 2. State the standard installation rules ***3. Use drilling machine***	**2.5 Installing TV socket**	
Chapter 3: Testing security and communication system		
1. State the purpose of coaxial cable ***Use multimeter***	**3.1 Testing BNC connector**	
1. State the purpose of testing modular jack ***Use cable tester***	**3.2 Testing modular jack**	
1. State the purpose of LAN cable testing 2. List the application of cross and straight-thru connection ***3. Use LAN tester***	**3.3 Testing LAN cable**	
1. State the purpose of smoke detector 2. List types of smoke detector 3. State the purpose testing of fire alarm 4. Troubleshoot problems associated with smoke detector 5. ***Operate fire detector***	**3.4 Testing fire alarm**	
1. State the importance of testing burglar alarm ***Operate burglar alarm***	**3.5 Testing burglar alarm**	
1. State the importance of testing CCTV system ***Operate CCTV system***	**3.6 Testing CCTV**	
MODULE 4: **CARRYING OUT DOMESTIC WIRING** **Chapter 1: Prepare wire joints**		
1. List types of wires 2. State types of wire joints 3. State the purpose of joints 4. Explain the importance of proper insulation 5. State the consequences of improper joints and	**1.1 Preparing rat tail joint**	

insulation 6. State the application of rat tail joints ***7. Use of wire stripper*** ***8. Use of soldering iron*** ***9. Use insulation sleeves*** 10. *Be responsible and vigilant while following OHS.* 11. *Ensure safe handling of materials and equipment.*		
1. State the application of T-Joints ***2. Use wire stripper*** ***3. Use Insulation sleeves*** ***4. Use soldering iron*** *5. Be responsible and vigilant while following* *6. OHS* *7. Ensure safe handling of materials and* *8. equipment.*	**1.2 Preparing T-Joint**	
1. State the application of Straight Joints ***2. Use wire stripper*** ***3. Use Insulation sleeves*** ***4. Use soldering iron*** *5. Be responsible and vigilant while following* *6. OHS* *7. Ensure safe handling of materials and* *8. equipment.*	**1.3 Preparing Straight Joint**	
Chapter 2: Performing Lighting and power circuit wiring		
1. Explain the PVC conduit wiring 2. State electrical sign and symbols 3. List types of house wiring and its application 4. List types of installation rules 5. State advantages and disadvantages of different types of wiring 6. Differentiate between surface and concealed wiring 7. List types of Distribution board (DB) 8. List types of protective switch gears 9. List types of sub- circuit 10. List types of switches 11. List types of sockets 12. List types of holders 13. List types of luminaries/ lamps 14. State colour coding of wire 15. State size of wires and rating	**2.1 Perform PVC casing capping wiring for 2 lighting loads**	

16.	List different size of casing capping bit and its accessories		
17.	***Use wire drawing skills***		
18.	***Use spirit level***		
19.	***Use drilling machine***		
20.	***Interpret circuit drawing***		
21.	*Ensure safe handling of instruments.*		
22.	*Ensure to follow OHS rules and regulations*		
23.	*Ensure appropriate use of PPE*		
24.	*Ensure proper disposal of waste*		
1.	Introduce to PVC conduit wiring	**2.2 Performing PVC conduit wiring for 2 lightings and 1 power load**	
2.	List lighting and power loads		
3.	List advantages and disadvantages of PVC Conduit wiring		
4.	State the application of PVC conduit wiring		
5.	List types of PVC conduit fitting.		
6.	List the importance of pre-installation test		
7.	***Interpret drawings***		
8.	***Use drilling machine***		
9.	***Use IR tester***		
10.	***Use spirit level***		
11.	***Wire drawings skills***		
12.	*Ensure to follow OHS rules and regulations*		
13.	*Ensure appropriate use of PPE*		
14.	*Ensure proper disposal of waste*		
15.	*Ensure safe handling of instrument.*		
1.	Explain the lighting and power load	**2.3 Performing MS conduit wiring for 3 lighting and 1 power load**	
2.	Introduce MS conduit wiring.		
3.	List the advantages and disadvantages of MS conduit wiring		
4.	State the application of MS conduit wiring.		
5.	List the types of MS conduit fitting		
6.	***Interpret drawings***		
7.	***Use drilling machine***		
8.	***Use IR tester***		
9.	***Use spirit level***		
10.	***Wire drawings skills***		
11.	*Ensure safe handling of materials.*		
12.	*Ensure to follow OHS rules and regulations*		
13.	*Ensure appropriate use of PPE*		
14.	*Ensure proper disposal of waste*		

Chapter 3: Repairing Home Appliance		
1. List the types of water boilers. 2. Explain the construction and work principle of a water boiler. 3. Identify and state the function of each component of the water boiler. 4. Read and interpret circuit diagrams of water boiler. 5. Test heat elements, indicator, switch and thermostat of water boiler. 6. Identify the defect of the water boiler.	**3.1 Repairing water boiler**	
1. List the types of geyser. 2. Explain the construction and work principle of geyser. 3. Identify and state the function of each component of the geyser. 4. Read and interpret circuit diagram of geyser. 5. Test heat elements, indicator, switch, and thermostat of geyser. 6. Identify the defect of the geyser.	**3.2 Repairing geyser**	
1. List the types of washing machine. 2. Explain the construction and working principle of the washing machine. 3. Identify and state the function of each component of the washing machine. 4. Interpret circuit diagram of washing machine. 5. Identify the defect of washing machine	**3.3 Repairing washing machine**	
1. List types of electric iron. 2. Explain the construction and working principle of electric iron. 3. Identify and state the function of each component of electric iron. 4. Interpret circuit diagram of electric iron. 5. Identify the defect of electric iron.	**3.4 Repairing electric iron**	
1. List the types of curry cooker. 2. Explain the construction and working principle of the curry cooker. 3. Interpret circuit diagram of curry cooker. 4. Identify the defect of the curry cooker.	**3.5 Repairing curry cooker**	

1. List the types of rice cooker. 2. Explain the construction and working principle of the rice cooker. 3. Identify and state the function of each component of the rice cooker. 4. Interpret circuit diagram of rice cooker. 5. Identify the defect of the rice cooker.	**3.6 Repairing rice cooker**	
1. Explain the construction and working principle of ceiling fan. 2. Identify and state the function of each component of the ceiling fan. 3. Interpret circuit diagram of ceiling fan. 4. Identify the defect of ceiling fan	**3.7 Repairing ceiling fan**	
1. List the types of electric heater. 2. Explain the construction and work principle of electric heater. 3. Identify and state the function of each component of the electric heater. 4. Interpret circuit diagram of electric heater.	**3.8 Repairing electric heater**	

Learning objectives	**Core concepts (Chapters/Topics)**	**Class**
Chapter 4: Performing lighting and power circuit wiring		**XII**
1. List types of concealed wiring 2. Explain the advantages and disadvantages of concealed wiring 3. State the application of concealed wiring 4. ***Use drilling machine*** 5. ***Use spirit level*** 6. *Ensure appropriate use of PPE* 7. *Ensure to follow OHS rules and regulations* 8. *Ensure proper disposal of waste*	**4.1 Laying concealed conduit**	
1. State the application of stair case wiring 2. State the advantages and disadvantages of stair case wiring 3. State the application of staircase wiring 4. Draw wiring diagram ***5. Use IR tester*** ***6. Use spirit level*** ***7. Use drilling machine*** *8. Interpret drawings* *9. Ensure appropriate use of PPE*	**4.2 Performing stair case wiring**	

10. Ensure to follow OHS rules and regulations 11. *Ensure proper disposal of waste*		
1. State the application of hostel wiring 2. Draw hostel wiring ***3. Use IR tester*** ***4. Use spirit level*** ***5. Use drilling machine*** ***6. Interpret drawings*** 7. *Ensure appropriate use of PPE* *8. Ensure to follow OHS rules and regulations* 9. *Ensure proper disposal of waste*	**4.3 Performing hostel wiring**	
1. State the application call bell wiring 2. List types of call bell 3. Draw wiring diagram of call bell 4. Use IR tester 5. Use spirit level 6. Use drilling machine 7. Interpret drawings 8. Ensure appropriate use of PPE 9. Ensure to follow OHS rules and regulations 10. Ens*ure proper disposal of waste*	**4.4 Performing call bell wiring**	
1. State the application of go-down wiring 2. List the application of godown wiring 3. Draw wiring diagram 4. ***Use IR tester*** 5. ***Use spirit level*** 6. ***Use drilling machine*** 7. ***Interpret drawings*** 8. *Ensure appropriate use of PPE* 9. *Ensure to follow OHS rules and regulations* 10. *Ensure proper disposal of waste*	**4.5 Performing go- down wiring**	
Chapter 5: **Performing installation test**		
1. State the purpose of IR test 2. State the standard of IR test ***3. Use IR tester*** *4. Ensure appropriate use of PPE* *5. Ensure to follow OHS rules and regulations* *6. Ensure proper disposal of waste*	**5.1 Performing IR test**	

7. *Ensure correct selection of test voltage*		
1. State the purpose of continuity test 2. State the function of IR tester ***3. Use IR tester*** *4. Ensure appropriate use of PPE* *5. Ensure to follow OHS rules and regulations* *6. Ensure proper disposal of waste* 7. *Ensure correct selection of test voltage*	**5.2 Performing Continuity test**	
1. State the purpose of polarity test **2. Use IR tester** *3. Ensure appropriate use of PPE* *4. Ensure to follow OHS rules and regulations* *5. Ensure proper disposal of waste* 6. *Ensure correct selection of test voltage*	**5.3 Performing polarity test**	
1. State earth continuity test 2. State the importance of earthing ***3. Use IR tester*** *4. Ensure appropriate use of PPE* *5. Ensure to follow OHS rules and regulations* *6. Ensure proper disposal of waste* ***7. Ensure correct selection of test voltage***	**5.4 Performing earth continuity test**	
1. State purpose of earth resistance test 2. State standard earth resistance for domestic installations 3. List Methods of testing earth resistance 4. Use earth tester 5. Ensure appropriate use of PPE 6. Ensure to follow OHS rules and regulations 7. Ensure proper disposal of waste 8. Ens*ure correct selection of test voltage*	**5.5 Performing earth resistance test**	X
1. State the purpose of soil resistivity test 2. Calculate the soil resistivity 3. List methods of soil resistivity test 4. Use IR tester 5. Ensure appropriate use of PPE 6. Ensure to follow OHS rules and regulations 7. Ens*ure proper disposal of waste*	**5.6 Performing soil resistivity test**	
Chapter 6: **Troubleshooting building wiring**		

1. List types of fluorescent tube/LED 2. Explain the Working principle of fluorescent tube/LED 3. List the components of fluorescent tube and its function 4. State the symptoms, causes and remedies of faults in fluorescent tube 5. Use multi-meter 6. Use test lamp 7. Ensure to follow OHS rules and regulations 8. Ensur*e appropriate use of PPE*	**6.1 Troubleshooting fluorescent lamp/ LED and fitting**	
1. List types of fan 2. State the function of fan components 3. Explain the working principle of fan 4. State the symptoms, cause and remedies of faults in a fan 5. Use multi-meter 6. Ensure OHS rules and regulations 7. Ensure *to follow PPE*	**6.2 Troubleshooting fan and fitting**	
1. List types of HID lamp 2. State the function of HID lamp components 3. Explain the working principle of HID Lamp 4. State the Symptoms, causes and remedies of faults in HID lamp and fitting *5.* ***Use multi-meter*** *6.* ***Interpret circuit diagram*** *7. Ensure to follow OHS rules and regulation*	**6.3 Troubleshooting High Intensity Discharges (HID) lamp and fitting**	
Chapter 7: **Estimating materials**		
1. Introduce to basic estimation and costing 2. State the purpose of basic estimation and costing 3. State the methods of basic estimation and costing 4. Explain the rules for estimation 5. Explain BSR 6. Explain Bill of Quantity (BoQ) *7.* ***Interpret drawings*** *8.* ***Interpret Bhutan Schedule of Rates (BSR) and Labour and Material Coefficient (LMC)*** *9. Being time conscious* 10. *Being efficient in using resources*	**7.1 Estimating materials for PVC casing and capping wiring**	

1. State the methods of estimation and costing 2. List rules for estimation ***3. Interpret drawings*** *4. Being time conscious* *5 Being efficient in using resources*	**7.2 Estimating materials for Poly Vinyl Chloride (PVC) conduit wiring**	
1. List methods of estimation and costing 2. List Rules of estimation 3. Interpret drawing 4. Being time conscious 5. *Being efficient in using resources*	**7.3 Estimating materials for Mild steel (MS) conduit wiring**	
1. List methods of estimation and costing 2. List rules for estimation 3. ***Interpret drawing*** 4. *Being time conscious* *5. Being efficient in using resources*	**7.4 Estimating materials for concealed HDPE pipe wiring**	

ANNEXURE III: MASONRY

Content mapping

Class	Module	Chapters	Lessons	Theory (hrs)	Practical (hrs)	Total (hrs)
IX	**Module 1: Performing brick/block, stone masonry and plastering work**	**Chapter1 Practising Occupational Health and Safety (OHS) and Work Safety**	1.1 Applying Principle of 5S	2	3	18
			1.2 Using PPE	1	2	
			1.3 Maintaining workplace and personal safety	1	2	
			1.4 Maintaining tools and equipment safety	1	1	
			1.5 Using fire extinguisher	2	3	
		Chapter 2 Preparing for Masonry Work	2.1 Selecting masonry tools, equipment, and materials	3	8	28
			2.2 Identifying Building Components	3	6	
			2.3 Estimating materials	2	6	
		Chapter3 Preparing mortar mix	3.1 Conducting silt content test	2	4	31
			3.2 Preparing surface	2	3	
			3.3 Mixing mortar manually	4	10	
			3.4 Mixing mortar mechanically	2	4	

		Chapter 4 Performing brick/blocks masonry work	4.1 Carrying out foundation layout	5	15	59
			4.2 Conducting compressive test for bricks	3	8	
			4.3 Cutting brick	2	5	
			4.4 Laying of stretcher bond	5	16	
			Engineering Drawing	8	32	40
Total hours						**176**
X	**Module 1: Performing brick/block, stone masonry and plastering work**	**Chapter 4 (Continued) Performing brick/blocks masonry work**	4.5 Laying English bond wall	5	25	154
			4.6 Laying header bond	5	27	
			4.7 Laying Flemish bond	5	25	
			4.8 Setting Dumpy level	3	10	
			4.9 Preparing stabilised earth block	7	17	
			4.10 Laying stabilised earth block wall	5	20	
			Engineering Drawing	5	17	22
Total hours						**176**
XI	**Module 1:** Performing brick/block, stone masonry and plastering work	**Chapter 4 (Continued)** Performing brick/blocks masonry work	4.11Providing seismic bands	11	24	137
			4.12 Laying confined masonry wall	14	46	
			4.13 Providing pointing	9	33	
		Chapter 5 Performing stone masonry	5.1 Dressing stones manually	12	30	79
			5.2 Dressing stone using a cutting machine	10	27	
			Engineering Drawing	6	34	40
Total hours						**256**
XII	**Module 1:** Performing brick/block, stone masonry and plastering work	**Chapter 5 (Continued)** Performing stone masonry	5.3 Laying Random Rubble Masonry (RRM) wall	10	38	256
			5.4 Laying Dry Rubble Masonry (DRM) wall	8	41	
			5.5 Laying ashlar wall	10	56	
			5.6 Laying retaining wall	8	35	
			5.7 Repairing brick, block and stone masonry works	15	35	

Total hours	**256**
Grand Total Hours	**864**

5.4 Class-wise Competencies

1. CLASS IX COMPETENCIES

1. Practise OHS procedures in any task for safety.
2. Maintain hand tools and portable power tools for better performance.
3. Prepare for masonry work.
4. Prepare mortar mix.
5. Perform brick/blocks masonry work.
6. Carry out basic engineering drawings.

2) CLASS X COMPETENCIES

1. Perform brick/blocks masonry work for English bond, Header bond and Flemish bond.
2. Draw isometric blocks as per the given procedure.

3) CLASS XI COMPETENCIES

1. Perform brick/blocks masonry work providing seismic bands,confined masonry wall and pointing.
2. Perform stone masonry.
3. Draw orthographic projection as per the standard procedures and dimensions.
4. Draw a building plan for different designs following standard practice.

4) CLASS XII COMPETENCIES

1. Perform stone masonry work laying RRM, DRM, ashlar wall and retaining wall.
2. Repair brick, block and stone masonry works.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
MODULE: PERFORMING BRICK/BLOCK, STONE MASONRY AND PLASTERING WORK		**IX**
Chapter 1: Practising Occupational Health and Safety (OHS) and workshop safety		
1. Define 5S 2. State the purposes of 5S	**1.1 Applying principles of 5S**	

3. Explain the principle of 5S 4. Define OHS 5. State the importance of OHS 6. Explain the rights for employee 7. State the main causes of accidents 8. State the safety rules *9. Ensure appropriate use of PPE* *10. Ensure to refer OHS manual*		
1. Define PPE 2. State the importance of PPE 3. List the categories of PPE *4. Ensure good care of PPE* *5. Ensure to wear appropriate PPE* *6. Ensure not to defective and damaged PPE*	**1.2 Using PPE**	
1. Define safety precaution 2. List the different types of safety 3. Explain workshop and personal safety 4. State the importance of maintaining a workplace and personal safety 5. Explain the importance of safety signs and symbols 6. Explain the Emergency exit 7. Describe the layout of the workshop *Ensure to follow OHS procedures* *8. Ensure to keep the workshop clean* *9. Ensure to ring the alarm bell before the accident spreads over* *10. Ensure to display safety signs and symbols* *11. Ensure to use appropriate PPE in workplace* *12. Ensure to avoid horseplay at workplace* *13. Ensure to avoid smoking and eating inside the workshop* *14. Ensure to avoid working under influence of alcohol*	**1.3 Maintaining workplace and personal safety**	
1. Explain tool and equipment safety 2. State the importance of maintaining tool and equipment safety	**1.4 Maintaining tools and equipment safety**	

3. List the dos and don’ts for tool and equipment safety *4. Ensure all the tools are in workable condition* *5. Ensure to keep tools clean and dry, and store them properly after use* *6. Ensure to operate the machine when instructed Ensure to refer manual prior to operation of tools and equipment*		
1. Define fire extinguisher 2. Label the parts of fire extinguisher 3. Explain the types of fires 4. Explain the types of fire extinguishers 5. State the methods of combating/extinguishing fires *6. Ensure to read the instructions provided on the fire extinguisher* *7. Ensure appropriate use PPE*	**1.5 Using fire extinguisher**	
Chapter 2: **Preparing for masonry work**		
1. State the types of tools and their uses 2. State the types of materials and their applications 3. State the types of equipment and their uses 4. Describe the importance of selecting appropriate tools, material, and equipment 5. Explain the storage of materials *6. Ensure appropriate use of PPE*	**2.1 Selecting masonry tools, equipment, and materials**	
1. List the different classification of buildings 2. Label the parts of building components 3. List the utilities and facilities provided in the building *4. Ensure to use appropriate PPE*	**2.2 Identifying building components**	

1. Define estimation and costing 2. State the purposes of estimation 3. Name the types of estimation 4. Explain two stages of detailed estimate 5. Define Bhutan Schedule of Rate and state its uses 6. Describe unit measurement of work 7. Describe units of Conversion *8. Ensure to interpret drawing and its specification* *9. Ensure to use correct format* *10. Ensure to use BSR as a reference*	**2.3 Estimating materials**	
Chapter 3: **Preparing mortar mix**		
1. Define sand 2. List the types of sand 3. State the purpose of testing 4. Describe the effect of silt content in the sand 5. State the reason for using salt solution 6. Discuss the methods of reducing silt content *7. Ensure to mix sand and water thoroughly* *8. Ensure proper handling of jar/glass/cylinder* *9. Ensure to add salt in solution*	**3.1 Conducting silt content test**	
1. State the purpose of preparing surface 2. Identify the tools required for preparing the surface 3. State the requirement of mixing platform *4. Ensure platform is prepared on the level ground*	**3.2 Preparing surface**	
1. Define Mortar 2. State the function of mortar 3. State the uses of mortar 4. State the different types of mortar	**3.3 Mixing mortar manually**	

5. Define mud mortar 6. Explain different types of cement 7. Explain the setting time of cement 8. Explain different types of mixing ratio 9. List the method of measuring the ingredients 10. List the tools required for mixing mortar manually 11. Calculate the total quantity of mortar required *12. Ensure appropriate use of PPE*		
1. Define mixture machine 2. State the function of mixture machine 3. Label the parts of the mixture machine 4. Identify the types of mixture machine 5. Operate mixture machine 6. Ensure proper operation of mixture machine 7. Ens*ure appropriate use of PPE*	**3.4 Mixing mortar mechanically**	
	Chapter 4: **Performing brick/blocks masonry work**	
1. Define foundation 2. State the purpose of a foundation 3. Name the different types of foundation 4. State the requirement of the foundation 5. Define layout and describe its purpose 6. List the methods of layout 7. Calculate using Pythagoras theorem to derive the 3,4,5 method 8. State the terminologies used in a layout 9. Tools and materials used for foundation layout *10. Ensure appropriate use of PPE* *11. Ensure proper handling of water level pipe*	**4.1 Carrying out foundation layout**	
1. Define brick masonry 2. State the types of brick 3. Classify different classes of bricks 4. Label the parts of brick 5. State the properties of good brick	**4.2 Conducting compressive test for bricks**	

6. State the importance of soaking the bricks 7. Explain the different types of field test for brick 8. Label the parts of compressive testing machine 9. State the purpose of compressive strength test *10. Ensure appropriate use of PPE* *11. Ensure proper handling of the machine* *12. Ensure to use 2 mm plywood.*		
1. List the types of bats/closure 2. Explain the importance of soaking the brick before cutting 3. Describe the methods of cutting the bricks *4. Ensure appropriate use of PPE* *5. Ensure proper handling of cutting tools*	**4.3 Cutting brick**	
1. List the types of brick bond 2. Differentiate between the bonded and unbonded wall 3. Describe the orientation of bricks 4. Define stretcher bond 5. State the application of stretcher bond 6. Explain the technical terms for brick masonry 7. Calculate the quantity of bricks *8. Ensure appropriate use of PPE* *9. Ensure proper handling of cutting tools*	**4.4 Laying stretcher bond**	
Chapter 4: (Continued) **Performing brick/blocks masonry work**		**X**
1. Define English bond 2. State the advantage of English bond 3. State the application of English bond *4. Ensure proper handling of hand tools* *5. Ensure appropriate use of PPE*	**4.5 Laying English bond**	

1. Define the header bond 2. State the application of header bond *3. Ensure proper handling of hand tools* *4. Ensure appropriate use of PPE* *5. Ensure to maintain cleanliness at workplace* *6. Ensure to use materials economically* *7. Ensure proper storage of surplus materials*	**4.6 Laying header bond**	
1. Define Flemish bond 2. State the application of Flemish bond 3. Differentiate between English and Flemish bond wall *4. Ensure appropriate use of PPE* *5. Ensure to maintain cleanliness at workplace* *6. Ensure to use materials economically* *7. Ensure proper storage of surplus materials*	**4.7 Laying Flemish bond**	
1. Define dumpy level 2. Label the parts and state its function 3. Define levelling staff 4. State the precaution while using the dumpy level *5. Ensure proper handling of dumpy level* *6. Ensure to record the reading*	**4.8 Setting dumpy level**	
1. Define block masonry 2. List the types of blocks 3. Define stabilised earth block 4. List the different sizes of stabilised earth block 5. Explain the mix proportion 6. State the advantages and disadvantages of stabilised earth block 7. Describe different field test for soil *8. Ensure to use right amount of water* *9. Ensure to lubricate inside of the mould* *10. Ensure appropriate use of PPE*	**4.9 Preparing stabilised earth block**	

11. Ensure to remove blocks without damaging		
1. State the application of earth block 2. Explain the grouting and its importance 3. Explain the use of reinforcement bar 4. Explain the finishing work for block wall *5. Ensure to grout the cores every after 1 m* *6. Ensure appropriate use of PPE*	**4.10 Laying stabilised earth block wall**	
Chapter 4: (Continued) **Performing brick/blocks masonry work**		**XI**
1. Define seismic band 2. State the purpose of seismic bands 3. List the types of seismic band 4. State the advantages and disadvantages of bands 5. Explain the use of reinforcement concrete bands 6. Explain the use of timber in seismic 7. Define concrete 8. Define formwork 9. Define reinforcement bar 10. State types of bar *11. Ensure to securely bind the reinforcement bar Ensure to maintain the clear cove of a minimum of 25 mm.* *12. Ensure to compact the concrete till water rises on the surface* *13. Ensure to use gloves, googles, apron and dust mask*	**4.11 Providing seismic bands**	
1. Define confined masonry 2. State the purpose of confined masonry 3. Describe the structural components of a confined masonry building 4. State the advantages and disadvantages of confined masonry 5. Describe the standard practices to be followed for confined masonry construction	**4.12 Laying confined masonry wall**	

6. Differentiate between RC (reinforced concrete) frame structure and confined masonry *7. Ensure securely bind the reinforcement bar* *8. Ensure to compact the concrete as per requirement* *9. Ensure to maintain clear cover as per the specification* *10. Ensure to use gloves, apron, and goggles, safety boots.*		
1. Define pointing 2. List the types of tools and materials 3. State the types of pointing and their functions 4. State the advantages of pointing over plastering 5. Define curing 6. State the purpose of curing 7. State the methods of curing 8. Describe the duration of curing 9. Explain the effects of poor curing *10. Ensure proper use of pointing tools* *11. Ensure to use hand gloves, apron, and dust mask.* *12. Ensure to minimise the wastage of material* *13. Ensure safety disposal of waste material in designated areas.*	**4.13 Providing pointing**	
Chapter 5: Performing stone masonry		
1. Define stone masonry 2. State the uses of stone masonry 3. State the classification of rock 4. Describe the types of stone used in building construction 5. Describe the quality and selection of stone 6. Define stone dressing 7. Explain the purpose of stone dressing	**5.1 Dressing stones manually**	

8. *9. Ensure efficient use of material to reduce wastage* *10. Ensure appropriate use gloves, apron, goggles, and mask*		
1. Label the parts of the stone cutting machine 2. State the importance of pouring water while using a cutting machine 3. Differentiate between manual and mechanical dressing ***4. Operate cutting machine*** *5. Ensure to use gloves , apron, dust mask, helmet,near plug and google.* *6. Ensure to apply water while cutting* *7. Ensure to hold the machine securely.* *8. Ensure to tighten the mounting bolt.*	**5.2 Dressing stone using a cutting machine**	
Chapter 5: (Continued) **Performing stone masonry**		**XII**
1. State the technical terms used in stone masonry 2. Describe the types of stone masonry 3. Define RRM 4. State the applications of RRM wall 5. State the reasons for providing through stones 6. Differentiate between RRM wall and brick wall 7. Estimate materials for RRM wall *8. Ensure to use gloves, helmet, apron , goggles and dust mask* *9. Ensure to minimise the wastage of material*	**5.3 Laying Random Rubble Masonry (RRM) wall**	
1. Define DRM wall 2. List the advantages and disadvantages of DRM wall 3. Explain the estimation of materials for DRM wall 4. State the application of DRM wall *5. Ensure to place the stone chips to bind together*	**5.4 Laying Dry Rubble Masonry (DRM) wall**	

6. Ensure to use gloves, helmet, apron, googles, dust mask.		
1. Define ashlar masonry 2. Describe the types of ashlar masonry 3. Differentiate between RRM and ashlar masonry 4. State the application of ashlar masonry *5. Ensure to minimise the wastage of materials.* *6. Ensure to use appropriate use gloves, apron, goggles, and mask, helmet*	**5.5 Laying ashlar masonry wall**	
1. Define retaining 2. List the types of retaining wall and their applications 3. Explain the reason for providing weep holes 4. Explain the technique for preparing a wooden profile 5. Explain the importance of backfill in retaining wall 6. Interpret drawing and specification of retaining wall 7. Differentiate between breast wall and retaining wall *8. Ensure to minimise the wastage of materials.* *9. Ensure to use appropriate use gloves, apron, goggles, and mask, helmet*	**5.6 Laying retaining wall**	
1. State the purpose of repairing 2. Describe the types of damage on structures 3. Describe the remedies for defects/damages *4. Ensure to use gloves , helmet, apron and goggles* *5. Ensure to check the safety of building condition* *6. Ensure to dispose wastage to designated area*	**5.7 Repairing brick, block and stone masonry works**	

Learning objectives	Core concepts (Chapters/Topics)	Class
MODULE: INTERPRETING ENGINEERING DRAWING		**IX**
1. Define engineering drawing 2. State the purposes of engineering drawing 3. List the types and uses of drawing instruments 4. List the sizes of drawing papers *5. Ensure proper handling of drawing instruments* *6. Ensure cleanliness and neatness of the drawing*	**1. Using drawing instruments**	
1. Define the layout of a drawing sheet 2. Define the title block 3. *4. Ensure to maintain cleanliness and neatness of drawing* *5. Ensure proper handling of drawing instruments* *6. Ensure that the sheet edges are not damaged while handling the drawing*	**2. Laying out drawing sheet**	
1. Define sign and symbol 2. Define abbreviation *3. Ensure to maintain cleanliness and neatness of drawing* *4. Ensure proper handling of drawing instruments*	**3. Interpreting engineering signs, symbols and abbreviations**	
1. Define line 2. State the types of line and its application *3. Ensure proper handling of drawing instrument* *4. Ensure to maintain cleanliness and neatness of drawing*	**4. Drawing different types of lines**	
1. Define lettering and numbering 2. Classify the styles of letters 3. List the types of letters 4. Define freehand lettering 5. List the sizes of letters 6. State the rules for lettering and numbering *7. Ensure proper handling of drawing instruments* *8. Ensure to maintain cleanliness and neatness of drawing*	**5. Drawing letters and numbers**	

1. Define dimensioning 2. State the types of dimensioning 3. Explain the system of dimensioning 4. State the terminologies of dimensions 5. State the rules for dimensioning *6. Ensure to maintain cleanliness and neatness of drawing* *7. Ensure proper handling of drawing instruments*	**6. Providing dimension**	
		X
1. Define isometric drawing 2. State isometric terminologies *3. Ensure handling of set squares* *4. Ensure to maintain cleanliness and neatness of drawing* *5. Ensure proper handling of drawing instruments*	**1. Drawing Isometric blocks**	
		XI
1. Define orthographic drawing 2. Explain the six principles views 3. Explain the methods of obtaining six principles view 4. List the four quadrants 5. Differentiate between first and third angle projection *6. Ensure proper handling of drawing instruments* *7. Ensure to maintain the cleanliness and neatness of drawing*	**2. Drawing orthographic projection**	
1. Define construction drawing 2. List the types of building construction drawing 3. Define the scale for drawing 4. List the types of scale 5. Describe the specification and data *6. Develop creativity through their own simple drawing plan* *7. Ensure proper handling of drawing instruments* *8. Ensure to maintain the cleanliness and neatness of drawing*	**3. Drawing a simple building plan**	

ANNEXURE IV: PLUMBING

Content mapping

Class	Module	Chapters	Lessons	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
IX	**Module 1:** Carrying out installation of internal domestic water supply system and sanitary fixtures	**Chapter1** Practising occupational health and safety (OHS) and Personal Protective Equipment (PPE)	1.1. Applying Principles of 5S	2	5	29
			1.2. Using Personal Protective Equipment (PPE)	1	2	
			1.3. Maintaining workshop and personal safety	2.5	3	
			1.4. Maintaining tools and equipment safety	1.5	3	
			1.5. Using fire extinguisher	1	8	
		Chapter 2 Installing pipes and fittings	2.1.Identifying water pipes and fittings	5	8	109
			2.2.Identifying tools and equipment	3	8	
			2.3.Estimating material	3	23	
			2.4.Cutting pipes	2	34	
			2.5.Reaming/Filing pipe	3	20	
Interpreting engineering drawing				11	27	38
Total hours						**176**
X	**Module 1: (Continued)** Carrying out installation of internal domestic water supply system and sanitary fixtures	**Chapter 2 (Continued)** Installing pipes and fittings	2.1. Threading Galvanised Iron (GI) pipe manually	5	25	172
			2.2. Threading Galvanised Iron (GI) pipe mechanically	4	15	
			2.3. Performing Galvanized Iron (GI) pipe joint	5	23	
			2.4. Performing Chlorinated Polyvinyl Chloride (CPVC) pipe joint	2	10	
			2.5. Performing Polypropylene Random (PP-R) pipe joint	5	15	
			2.6. Performing Copper (Cu) pipe joint	4	13	
			2.7. Performing pex pipe joint	3	9	

			2.8. Performing High Density Polyethylene (HDPE) pipe joint	6	28	
Interpreting engineering drawing				1	3	4
Total hours						**176**
XI	**Module 1: (Continued)** Carrying out installation of internal domestic water supply system and sanitary fixtures	**Chapter 2 (Continued)** Installing pipes and fittings	2.1. Preparing layout	4	18	109
			2.2. Cutting channel	4	14	
			2.3. Laying pipes	5	18	
			2.4. Fixing Clamps	2	12	
			2.5. Conducting Leakage test	2	10	
			2.6. Performing pipe insulation	5	15	
		Chapter 3 Installing water tanks and pumps	3.1.Interpreting tank drawing	3	7	121
			3.2.Studying site location	3	9	
			3.3.Preparing tank bedding	4	15	
			3.4.Fixing tank components	3	10	
			3.5.Mounting storage tank	3	10	
			3.6.Interpreting pump drawing	4	8	
			3.7.Preparing pump layout	2	12	
			3.8.Constructing pump base	1	10	
			3.9.Assembling pump accessories	2	8	
			3.10.Testing pump	2	5	
Interpreting isometric, orthographic and trade drawing				2	24	26
Total hours						**256**
XII	**Module 1: (Continued)** Carrying out installation of internal domestic water supply system and	**Chapter 4** Maintaining pipes and fittings	4.1. Locating fault	3	13	51
			4.2. Clearing pipe blockage	3	15	
			4.3. Repairing defective pipes and fittings	2	15	
		Chapter 5 Installing sanitary fixtures and fittings	5.1.Identifying sanitary fixtures/appliances	5	15	205
			5.2.Preparing layout	4	20	
			5.3.Installing wash basin	5	14	

	sanitary fixtures		5.4.Installing European Water Closet (EWC) pan	5	20	
			5.5.Fixing cistern	4	15	
			5.6.Installing Asian Water Closet (AWC) pan	5	28	
			5.7.Fixing geyser	4	15	
			5.8.Fixing urinal	4	15	
			5.9.Fixing bathroom accessories	7	20	
Total hours						**256**
Grand Total hours						**864**

INTERPRETING ENGINEERING DRAWING

DRAWING LESSONS

Class	Module	Chapters	Lessons	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
IX	**Module 1: (Continued)** Interpreting engineering drawing	**Chapter 1** Interpreting basic engineering drawing	1.1. Using drawing instruments	3	3	38
			1.2. Laying out drawing sheet	2	3	
			1.3. Interpreting Engineering Signs, symbols, and abbreviation	2	4	
			1.4. Drawing different types of lines	2	3	
			1.5. Drawing letters and numbers	1	8	
			1.6. Providing dimensioning	1	6	
X	**Module 1: (Continued)** Interpreting engineering drawing	**Chapter 2** Interpreting Isometric, orthographic and trade drawing	2.1.Drawing of Isometric blocks	1	3	4
XI	**Module 1: (Continued)**	**Chapter 2** Interpreting Isometric, orthographic	2.1. Drawing Orthographic Projection	1	12	26

	Interpreting engineering drawing	and trade drawing	2.2. Drawing a simple building plan	1	12	
Grand Total hours				**14**	**54**	**68**

5.4 Class-wise Competencies

1. CLASS IX COMPETENCIES

1. Practise OHS procedures in any task for safety.
2. Maintain hand tools and portable power tools for better performance.
3. Carry out installation of pipes and fittings.
4. Interpret basic engineering drawing.

1. CLASS X COMPETENCIES

1. Carry out installation of pipes and fittings for GI pipes and CPVC pipe joints.
2. Perform Polypropylene Random (PPR) pipe joint, copper (Cu) pipe joint, pex pipe joint and HDPE pipe joint as per the job requirement following standard procedures.
3. Interpret isometric, orthographic and trade drawing.

3) CLASS XI COMPETENCIES

1. Carry out installation of pipes and fittings preparing layout, cutting channel, laying pipes, fixing clamps, leakage test and pipe insulation.
2. Interpret isometric, orthographic and trade drawing .

4) CLASS XII COMPETENCIES

1. Maintain pipes and fittings locating faults and addressing the problem as per the requirement.
2. Install sanitary fixtures and fittings.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
MODULE 1: CARRYING OUT INSTALLATION OF INTERNAL DOMESTIC WATER SUPPLY SYSTEM AND SANITARY FIXTURES **Chapter 1: Practising Occupational Health and Safety (OHS) and Personal Protective Equipment (PPE)**		**IX**
1. Define 5S 2. State the purpose of 5S 3. Explain the principle of 5S	**1.1 Applying principles of 5S**	

4. Define OHS 5. State the importance of OHS 6. Explain the rights of employee 7. List the main causes of accidents 8. State the safety rules in construction site		
1. Define PPE 2. State the importance of PPE 3. List down respiratory and non-respiratory PPE *4. Ensure not to use defective and damaged PPE*	**1.2 Using PPE**	
1. Define safety precaution 2. Explain the importance of safety signs and symbols 3. List the different types of safety 4. Explain workshop and personal safety 5. State the importance of maintaining workplace and personal safety 6. Explain the emergency exit 7. Describe the layout of the workshop 8. *Ensure to follow OHS procedures* 9. *Ensure to keep the workshop clean* 10. *Ensure to ring the alarm bell before the accident spreads over* 11. *Ensure to display safety signs and symbols* 12. *Ensure to use appropriate PPE in workplace* 13. *Ensure to avoid horseplay at workplace* 14. *Ensure to avoid smoking and eating inside the workshop* 15. *Ensure to avoid working under influence of alcohol*	**1.3 Maintaining workshop and personal safety**	
1. Explain tools and equipment safety 2. State the importance of maintaining tools and equipment safety 3. List dos and don'ts of tools and equipment 4. *Ensure all the tools are in workable condition* 5. *Ensure to keep tools clean and dry and store them properly after use* 6. *Ensure to operate the machine when instructed* 7. *Ensure to refer manual prior to operation of tools and equipment*	**1.4 Maintaining tools and equipment safety**	
1. Define fire extinguisher 2. Label the parts of fire extinguisher	**1.5 Using fire extinguisher**	

3. Explain the types of fire 4. List types of fire extinguishers 5. State the method of combating/extinguishing fires 6. *Ensure to read the instructions provided on the fire extinguisher* 7. *Ensure appropriate use PPE*		
Chapter 2: Installing internal pipes and fittings		
1. Define pipe 2. Explain the types of internal pipes and their uses 3. Explain the types of internal fittings and their uses 4. State the advantages and disadvantages of different pipe 5. *Ensure proper handling of pipes and fittings* 6. *Ensure good housekeeping* 7. *Ensure appropriate use of PPE*	**2.1 Identifying water pipes and fittings**	
1. Define tools and equipment 2. Explain the types of tools and their uses 3. Explain the types of equipment and their uses *4. Ensure proper handling of tools and equipment* 5. *Ensure good housekeeping* 6. *Ensure appropriate use of PPE*	**2.2 Identifying tools and equipment**	
1. Define estimation and costing 2. Explain the importance of estimation and costing 3. List the data required for estimation 4. Explain different methods of estimation *5. Ensure to use current BSR* 6. *Ensure correct interpretation of drawing* 7. *Ensure proper disposal of waste*	**2.3 Estimating materials**	
1. List the types of marking tools 2. Explain the importance of correct body positioning while cutting pipe 3. Explain the importance of maintaining hacksaw blade in forward direction 4. Differentiate between pipe cutter and hacksaw 5. Explain the purpose of applying lubricant 6. Label the parts of cutting tools	**2.4 Cutting pipe**	

7. Label the parts of different vices ***8. Set hacksaw*** 9. *Ensure safe handling of tools and materials* 10. *Ensure good housekeeping* 11. *Ensure appropriate use of PPE* 12. *Ensure proper disposal of waste*		
1. Define reamer and file 2. List the type of reamers 3. Label the parts of reamer 4. Explain the importance of checking thickness of the pipe edge while reaming 5. Explain the different type of files 6. Explain the purpose filing pipe 7. ***File pipe*** 8. *Ensure safe handling of tools* 9. *Ensure appropriate use of PPE* 10. *Ensure proper disposal of waste*	**2.5 Reaming/Filing the pipe**	
Chapter 2: Installing internal pipes and fittings		**X**
1. Define threading 2. List the types of manual threading tools 3. Label the parts of die stock 4. Differentiate between die stock and ratchet die set 5. Explain the causes of defective thread. 6. State the purpose of applying lubricant ***7. Set die stock*** ***8. Use ratchet die set*** 9. *Ensure proper handling of die stock and ratchet die set* 10. *Ensure appropriate use of PPE* 11. *Ensure proper disposal of waste*	**2.1 Threading Galvanized Iron (GI) pipe manually**	
1. Explain the types of electric threading machine and their features 2. Label the parts of the threading machine 3. Differentiate between threading pipe manually and mechanically ***4. Set universal threading machine*** 5. *Ensure appropriate use of PPE* 6. *Ensure proper handling of equipment* 7. *Ensure proper disposal of waste* *8. Ensure to be patient while threading*	**2.2 Threading Galvanized Iron (GI) pipe mechanically**	

1. Define GI pipe 2. Explain the classification of GI pipe 3. List the characteristics and properties of GI pipe and fittings 4. List the available sizes of GI pipe 5. State the advantages and disadvantages of GI pipe and fittings 6. State the application of GI pipe 7. Explain the types of jointing compound and its application 8. Explain the purpose of applying jointing compound 9. Define Z-Dimension 10. Calculate Z-dimension ***11. Wrap jute*** 12. *Ensure appropriate use of PPE* 13. *Ensure economic use of materials* 14. *Ensure proper handling of tools* 15. *Ensure proper disposal of waste* *16. Ensure to use of accurate jointing compound*	**2.3 Performing Galvanized Iron (GI) pipe joint**	
1. Define CPVC pipe 2. Explain the characteristics and properties of CPVC pipes and fittings 3. List the available sizes of CPVC pipe 4. List the jointing compound used for CPVC pipes and fittings 5. List the advantages and disadvantages of CPVC pipe and fittings 6. State the importance of trial fitting 7. State the application of CPVC pipe 8. *Ensure economic use of materials* 9. *Ensure appropriate use of PPE* 10. *Ensure proper disposal of waste*	**2.4 Performing Chlorinated Polyvinyl Chloride (CPVC) pipe joint**	
1. Define PP-R pipe 2. State the characteristics and properties of PP-R pipe and fittings 3. List the available sizes of PPR pipe 4. Explain the advantages and disadvantages of PP-R pipes and fittings 5. State the application of PP-R pipe	**2.5 Performing Poly Propylene - Random (PP-R) pipe joint**	

6. Explain the importance of maintaining correct temperature of PP-R welding machine 7. *Ensure proper handling of PP-R Bud welding machine* 8. *Ensure economic use of materials* 9. *Ensure to follow OHS* 10. *Ensure appropriate use of PPE*		
1. Define Cu pipe 2. State the types of Cu pipe 3. State the dimension of Cu pipe 4. Explain the advantages and disadvantages of copper pipe 5. Explain the methods of joining Cu pipe 6. State the application of Cu pipe 7. *Ensure appropriate use of PPE* 8. *Ensure economic use of materials* **9.** *Ensure proper disposal of waste*	**2.6 Performing Copper (Cu) pipe joint**	
1. Define pex pipe 2. List the available sizes of pex pipe 3. State the advantages and disadvantages of pex pipe 4. Explain the methods of joining pex pipe 5. State the application of pex pipe 6. *Ensure appropriate use of PPE* 7. *Ensure economic use of materials* 8. *Ensure proper disposal of waste*	**2.7 Performing pex pipe joint**	
1. Define HDPE pipe 2. Explain the characteristic of HDPE pipe 3. State the advantages and disadvantages of HDPE pipe 4. List the available sizes of HDPE pipe 5. Explain the methods of joining HDPE pipe 6. Explain the importance of maintaining correct temperature of heating plate 7. State the application of HDPE pipe 8. ***Use manual heating plate*** 9. ***Use butt-welding machine*** 10. *Ensure proper handling of heating plate* 11. *Ensure proper disposal of waste* 12. *Ensure appropriate use of PPE*	**2.8 Performing High Density Polyethylene (HDPE) pipe joint**	

Chapter 2: Installing internal pipes and fittings		**XI**
1. Define layout 2. List the types of layout tools, equipment, and materials 3. State the importance of preparing layout 4. State the importance of checking alignment 5. Explain the importance of checking power cables before preparing layout ***6. Use water level*** 7. *Ensure correct interpretation of drawing* 8. *Ensure appropriate use of PPE* 9. *Ensure proper handling of tools and equipment*	**2.1 Preparing layout**	
1. Explain method of cutting channel 2. State the purpose of channelling 3. State the consequences of irregular cutting of channel 4. List the types of channel cutting tools and equipment ***5. Use tile cutter machine*** 6. *Ensure proper handling of tools and equipment* 7. *Ensure appropriate use of PPE* 8. *Ensure proper disposal of waste*	**2.2 Cutting channel**	
1. Explain the methods of laying pipe 2. State the importance of trail fitting 3. Explain the importance of laying hot and cold-water line in parallel 4. State the consequences of improper laying of pipe 5. Calculate the loading values and dimensioning 6. *Ensure proper handling of tools and materials* 7. *Ensure appropriate use of PPE* 8. *Ensure proper disposal of waste*	**2.3 Laying pipeline**	
1. Define clamp and dowel 1. List the types of clamps and dowels 2. Explain the purpose of fixing clamp 3. State the right position/place for fixing clamp ***4. Use drilling machine*** 5. *Ensure proper handling of drilling machine* 6. *Ensure economic use of materials*	**2.4 Fixing clamps**	

7. *Ensure appropriate use of PPE*		
1. State the types of pressure testing equipment 1. Label the parts of hydrostatic pressure testing machine 2. Explain the methods of checking leakage 3. State the purpose of pressure gauge 4. State the importance of removing air from test line 5. *Ensure proper handling of pressure testing device* 6. *Ensure appropriate use of PPE*	**2.5 Conducting leakage test**	
1. Define insulation 1. Explain the purpose of insulating pipe 2. List the types of pipe insulation materials 3. List the types of binding materials 4. *Ensure proper handling of materials* 5. *Ensure proper disposal of waste* 6. *Ensure appropriate use of PPE*	**2.6 Performing pipe insulation**	
Chapter 3: Installing water tanks and pumps		
1. List the signs and symbols for the storage tank and its components. 2. Label the different components of the tank. 3. *Ensure correct interpretation of drawing.*	**3.1 Interpreting tank drawing**	
1. Explain the importance of studying site location 2. Explain the types of report writing 3. State the purpose of writing report 4. *Ensure proper handling of equipment* 5. *Ensure appropriate use of PPE*	**3.2 Studying site location**	
1. Define bedding 2. Explain the types of bedding 3. Explain the purpose of tank bedding 4. *Ensure proper handling of tools and materials* 5. *Ensure appropriate use of PPE*	**3.3 Preparing tank bedding**	
1. Define storage tank *2.* List the types of storage tank *3.* List the components of storage tank and their function *4.* Explain working principal of float valve	**3.4 Fixing tank components**	

5. State the advantages and disadvantages of different storage tank 6. Calculate the size and capacity of tank 7. *Ensure proper handling of tools and equipment* 8. *Ensure economic use of materials* 9. *Ensure appropriate use of PPE*		
1. List the types of valves and their application 2. State the function of union 3. Explain the purpose of using vent pipe 4. Explain the importance of checking leakage 5. Explain the importance of checking flow direction of gate valve 6. *Ensure proper handling of storage tank* 7. *Ensure appropriate use of PPE*	**3.5 Mounting storage tank**	
1. List the types of signs and symbols of pump and its accessories 2. Explain the importance of referring drawing 3. *Ensure good housekeeping* 4. *Ensure correct interpretation of drawing* 5. *Ensure safe handling of drawing*	**3.6 Interpreting pump drawing**	
1. State the methods of preparing layout 2. Explain the Pythagoras theorem 3. *Ensure proper handling of tools and material* 4. *Ensure appropriate use of PPE*	**3.7 Preparing pump layout**	
1. Explain the different types of foundation 2. State the purpose of soling 3. State the difference between Plain Cement Concrete (PCC) and Reinforced Cement Concrete (RCC) 4. ***Perform concreting work*** 5. *Ensure proper handling of tools and equipment* 6. *Ensure appropriate use of PPE*	**3.8 Constructing pump base**	
1. Define water pump and state its function 2. List the types of water pump 3. Label the parts of the water pump 4. State the working principle of water pump 5. List the advantages and disadvantages of different pumps	**3.9 Assembling pump accessories**	

6. Explain the purpose of using check/foot valve 7. *Ensure proper handling of tools and equipment* 8. *Ensure appropriate use of PPE*		
1. Explain the importance of priming 2. Explain dos and don'ts while installing pump 3. State the causes and remedies of defects in water pump 4. Calculate head discharge 5. *Ensure proper handling of tools and equipment* 6. *Ensure to use appropriate PPE*	**3.10 Testing pump**	
Chapter 4: Maintaining pipes and fittings		**XII**
1. List the different types of faults 2. Explain the causes and remedies of pipeline faults 3. *Ensure appropriate use of PPE*	**4.1 Locating fault**	
1. State the causes of pipe blockage 2. List the types of block clearing tool 3. *Ensure proper handling tools, materials and equipment* 4. *Ensure appropriate use of PPE*	**4.2 Clearing pipe blockage**	
1. Explain the causes and remedies of defective pipelines 2. Explain the causes and remedies of defective fittings 3. *Ensure proper handling of tools, materials and equipment* 4. *Ensure appropriate use of PPE*	**4.3 Repairing defective pipes and fittings**	
Chapter 5: Installing sanitary fixtures and fittings		
1. Define sanitary fixture 2. List the types of sanitary fixtures and their uses 3. State the importance of checking defects *4. Ensure proper handling of materials*	**5.1 Identifying sanitary fixtures/appliances**	
1. List the signs and symbols of sanitary fixtures 2. List the standard dimensions of sanitary fixtures	**5.2 Preparing layout**	

3. State the appropriate location of sanitary fixtures 4. Explain the importance of technical drawing ***5. Use laser level*** *6. Ensure safe handling of tools and equipment* *7. Ensure to use PPE*		
1. Define wash basin 2. Explain different types of wash basin 3. List the components of wash basin ***4. Fix basin mixer*** 5. *Ensure safe handling of tools and materials* *6. Ensure to use PPE*	**5.3 Installing wash basin**	
1. Define EWC pan 2. Explain types of EWC pan 3. State advantages and disadvantages of using EWC pan 4. Define trap 5. List the types of traps and their uses 6. *Ensure safe handling of tools and materials* *7. Ensure to use PPE*	**5.4 Installing European Water Closet (EWC) pan**	
1. Define cistern 2. Explain the types of cisterns 3. State the differences between manual and automatic flushing cistern 4. Label the parts of cistern and explain it's working principle *5. Ensure safe handling of tools and materials* *6. Ensure to use PPE*	**5.5 Fixing cistern**	
1. List the types of AWC pan 2. Explain the importance of providing bedding 3. State the purpose of applying mortar/adhesive around the joints 4. State the advantages and disadvantages of AWC pan 5. ***Construct brick wall*** 6. *Ensure safe handling of tools and materials* 7. *Ensure to use PPE*	**5.6 Installing Asian Water Closet (AWC) pan**	
1. Define geyser 2. Explain the types of geysers	**5.7 Fixing geyser**	

3. State the advantages and disadvantages of geyser 4. Explain the components of geysers 5. State the location of geyser 6. *Ensure safe handling of tools, equipment and materials* 7. *Ensure to use PPE*		
1. Define urinal 2. Explain the types of urinals and their applications 3. *Ensure safe handling of tools, equipment and materials* 4. *Ensure to use PPE*	**5.8 Fixing urinal**	
1. Define bathroom accessories 2. State the types of bathroom accessories and their uses 3. List the standard dimensioning for bathroom accessories 4. *Ensure safe handling of tools and materials* 5. *Ensure to use PPE*	**5.9 Fixing bathroom accessories**	

ANNEXURE V: WELDING

Content mapping

Class	Modules	Chapters	Lessons	Theory (hrs)	Practical (hrs)	Total duration (Hrs)
IX	**Module 1: Carrying out Shielded Metal Arc Welding (SMAW)**	**Chapter 1: Practicing Occupational Health and Safety (OHS) and workshop safety**	1.1. Applying Principles of 5S	2	2	17
			1.2. Using Personal Protective Equipment(PPE)	1	1	
			1.3. Maintaining workplace and personal safety	1	2	
			1.4. Maintaining tools and equipment safety	2	2	
			1.5. Using fire extinguishers	2	2	

		Chapter 2: Performing set up for SMAW process	2.1. Preparing base metal	6	30	63
			2.2. Setting up SMAW machine	4	12	
			2.3. Setting up base metal	2	9	
		Chapter 3: Performing SMAW on plate	3.1. Performing stringer bead in flat position	4	20	**82**
			3.2. Performing weaving bead in flat position	2	22	
			3.3. Performing fillet weld in flat position(1F)	6	28	
	Engineering Drawing			**3**	**11**	**14**
	Total Hours			**35**	**141**	**176**
X	**Module 1: Carrying out Shielded Metal Arc Welding(SMAW) (Continued)**	**Chapter 3: Performing SMAW on plate (continued)**	3.1.Performing groove weld in flat position(1G)	9	11	**149**
			3.2.Performing fillet weld in horizontal position(2F)	6	13	
			3.3.Performing groove weld in horizontal position(2G)	2	14	
			3.4.Performing fillet weld in vertical position(3F)	2	15	
			3.5.Performing groove weld in vertical position(3G)	7	18	
			3.6.Performing fillet weld in overhead position(4F)	2	123	
			3.7.Performing groove weld in overhead position(4G)	2	25	
	Engineering Drawing			**5**	**22**	**27**
	Total Hours			**35**	**141**	**176**
XI	**Module 1: Carrying out Shielded Metal Arc Welding(SMAW) (continued)**	**Chapter 4: Performing SMAW on pipe**	4.1.Performing fillet weld in horizontal rolled position(1F)	5	25	**166**
			4.2.Performing groove weld in horizontal rolled position(1G)	4	28	
			4.3.Performing groove weld in vertical fixed position(2G)	4	30	
			4.4.Performing groove weld in horizontal fixed position(5G)	4	34	
			4.5.Performing fillet weld in horizontal fixed position(5F)	4	28	
		Chapter 5: Performing arc cutting/gouging	5.1. Setting up arc cutting/gouging equipment	4	6	**28**
			5.2. Performing arc cutting	3	6	
			5.3. Performing arc gouging	3	6	

		Chapter 6: Performing post SMAW work	6.1.Performing penetrant test	4	6	**35**
			6.2.Performing finishing work	3	7	
			6.3.Compiling work completion report	8	7	
		Engineering Drawing		**5**	**22**	**27**
		Total Hours		**51**	**205**	**256**
XII	**Module 2: Carrying out Oxy-acetylene processes**	**Chapter 1: Performing setup for oxy-acetylene welding**	1.1.Preparing base metal	4	4	**32**
			1.2.Setting up oxy-acetylene welding equipment	4	4	
			1.3.Performing flame setting for oxy-acetylene welding	4	4	
			1.4.Setting up base metal	4	4	
		Chapter 2: Performing oxy-acetylene welding	2.1.Performing straight line bead without filler rod	3	9	**119**
			2.2.Performing straight line bead with filler rod	3	10	
			2.3.Welding fillet joint in flat position(1F)	1	13	
			2.4.Welding butt joint in flat position(1G)	1	13	
			2.5.Welding fillet joint in horizontal position(2F)	1	15	
			2.6.Welding butt joint in horizontal position(2G)	1	15	
			2.7.Welding fillet joint in vertical position(3F)	1	16	
			2.8.Welding butt joint in vertical position(3G)	1	16	
		Chapter 3: Performing oxy-acetyline cutting	3.1.Setting up gas cutting equipment	3	7	**66**
			3.2.Performing flame setting for gas cutting	3	10	
			3.3.Preparing base metal	1	3	
			3.4.Performing straight cutting	1	12	
			3.5.Performing angle cutting	1	12	
			3.6.Performing profile cutting	1	12	
		Chapter 4: Performing Bazing	4.1.Preparing base metal	1	3	**17**
			4.2.Setting up base metal	1	4	
			4.3.Brazing the workpiece	3	5	
		Chapter 5:	5.1.Performing visual inspection of finished workpiece	3	4	**22**

		Performing post work for oxy-acetylene process	5.2.Maintaining oxy-acetylene equipment	3	5	
			5.3.Preparing work completion report	2	5	
Total Hours				**51**	**205**	**192**
Total Engineering Drawing				**13**	**55**	**68**
Grand Total hours				**172**	**692**	**864**

Drawing

Class	Modules	Chapters	Lessons	Theory (hrs)	Practical (hrs)	Total duration (Hrs)
IX	**Module 1: Interpreting Engineering Drawing**	**Chapter 1: Drawing basic signs, symbols and dimensions**	1.1.Using drawing instruments	1	1	2
			1.2.Laying out drawing sheet	1	2	3
			1.3.Interpreting engineering signs, symbols and abbreviations	1	2	3
			1.4.Drawing different types of lines	1	1	2
			1.5.Drawing letters and numbers	1	1	2
			1.6.Providing dimensions	1	1	2
		Total Hours		**6**	**8**	**14**
X		**Chapter 2: Drawing isometric and mechanical parts**	2.1. Converting drawing scale	2	4	6
			2.2. Drawing isometric blocks	3	7	10
			2.3. Drawing an orthographic projections	3	8	11
	Total Hours			**8**	**19**	**27**
+XI		**Chapter 3: Interpreting technical drawing**	3.1.Drawing isometric views for different joint	2	7	9
			3.2.Interpreting simple mechanical drawing	2	7	9
			3.3.Drawing mechanical machine parts	2	7	9

	Sub-Total	**6**	**21**	**27**
Grant Total hours		**20**	**48**	**68**

5.4 Class-wise Competencies

1) CLASS IX COMPETENCIES

1. Practise OHS procedures in any task for safety.
2. Maintain hand tools and portable power tools for better performance.
3. Perform set up for SMAW process.
4. Perform SMAW on plate.
5. Draw basic signs, symbols and dimensions.

2) CLASS X COMPETENCIES

1. Perform SMAW on plate with fillet weld in 2F,2G,3F, 3G,4F and 4G.
2. Draw isometric and mechanical parts.

3) CLASS XI COMPETENCIES

1. Perform SMAW on plate with fillet weld in 1F,1G, 2G, 5G and 5F.
2. Perform arc cutting/gouging.
3. Perform post SMAW work.
4. Interpret technical drawing.

4) CLASS XII COMPETENCIES

1. Perform setup for oxy-acetylene welding.
2. Perform oxy-acetylene welding.
3. Perform oxy-acetylene cutting.
4. Perform brazing.
5. Perform post work for the oxy-acetylene process.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
Chapter1. Practising Occupational Health and Safety (OHS)		**IX**
1. Define 5s. 2. State the purposes of 5S. 3. Explain the principles of 5s 4. Define OHS. 5. State the importance of OHS. 6. Explain the rights of the employee. 7. State the main causes of accidents. 8. Explain the safety rules.	**1.1 Applying principles of 5S**	
1. Define PPE. 2. State the importance of PPE. 3. List the categories of PPE. 4. *Ensure to use appropriate PPE.* 5. *Ensure safe disposal of damage PPE.*	**1.2 Using Personal Protective Equipment (PPE)**	
1. Define safety precautions. 2. List the different types of safety. 3. Explain workshop and personal safety. 4. State the importance of maintaining a workplace and personal safety. 5. Explain the importance of safety signs and symbols. 6. Explain the emergency exit. 7. Describe the layout of the workshop.	**1.3 Maintaining workplace and personal safety**	
1. Explain tools and equipment safety 2. State the importance of maintaining tools and equipment safety. 3. List the dos and don’ts of tools and equipment.	**1.4 Maintaining tools and equipment safety**	
1. Define a fire extinguisher. 2. Label the parts of a fire extinguisher. 3. Explain types/classes of fire. 4. List the types of fire extinguishers. 5. State the methods of combating/extinguishing fires. 6. *Ensure to read the instructions provided on the fire extinguisher.*	**1.5 Using fire extinguisher**	
Chapter 2: Setup arc welding		

1. Explain the introduction to welding 2. Explain the scopes and market trend of welder 3. Safety aspects of welding 4. Identify the types of base metal and its properties 5. Describe the weldability of metal 6. Explain the basic bench fitting 7. Explain the types of edge preparation and its importance 8. Identify the types of marking and measuring tools 9. Explain the purpose and method of cleaning 10. **Use hacksaw** 11. **Use high-speed cutter** 12. **Use file** **13. Use angle grinder** 14. Ensure proper handling of tools, equipment, and material. 15. Ensure the main supply switch is off while performing electrical connection. 16. Ensure the electrical connection is free from water.	**2.1 Performing the basic electrical connection**	
1. Define explain the basic electrical connections 2. Explain the electrical phases 3. Explain the power source of SMAW(AC/DC) 4. Explain the constructional features of SMAW machine 5. List the advantages and limitations of SMAW 6. State the application of SMAW 7. Identify the specification of welding cable 8. Identify the specification of SMAW machine 9. ***Use tester*** 10. *Ensure appropriate use of PPE.* 11. *Ensure the main supply switch and the machine are properly earthed.* 12. *Ensure to safeguard against work hazards.*	**2.2 Setting up SMAW machine**	
1. Define tack weld 2. Explain the purpose of tack welding 3. Describe the sequence of tack welding 4. Explain the root gap and its importance 5. ***Use file*** *6. Ensure appropriate use of PPE.*	**2.3 Setting up base metal**	

Chapter 3: Performing SMAW on plate		
1. Define stringer bead 2. State the application of stringer bead 3. Explain different types of arc length and its effects 4. Explain the methods of striking an arc 5. Explain the correct selection of welding parameters 6. Explain the coding of electrode 7. Explain the construction of electrode 8. Explain the importance of electrode baking	**3.1 Performing stringer bead in flat position**	
1. Define weaving bead 2. Explain the purpose of weaving bead 3. State the types of weaving technique	**3.2 Performing weaving bead in flat position**	
1. Define fillet weld 2. State the different types of welding position 3. Explain the nomenclature of the fillet weld 4. Explain the application of fillet weld in flat position 5. Explain the correct selection of parameters in SMAW for 1F position 6. State the types of welds 7. Explain the types of weld joint 8. Explain the distortion prevention method	**3.3 Performing fillet weld in flat position(1F)**	
1. Define groove weld 2. State the application of groove weld 3. Explain the differences b/w back welding and backing weld 4. State the purpose backing strip 5. Explain the nomenclature of groove weld 6. 3.4.6 Explain the importance of run-in and run-out plate	**3.4 Performing groove weld in flat position(1G)**	**X**
1. Explain the correct selection of parameters for SMAW process in 2F position 2. State the application of fillet weld in 2F position 3. Explain the welding symbols	**3.5 Performing fillet weld in horizontal position(2F)**	

1. Explain the importance of maintaining inter-pass temperature 2. Explain the metal surface build-up	**3.6 Performing groove weld in (2G)**	
1. Explain the importance of preheating and post-heating 2. Explain the importance post weld heat treatment 3. State the application of SMAW process in 3F position	**3.7 Performing fillet weld in vertical position(3F)**	
1. Explain the mode of metal transfer 2. Explain the correct selection of welding parameters for 3G position 3. Explain the effects of electromagnetic and gravitational forces on metal transfer 4. List the measures for controlling molten droplets in 3G	**3.8 Performing groove weld in vertical position (3G)**	
1. State the application of overhead welding 2. Explain the correct selection of welding parameters for 4F position 3. State the measures for controlling molten droplets in 4F position	**3.9 Performing fillet weld in overhead position(4F)**	
1. State the application of overhead welding 2. Explain the correct selection of welding parameters for 4G position 3. State the measures for controlling molten droplets in 4G position	**3.10 Performing groove weld in overhead position(4G)**	
Chapter 4: Performing SMAW on pipe		**XI**
1. Explain the current setting for fillet weld in horizontal rolled position(1F) 2. Explain the pipe welding position 3. Explain the pipe welding techniques *4. Have work ethics and integrity* *5. Being efficient in using resources* *6. Ensure proper storage of tools, materials and equipment* *7. Ensure the correct use of PPE*	**4.1 Performing fillet weld in horizontal rolled position(1F)**	

1. Explain the current setting for groove weld in horizontal rolled position(1G) 2. Explain the types of pipe joints 3. State the application of groove joint in horizontal rolled position(1G) 4. *Being time conscious* 5. *Being efficient in using resources* 6. *Ensure proper handling of tools, equipment and materials* 7. *Ensure proper storage of tools, materials and equipment*	**4.2 Performing groove weld in horizontal rolled position(1G)**	
1. Explain the correct selection of parameters for pipe welding in 2G position 2. *Being time conscious* 3. *Being vigilant* 4. *Being efficient in using resources* 5. *Ensure proper handling of tools, equipment and materials* 6. *Ensure proper storage of tools, materials and equipment* 7. *Ensure to follow OHS rules and regulations*	**4.3 Performing groove weld in vertical fixed position(2G)**	
1. Explain the correct selection of parameters for pipe welding in 5F position 2. Explain the importance of maintaining throat size 3. Explain the importance of staggering 4. State the method of pipe welding in 5F position 5. State the application of pipe welding in 5F position 6. *Being time conscious* 7. *Being vigilant* 8. *Being efficient in using resources* 9. *Ensure proper handling of tools, equipment and materials* 10. *Ensure proper storage of tools, materials and equipment*	**4.4 Performing fillet weld in horizontal fixed position(5F)**	

1. Explain the correct selection of welding parameters for pipe welding in 5G position 2. *Being time conscious* 3. *Being vigilant* 4. *Being efficient in using resources* 5. *Ensure proper handling of tools, equipment and materials* 6. *Ensure proper storage of tools, materials and equipment* 7. *Ensure to follow OHS rules and regulations*	**4.5 Performing groove weld in horizontal fixed position (5G)**	
Chapter 5: performing arc cutting/gouging		
1. Explain the power source of SMAW(AC/DC) 2. Explain the difference between MMA gouging and cutting 3. *Being time conscious* 4. *Being vigilant* 5. *Being efficient in using resources* 6. *Ensure proper handling of tools, equipment and materials* 7. *Ensure proper storage of tools, materials and equipment*	**5.1 Setting up arc cutting /gouging equipment**	
1. Explain the basic principle of arc cutting 2. State the selection of parameters 3. State the types of cutting electrode 4. Explain the selection of electrode 5. List the composition of arc cutting electrode 6. State the importance of polarity in arc cutting 7. State the application and limitation of arc cutting 8. *Being time conscious* 9. *Being vigilant*	**5.2 Performing arc cutting**	
1. Define gouging 2. State the types of gouging process 3. Explain the application of arc gouging 4. State the selection of parameters 5. List the methods of arc gouging 6. *Being time conscious* 7. *Being vigilant* 8. *Ensure proper handling of tools, equipment and materials* 9. *Ensure proper storage of tools, materials and equipment*	**5.3 Performing arc gouging**	

Chapter 6: Performing post SMAW work		
1. Define penetrant test 2. State the purpose of penetrant test 3. Explain the principle of penetrant test 4. Explain the acceptance criteria for PT 5. Define dwell time, drying tine, development time, evaluation time and interpretation time 6. Explain the types of penetrant test 7. Describe the types of indication 8. State the types of testing method 9. Define capillary action 10. Explain the types of weld defects and its remedies *11. Ensure to avoid crushing and burning of empty spray cans* *12. Ensure the application and storage of spray cans away from heat source*	**6.1 Performing Penetrant Test (PT)**	
1. Explain the report format 1. Explain the importance of work completion report 2. Explain the basic estimation and costing for SMAW process *3. Being time conscious* *4. Being vigilant*	**6.2 Performing finishing work**	
1. Explain the report format 2. Explain the importance of work completion report 3. Explain the basic estimation and costing for SMAW process *4. Being time conscious* *5. Being vigilant*	**6.3 Compiling work completion report**	
Module 2: Carrying out oxy-acetylene processes **Chapter 1 Performing set up for Oxy-acetylene welding**		**XII**
1. Explain the types of base metal 2. State the types of marking and cutting tools 3. State the importance of cutting tolerance 4. Explain the types of joints	**1.1 Preparing base metal**	

5. List the types of welding position *6. Being time conscious* *7. Being vigilant* *8. Being efficient in using resources* *9. Ensure proper handling of tools, equipment and materials*		
1. Explain the oxy-acetylene welding 1. Differentiate the features of oxygen and acetylene cylinder 2. Explain the Do's and Don'ts while handling gas cylinders 3. List the type of gas 4. Explain the importance of cracking gas cylinder 5. Explain the working principle of regulator 6. State the function of regulator 7. List the types of regulators 8. Explain the function of flashback arrestor (FBA) 9. Explain the construction and working principle of blowpipe 10. State characteristics of hose *11. Being time conscious* *12. Being vigilant* *13. Being work ethics and integrity* *14. Ensure proper handling of tools, equipment and materials* *15. Ensure proper fitting of regulators*	**1.2 Setting up oxy-acetylene welding equipment**	
1. Explain the working principle of oxy-acetylene welding 2. State the characteristics of oxygen and acetylene 3. Explain the types of flame and its characteristics 4. List the application of flames 5. Explain the indication, causes and remedies of backfire and flashback 6. State the importance of nozzle tip cleaning 7. List the advantages and limitations of oxy-acetylene welding *8. Being time conscious* *9. Being vigilant* *10. Ensure proper handling of tools, equipment and materials*	**1.3 Performing flame setting for oxy-acetylene welding**	

11. *Ensure to follow OHS rules and regulations* 12. *Ensure the correct use of PPE*		
1. *Explain the selection of nozzle* 2. *List the types of clamping device* 3. *Explain the distortion of base metal and its control* 4. *Being efficient in using resources* 5. *Ensure proper handling of tools, equipment and materials* 6. *Ensure proper storage of tools, materials and equipment* 7. *Ensure to follow OHS rules and regulations* 8. *Ensure the correct use of PPE* 9. *Willingness to work*	**1.4 Setting up base metal**	
Chapter 2- Performing oxy-acetylene welding		
1. State the application of straight-line bead without filler rod 2. Explain the importance of maintaining blowpipe angle 3. List the welding techniques 4. Explain the types of blowpipes and their functions 5. Explain the importance of using ceramic blanket after welding 6. *Being efficient in using resources* 7. *Ensure proper handling of tools, equipment and materials* 8. *Ensure proper storage of tools, materials and equipment* 9. *Ensure to follow OHS rules and regulations* 10. *Ensure the correct use of PPE*	**2.1 Performing straight line bead without filler rod**	
1. State the application straight line bead with filler rod 2. List the types of filler rod 3. Explain the selection of filler rod 4. Explain the feeding techniques of filler rod 5. *Being time conscious* 6. *Being vigilant* 7. *Being work ethics and integrity*	**2.2 Performing straight line bead with filler rod**	

8. *Being efficient in using resources* 9. *Ensure proper handling of tools, equipment and materials* 10. *Ensure proper storage of tools, materials and equipment* 11. *Ensure to follow OHS rules and regulations* 12. *Ensure the correct use of PPE* 13. *Willingness to work*		
1. Explain the selection of parameter 2. List the types of welding position 3. State the application of fillet joint in flat position 4. *Being time conscious* 5. *Being vigilant* 6. *Being work ethics and integrity*	**2.3 Welding fillet joint in flat position(1F)**	
1. State the application of butt joint in flat position 2. *Being time conscious* 3. *Being vigilant* 4. *Being work ethics and integrity* 5. *Being efficient in using resources* 6. *Ensure proper handling of tools, equipment and materials*	**2.4 Welding butt joint in flat joint(1G)**	
1. State the application of fillet joint in horizontal position 2. *Being time conscious* 3. *Being vigilant* 4. *Being work ethics and integrity* 5. *Being efficient in using resources* 6. *Ensure proper handling of tools, equipment and materials* 7. *Ensure proper storage of tools, materials and equipment*	**2.5 Welding fillet joint in horizontal position(2F)**	
1. *State the application of butt joint in horizontal position* 2. *Being time conscious* 3. *Being vigilant* 4. *Being work ethics and integrity* 5. *Being efficient in using resources*	**2.6 Welding butt joint in horizontal position(2G)**	

1. State the application of fillet joint in vertical position *2. Being time conscious* 3. *Being vigilant* *4. Being work ethics and integrity* *5. Being efficient in using resources* *6. Ensure proper handling of tools, equipment and materials*	**2.7 Welding fillet joint in vertical position(3F)**	1.
1. State the application of butt joint in vertical position *2. Being time conscious* *3. Being vigilant* *4. Being work ethics and integrity* *5. Being efficient in using resources* *6. Ensure to follow OHS rules and regulations* *7. Ensure the correct use of PPE*	**2.8 Welding butt joint in vertical position(3G)**	
Chapter 3- Performing oxy-acetylene cutting		
1. Explain oxy-acetylene cutting process 2. Explain the working principle of oxy-acetylene cutting and its application 3. Describe the construction of cutting blowpipe 4. List the advantages and limitations of oxy-acetylene cutting process *5. Being time conscious* *6. Being vigilant* *7. Being work ethics and integrity* *8. Being efficient in using resources* *9. Ensure proper handling of tools, equipment and materials*	**3.1 Setting up oxy-acetylene cutting equipment**	
1. State the types of cutting nozzle *2. Describe selection of cutting nozzle* *3. Describe the importance of gas pressure setting* *4. Ensure proper handling of tools, equipment and materials*	**3.2 Performing flame setting for oxy-acetylene cutting**	

5. *Ensure proper storage of tools, materials and equipment* 6. *Ensure to follow OHS rules and regulations* 7. *Ensure the correct use of PPE*		
1. Explain the purpose of marking 2. List the types of marking tools 3. Explain the importance of cutting tolerance 4. Define template 5. Explain the importance of template 6. *Being efficient in using resources* 7. *Ensure proper handling of tools, equipment and materials* 8. *Ensure proper storage of tools, materials and equipment* 9. *Ensure to follow OHS rules and regulations*	**3.3 Preparing base metal**	
1. State the application of straight cutting 2. State the gas cutting defects and its remedies *3. Ensure to follow OHS rules and regulations* *4. Ensure the correct use of PPE*	**3.4 Performing straight cutting**	
1. Explain the relationship between cutting nozzle size, thickness of plate and cutting oxygen pressure 2. Describe the method of piercing a hole 3. State the application of angle cutting 4. *Ensure proper handling of tools, equipment and materials* 5. *Ensure proper storage of tools, materials and equipment* 6. *Ensure to follow OHS rules and regulations* 7. *Ensure the correct use of PPE*	**3.5 Performing angle cutting**	
1. Define profile cutting 2. State the application of profile cutting 3. List the cutting problems and causes *4. Ensure proper storage of tools, materials and equipment* *5. Ensure to follow OHS rules and regulations* *6. Ensure the correct use of PPE* *7. Willingness to work*	**3.6 Performing profile cutting**	

Chapter 4- Performing brazing		
1. Explain brazing 2. State the types of base metal 3. *Being vigilant* *4. Being work ethics and integrity* 5. *Being efficient in using resources* *6. Ensure proper handling of tools, equipment and materials* *7. Ensure proper storage of tools, materials and equipment* *8. Ensure to follow OHS rules and regulations* *9. Ensure the correct use of PPE*	**4.1 Preparing base metal**	
1. Explain the types of brazing joint 2. Explain the difference between oxy-acetylene welding and brazing *3. Ensure proper handling of tools, equipment and materials* *4. Ensure proper storage of tools, materials and equipment*	**4.2 Setting up base metal**	
1. State the methods of brazing 2. Explain the importance of brazing flux 3. State the types of brazing flux 4. List the types of brazing filler metal 5. Explain brazing problems and its remedies 6. List the advantages and limitations of brazing 7. Explain the working principle of brazing 8. State the brazing temperature 9. Explain the differences between brazing and soldering *10. Ensure proper storage of tools, materials and equipment* *11. Ensure to follow OHS rules and regulations* *12. Ensure the correct use of PPE*	**4.3 Brazing the work piece**	
Chapter 5: Performing post work for oxy-acetylene processes		
1. Explain importance of visual inspection 2. Describe types of surface defects 3. *Being vigilant* *4. Being work ethics and integrity* *5. Being efficient in using resources*	**5.1 Performing visual inspection of finished workpiece**	

6. *Ensure proper handling of tools, equipment and materials* 7. *Ensure proper storage of tools, materials and equipment* 8. *Ensure to follow OHS rules and regulations* 9. *Ensure the correct use of PPE*		
1. Explain importance of maintenance 2. Explain preventive and periodic maintenance of oxy-acetylene equipment 3. *Being vigilant* 4. *Being work ethics and integrity* 5. *Being efficient in using resources* 6. *Ensure proper handling of tools, equipment and materials*	**5.2 Maintaining oxy-acetylene equipment**	
1. Explain the importance of work completion report 2. Explain the report format 3. Explain the basic estimation and costing for oxy-acetylene processes	**5.3 Compiling work completion report**	

Learning objectives	**Core concepts (Chapters/Topics)**	**Class**
MODULE: INTERPRETING ENGINEERING DRAWING		**IX**
Chapter: 1 Draw basic signs, symbols and dimension		
1. Define engineering drawing. 2. State the purposes of engineering drawing. 3. List the types of drawing instruments. 4. State uses of drawing instruments. 5. List types and sizes of drawing papers. 6. *Ensure clean and neatness of drawing.* 7. *Ensure proper handling of drawing instruments.*	**1.1 Using drawing instruments**	
1. Define layout. *2.* List terminology used for layouts. *3.* Define title block. *4.* Explain the purpose of the title block. *5. Ensure clean and neatness of drawing.* *6. Ensure Proper handling of drawing instruments.*	**1.2 Laying out drawing sheet**	

1. Define sign and symbol 2. Draw civil signs and symbols 3. Define abbreviation 4. List the abbreviation used in dimensioning 5. List the abbreviation used in drawing 6. List the abbreviation used for the units of length *7. Ensure clean and neatness of drawing* *8. Ensure Proper handling of drawing instruments*	**1.3 Interpreting Engineering signs, symbols and abbreviations**	
1. Define line. 2. State types of line and its applications. *3. Ensure clean and neatness of drawing.* *4. Ensure Proper handling of drawing instruments.*	**1.4 Drawing different types of lines**	
1. Define lettering and numbering. 2. Classify letters style. 3. List the types of letters. 4. Define freehand lettering. 5. List the size of letters. 6. State the rules for lettering and numbering. *7. Ensure clean and neatness of drawing.* *8. Ensure Proper handling of drawing instruments.*	**1.5 Drawing letters and numbers**	
1. Define dimension. 2. State the types of dimensioning. 3. Explain the system of dimensioning. 4. State the terminologies of dimensions. *5. Ensure clean and neatness of drawing.* *6. Ensure Proper handling of drawing instruments.*	**1.6 Providing dimensions**	
	Chapter: 2. Drawing isometric and mechanical parts	X
1. Define the scale of the drawing. 2. List types of scale. *3. Ensure clean and neatness of drawing.* 4. *Ensure Proper handling of drawing instruments.*	**2.1 Converting drawing scale**	
1. Define isometric drawing. 2. State isometric terminologies. *3. Ensure clean and neatness of drawing.* *4. Ensure Proper handling of drawing instruments.*	**2.2 Drawing isometric blocks**	
1. Define mechanical drawing. 2. List types of mechanical drawing. 3. Explain plan, elevation, and section. *4. Ensure clean and neatness of drawing.*	**2.3 Interpreting simple mechanical drawing**	

5. *Ensure Proper handling of drawing instruments.*		
	Chapter: 3 Interpreting Technical drawing	XI
1. Describe sectional views. 2. Describe auxiliary views. *3. Ensure clean and neatness of drawing.* *4. Ensure Proper handling of drawing instruments.*	**3.1 Drawing isometric views for different joint**	
1. Define orthographic drawing. 2. List the four quadrants. 3. State types of orthographic projections. 4. Differentiate between first and third angle projection. *5. Ensure clean and neatness of drawing.* *6. Ensure Proper handling of drawing instruments.*	**3.2 Drawing orthographic projection**	
1. Development of surfaces. *2. Ensure clean and neatness of drawing* *3. Ensure Proper handling of drawing instruments*	**3.3 Drawing mechanical machine parts**	

ANNEXURE VI: AUTOMOBILE

Content mapping

Class	Modules	Chapter	Lessons	Nominal Duration (hrs)

IX	**Module I: Servicing suspension system**	**Chapter 1: Practising Occupational Health and Safety (OHS), basic workshop practice and measuring instruments.**	1.1. Applying Principle's of 5S 1.2. Applying OHS Practices 1.3. Using of Personal Protective Equipment (PPE) 1.4. Maintaining workplace and personal safety 1.5. Maintaining tools and equipment safety 1.6. Using fire extinguisher 1.7. Using hack saw 1.8. Performing filing 1.9. Performing drilling 1.10. Performing greasing 1.11. Performing grinding 1.12. Performing basic arc welding 1.13. Using multimeter 1.14. Using vernier calliper 1.15. Using micrometer	**40.5**
		Chapter 2: Replacing faulty rigid suspension components	2.1. Replacing shock absorber 2.2. Replacing leaf spring assembly 2.3. Disassembling leaf spring assembly 2.4. Assembling leaf spring assembly 2.5. Changing leaf spring bush	**46.5**
		Chapter 3: Replacing faulty independent suspension components	3.1. Replacing strut assembly 3.2. Disassembling strut and coil spring 3.3. Assembling strut and coil spring 3.4. Replacing coil spring 3.5. Replacing strut bar 3.6. Replacing suspension arm 3.7. Replacing torsion bar 3.8. Replacing lateral control rod 3.9. Replacing stabilizer bar	**55.5**
		Chapter 4: Diagnosing suspension system failures	4.1. Performing visual inspection of suspension failure 4.2. Performing bounce test 4.3. Performing test drive	**7.5**
	Engineering drawing	**Draw basic signs, symbols, and dimension**	1. Using drawing instrument 2. Laying out drawing sheet 3. Interpreting engineering signs, symbols, and abbreviation 4. Drawing different types of lines	**26**

			5. Drawing letters and numbers 6. Providing dimensions	
Total hours				**176**
X	**Module II: Servicing brake system**	**Chapter 1: Overhauling brake system**	1.1. Checking operation of brake booster 1.2. Changing brake booster 1.3. Replacing master cylinder kit 1.4. Changing brake shoes 1.5. Replacing wheel cylinder kits 1.6. Changing brake calliper assembly 1.7. Changing brake pipeline 1.8. Changing brake disc/rotor 1.9. Changing brake fluid 1.10. Changing load sensing device 1.11. Changing anti-lock brake system speed sensor 1.12. Changing parking brake cable	**64.5**
		Chapter 2: Adjusting brake system	2.1. Adjusting brake pedal free play 2.2. Adjusting drum brake 2.3. Adjusting parking brake 2.4. Performing test drive	**15.5**
	Module: III Servicing steering system	**Chapter 1: Servicing steering components**	1.1. Replacing steering wheels. 1.2. Replacing steering Shaft 1.3. Replacing tie rod end 1.4. Replacing rack & pinion assembly 1.5. Replacing pitman arm 1.6. Replacing recirculating ball type steering gear box 1.7. Overhauling re-circulating type steering gear box 1.8. Adjusting steering gear backlash 1.9. Replacing integral power steering gear box	**67**
	Engineering drawing	**Drawing isometric and orthographic projections**	1. Converting drawing scales 2. Drawing of isometric block 3. Drawing orthographic projections	**29**
Total hours				**176**

XI	**Module III: Servicing steering system**	**Chapter 1: (continued) Servicing steering components**	1.1. Replacing rack & pinion power steering gear box 1.2. Replacing power steering belt 1.3. Changing power steering fluid 1.4. Purging hydraulic power steering 1.5. Replacing power steering pump 1.6. Troubleshooting steering system	**35**
		Chapter 2: Servicing kingpin	2.1. Removing kingpin assembly 2.2. Refitting kingpin assembly 2.3. Performing kingpin greasing 2.4. Replacing steering knuckle	**25**
		Chapter 3: Performing wheel alignment	3.1. Performing pre-alignment 3.2. Adjusting Toe-Angle 3.3. Adjusting camber 3.4. Adjusting caster angle	23
		Chapter 4: Carrying out wheel balancing	4.1. Performing inspection on tire wear 4.2. Performing static test drive 4.3. Performing dynamic test drive 4.4. Performing wheel balancing	**19.5**
	Module IV: Overhauling power or drive train	**Chapter 1: Servicing propeller shaft components**	1.1. Changing propeller shaft 1.2. Checking propeller shaft run out 1.3. Changing cross bearing 1.4. Changing center bearing 1.5. Troubleshooting propeller shaft	**29.5**
		Chapter 2: Servicing final drive and differential components	2.1. Changing transmission fluid 2.2. Replacing transmission assembly 2.3. Disassembling transmission component 2.4. Inspecting transmission components 2.5. Assembling transmission components 2.6. Adjusting backlash or thrust play 2.7. Overhauling transfer case 2.8. Replacing transaxle 2.9. Disassembling transaxle 2.10. Assembling transaxle 2.11. Troubleshooting transmission components	**106**

	Engineering drawing	**Interpreting technical drawing**	1. Drawing isometric views for different joint 2. Interpreting simple mechanical drawing 3. Drawing mechanical machine parts	**18**
Total hours				**256**
XII	**Module IV: Overhauling power or drive train**	**Chapter 3: Servicing wheel bearing and axle shaft components**	3.1. Overhauling wheel hub assembly 3.2. Replacing drive or axle shaft 3.3. Changing CV joint 3.4. Troubleshooting wheel hub/drive/axle shaft	**26.5**
		Chapter 4: Servicing final drive and differential components	4.1. Changing differential oil 4.2. Replacing differential assembly 4.3. Disassembling differential assembly 4.4. Assembling differential assembly 4.5. Adjusting tail pinion bearing preload 4.6. Adjusting backlash 4.7. Troubleshooting final drive and differential components	**39**
		Chapter 5: Overhauling and service clutch mechanism	5.1. Replacing clutch assembly 5.2. Inspecting clutch components 5.3. Changing clutch fluid 5.4. Replacing clutch master cylinder 5.5. Replacing clutch cable 5.6. Adjusting clutch pedal free play 5.7. Troubleshooting clutch mechanism	**35.5**
	Module V: Servicing engine auxiliary system	**Chapter 1: Servicing cooling system**	1.1. Changing Coolant 1.2. Changing thermostat valve 1.3. Checking leakages 1.4. Changing Radiator Assembly 1.5. Changing fan belt 1.6. Changing Water Pump Assembly 1.7. Troubleshooting cooling system	**35.5**
		Chapter 2: Servicing lubrication system	2.1. Changing Engine oil 2.2. Changing oil pressure switch 2.3. Troubleshooting lubrication system	**16.5**

		Chapter 3: Servicing petrol fuel system	3.1. Changing fuel filter 3.2. Servicing AC pump 3.3. Servicing carburetor 3.4. Checking exhaust gas emission. 3.5. Changing accelerator cable 3.6. Changing fuel rail (fuel delivery pipe) and injector 3.7. Changing positive crankcase ventilation (PCV) valve 3.8. Servicing fuel tank 3.9. Troubleshooting petrol fuel system	**36.5**
		Chapter 4: Servicing diesel fuel system	4.1. Changing fuel filter 4.2. Changing feed pump 4.3. Bleeding fuel system 4.4. Setting fuel injection timing (in-line type) 4.5. Servicing fuel injector 4.6. Setting fuel injection timing (Distributor type 4.7. Troubleshooting diesel fuel system	**42.5**
	Module VI: Performing basic auto electrical works	**Chapter 1: Inspecting/replacing basic electrical components**	1.1. Performing soldering 1.2. Repairing wires and connector 1.3. Changing fuse	**10**
		Chapter 2: Servicing batteries and jump start vehicle	2.1. Changing battery 2.2. Performing visual inspection 2.3. Checking battery voltage 2.4. Performing jump starting 2.5. Changing battery terminal	**14**
Total hours				**256**
Grand total hours				**864**

5.4 Class-wise Competencies

1) CLASS IX COMPETENCIES

1. Practise OHS procedures in any task for safety.
2. Maintain hand tools and portable power tools for better performance.
3. Replace faulty rigid suspension components.
4. Replace faulty independent suspension components.
5. Diagnose suspension system failures.

6. Draw basic signs, symbols, and dimensions.

2) CLASS X COMPETENCIES

1. Overhaul brake system.
2. Adjust brake system.
3. Service steering components.
4. Draw isometric and orthographic projections.

3) CLASS XI COMPETENCIES

1. Service steering components.
2. Service kingpin.
3. Perform wheel alignment.
4. Carry out wheel balancing.
5. Service propeller shaft components.
6. Service final drive and differential components.
7. Interpret technical drawing.

4) Class XII COMPETENCIES

1. Service wheel bearing and axle shaft components.
2. Overhaul and service clutch mechanism.
3. Service cooling system.
4. Service lubrication system.
5. Service petrol fuel system.
6. Service diesel fuel system.
7. Inspect/replace basic electrical components.
8. Service batteries and jump start a vehicle.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
MODULE I: **SERVICING SUSPENSION SYSTEM**		**IX**
Chapter: 1 **Practising Occupational Health and Safety (OHS)**		
1. Define 5S 2. State the purposes of 5S	**1.1. Applying principles of 5S**	

3. Explain the principle of 5S		
1. Define OHS 2. State the importance of OHS 3. Explain the rights for employee 4. State the main causes of accidents 5. State the safety rules *6. Ensure appropriate use of PPE* *7. Ensure to refer OHS manual*	**1.2. Applying OHS practice**	
1. Define PPE 2. State the importance of PPE 3. List the categories of PPE *4. Ensure appropriate use of PPE* *5. Ensure safe disposal of damage PPE* *6. Ensure not to use defective and damaged PPE*	**1.3. Using PPE**	
1. Define safety precaution 2. List the different types of safety 3. Explain workshop and personal safety 4. State the importance of maintaining a workplace and personal safety 5. Explain the importance of safety signs and symbols 6. Explain the emergency exit 7. Describe the layout of the workshop 8. Ensure to display safety signs and symbols 9. Ensure to use appropriate PPE in workplace 10. Ensure to avoid smoking and eating inside the workshop 11. Ensure to avoid working under influence of a*lcohol*	**1.4. Maintaining workplace and personal safety**	
1. Explain tool and equipment safety 2. State the importance of maintaining tool and equipment safety 3. List the dos and don'ts for tool and equipment *4. Ensure all the tools are in workable condition* *5. Ensure to keep tools clean and dry, and tore them properly after use* *6. Ensure to operate the machine when instructed* *7. Ensure to refer manual prior to operation of tools and equipment*	**1.5. Maintaining tools and equipment safety**	
1. Define fire extinguisher 2. Label the parts of fire extinguisher	**1.6. Using fire extinguisher**	

3. State the types of fire 4. List the types of fire extinguishers 5. State the method of combating/extinguishing fires *6. Ensure to read the instructions provided on the fire extinguisher* *7. Ensure appropriate use PPE*		
1. State function of hacksaw 2. List parts of hacksaw 3. State types of hack saw *4. Ensure appropriate use of PPE*	**1.7. Using hacksaw**	
1. State the function of file 2. List the types of files 3. List the parts of file *4. Ensure appropriate use PPE*	**1.8. Performing filing**	
1. Define drilling machine 2. State the function of drilling machine 3. List the types of drilling machine 4. Operate drilling machine 5. Use center punch 6. Ensure appropriate use of PPE 7. Ensu*re to use coolant*	**1.9. Performing drilling**	
1. Define grease. 2. State the types of grease. 3. Explain the purpose of greasing. 4. Properties of grease. 5. ***Use of hand grease gun***. *6. Proper handling of tools and equipment* *7. Ensure appropriate use of PPE*	**1.10. Performing greasing**	
1. State the function of grinding machine 2. Label the parts of grinding machine 3. List the types of grinding machine ***4. Operate grinding machine*** *5. Ensure appropriate use of PPE* *6. Ensure to keep safe distance between hand and grinding machine* *7. Ensure to use gradual force while grinding*	**1.11. Performing grinding**	
1. Define of arc welding 2. Define arc welding machine 3. List the types of welding machine 4. List the accessories and its functions 5. Define arc length	**1.12. Performing arc welding**	

6. Operate arc welding machine *7. Ensure appropriate use of PPE* *8. Ensure to set welding current as per the job requirement*		
1. Define multimeter 2. State the function of the multimeter. 3. List the types of multimeter. ***4. Set the multimeter*** ***5. Use multimeter.*** *6. Ensure appropriate use of PPE*	**1.13. Using multimeter**	
1. Define vernier calliper 2. State the function of vernier calliper 3. List the types of vernier calliper 4. Label the parts of vernier calliper 5. Define and state the use of: ● Vernier scale ● Main scale ● Least count *6. Use vernier caliper* *7. Ensure appropriate handling of the vernier calliper*	**1.14. Using vernier calliper**	
1. Define micrometer 2. State the function of micrometer 3. Label the parts of micrometer 4. Define and state the uses of: ● Main scale (sleeve scale) ● Thimble scale ● Least count 5. Converts unit ● ***Use micrometer*** ● *Ensure appropriate handling of micrometer*	**1.15. Using micrometer**	
Chapter: 2 **Replacing faulty rigid suspension components**		
1. Define suspension system 2. State the function of suspension system 3. Explain the operation of suspension system 4. State the types of suspension system 5. List the components of suspension system 6. State the functions of shock absorber 7. Classify the types of shock absorber 8. Illustrate the construction of shock absorber	**2.1. Replacing shock absorber**	

9. Explain the operation of shock absorber 10. Ensure the vehicle is parked safely 11. Ensure to place the safety stands on a designated area 12. Ensure to secure nuts and bolts of shock absorber 13. Ensure to h*andle tools and equipment properly*		
1. Explain the types of leaf spring 2. State the functions of leaf spring 3. Explain the operation of leaf spring 4. Define and state the function of torque wrench 5. Explain the types of torque wrench 6. Explain the torque conversion factor 7. Use hydraulic jack 8. Use Torque wrench 9. Ensure vehicle is parked safely 10. Ensure all tools and equipment are handled properly 11. Ensure t*hat chassis and axle is supported by safety stand*	**2.2. Replacing leaf spring assembly**	
1. List the spring defects 2. Describe the materials of spring 3. Identify the components of leaf spring and its functions *4. Ensure appropriate use of PPE* *5. Ensure proper usage of right tools to pry up the clamp*	**2.3. Disassembling leaf spring assembly**	
1. Explain the importance of spring alignment 2. Define pneumatic impact gun 3. State the function of pneumatic impact gun 4. List the external components of pneumatic gun ***5. Use pneumatic impact gun*** *6. Ensure appropriate use of PPE* 7. *Ensure leaf*2.4.1 *spring assembly is clamped on the vice securely*	**2.4. Assembling leaf spring assembly**	
1. Explain function of spring bush 2. State the types of bushes *3. Ensure appropriate use of PPE* *4. Ensure proper disposal of used bushes* *5. Ensure to follow the cross pattern for loosening and tightening U-bolt*	**2.5. Changing leaf spring bush**	
Chapter: 3		

Replacing faulty independent suspension component		
1. Define independent suspension system 2. State function of strut assembly 3. List the types of independent suspension system 4. Explain construction of strut assembly 5. Explain operation of strut assembly *6. Ensure appropriate use of PPE* *7. Ensure brake lines are secured* *8. Ensure to tightened wheel nut with the specific torque*	**3.1. Replacing strut assembly**	
1. Explain the components of independent suspension system 2. State the function of jack 3. List types of Jacks 4. Locate jacking position ***5. Use screw jack*** ***6. Use coil spring compressor*** *7. Ensure proper gripping of strut assembly in the bench vice* *8. Ensure the hooks of the spring compressors are place properly*	**3.2. Disassembling strut and coil spring**	
1. State importance of coil spring positioning 2. *Ensure to hold the piston rod safety while tightening the lock nut* *3. Ensure to install the spring in a correct position* *4. Endure to hock coil spring compressor correctly* *5. Ensure to tighten each coil spring compressor hook evenly*	**3.3. Assembling strut and coil spring**	
1. State function of coil spring 2. Explain the operation of coil spring *3. Ensure appropriate use of PPE* *4. Ensure to place the jack and safety stand in correct position*	**3.4. Replacing coil spring**	
1. Describe strut bar 2. State the function of strut bar *3. Ensure to wedge wheels* *4. Ensure to give specified torque to strut bar nut*	**3.5. Replacing strut bar**	
1. State the functions of suspension arm 2. Explain the types of suspension arm	**3.6. Replacing suspension arm**	

3. Explain the operation of suspension arm *4. Ensure appropriate use of PPE* *5. Ensure to wedge the wheels*		
1. Define torsion bar 2. State the function of torsion bar 3. Explain the characteristics of torsion bar 4. Explain the operation of the torsion bar. 5. Purpose of match mark. *6. Ensure appropriate use of PPE.* *7. Ensure to wedge the wheels.* *8. Ensure to place the jack and safety standing in the correct position.*	**3.7. Replacing torsion bar**	
1. Define lateral control rod 2. State the function of lateral control rod 3. Explain the operation of lateral control rod 4. *Ensure to wedge the wheels* *5. Ensure the jack saddle is placed in the correct position* *6. Ensure appropriate use of PPE*	**3.8. Replacing lateral control rod**	
1. Define stabilizer bar 2. State the function of stabilizer bar 3. Explain the construction of stabilizer bar 4. Explain the operation of stabilizer bar *5. Ensure to park the vehicle safely* *6. Ensure appropriate use of PPE*	**3.9. Replacing stabilizer bar**	
Chapter: 4 **Diagnosing suspension system failures**		
1. List the methods of inspecting suspension system failure 2. Explain types of defects in suspension system 3. Explain the inspection checklist *4. Ensure to use appropriate PPE* *5. Ensure to park the vehicle safely*	**4.1. Performing visual inspection of suspension failure**	
1. Explain the methods of bounce test **2.** *Ensure the vehicle is parked on the level ground*	**4.2. Performing bounce test**	

1. Explain the symptoms, causes and remedies of suspension system failure 2. *Ensure to fasten seat belt while driving* 3. *Ensure to follow traffic signs and road hazards*	**4.3. Performing test drive**	
MODULE II: **SERVICING BRAKE SYSTEM**		**X**
Chapter: 1 **Overhauling Brake System**		
1. Define brake system 2. Explain the function of brake system 3. State the types of brake system 4. Explain the principle of brake system 5. Explain the components of brake system 6. State the function of brake booster 7. Explain the types of brake booster 8. *Ensure to engage parking brake* 9. *Ensure to engage gear in neutral* 10. *Ensure to wedge the wheels*	**1.1. Checking operation of brake booster**	
1. Illustrate the construction of hydraulic brake booster 2. Explain the operation of brake booster 3. *Ensure appropriate use of PPE* 4. *Ensure to handle brake fluid safely*	**1.2. Changing brake booster**	
1. State the function of master cylinder 2. Explain the types of master cylinder 3. Illustrate the construction of master cylinder 4. Explain the operation of master cylinder 5. *Ensure to dispose drained brake fluid in safe container Ensure safe handling of brake fluid* 6. *Ensure to use gloves and goggles*	**1.3. Replacing master cylinder kits**	
1. Explain the types of brake shoes 2. Explain the construction of drum brake 3. Explain the operation of drum brake 4. *Ensure appropriate use of PPE* 5. *Ensure to use safety stand and wedge the vehicle* 6. *Ensure to place removed tire under the vehicle*	**1.4. Changing brake shoes**	

1. Define wheel cylinder 2. State function of wheel cylinder 3. Explain the types of wheel cylinder 4. Illustrate the construction of wheel cylinder 5. Explain the operation of wheel cylinder *6. Ensure to wedge the wheels* *7. Ensure not to spill brake fluid over the vehicle body*	**1.5. Replacing wheel cylinder kits**	
1. Explain the types of brake calliper 2. Illustrate the construction of brake calliper 3. Explain the operation of brake calliper 4. State functions of brake pad and its wear indicator 5. Describe the materials of brake pad *6. Ensure safe handling of brake pipe while disconnecting* *7. Ensure safe handling of brake fluid* *8. Ensure appropriate use of PPE*	**1.6. Changing brake calliper assembly**	
1. State the function of brake pipeline 2. Describe brake pipe layout 3. Explain the types of brake pipe ***4. Use flaring tool*** *5. Ensure to engage parking brake* *6. Ensure to handle brake safely* *7. Ensure appropriate use of PPE*	**1.7. Replacing brake pipeline**	
1. State function of brake disc/rotor 2. State the types of brake disc/rotor 3. Explain the defects of brake disc/rotor ***4. Use micrometer*** *5. Ensure appropriate use of PPE* *6. Ensure to support the vehicle with safety stand*	**1.8. Changing brake disc/rotor**	
1. State the purpose of changing brake fluid 2. State the function of brake fluid 3. Explain the types of brake fluid 4. List the properties of brake fluid 5. State the purpose of brake bleeding 6. Explain the changing intervals of brake fluid *7. Ensure appropriate use of PPE* *8. Ensure safe handling of brake fluid*	**1.9. Changing brake fluid**	

1. Explain the function of load sensing device ***2. change load sensing device*** *3. Ensure appropriate use of PPE*	**1.10. Changing load sensing device**	
1. Define ABS system 2. List the components of ABS 3. State the function of speed sensor 4. Explain the operation of ABS system *5. Ensure appropriate use of PPE* *6. Ensure that sensor wire is routed as previously to avoid crimping or twisting the wire harness.*	**1.11. Changing anti-lock brake system speed sensor**	
1. State the function of hand brake cable 2. List the types of hand brake 3. Explain the operation of hand brake *4. Ensure proper disposal of old brake cable* *5. Ensure to use appropriate PPE*	**1.12. Changing parking brake cable**	
Chapter: 2 **Adjusting brake system**		
1. Define pedal free play 2. State the importance of brake pedal free play 3. State the purpose of brake pedal free play 4. Define pedal height 5. State the purpose of pedal height 6. Define reserve distance 7. State the purpose of reserve distance *8. Ensure to engage parking brake* *9. Ensure appropriate use of PPE*	**2.1. Adjusting brake pedal free play**	
1. Explain the types of drum brake adjuster 2. List the purpose of brake adjustment *3. Ensure to wedge the wheels* *4. Ensure appropriate use of PPE*	**2.2. Adjusting drum brake**	
1. State the purpose of parking brake adjustment	**2.3. Adjusting parking brake cable.**	
1. List the symptoms, causes and remedies of brake failure *2. Ensure to fasten seat belt* *3. Ensure to maintain speed limit*	**2.4. Performing test drive**	
MODULE III: **SERVICING STEERING SYSTEM**		**X**
Chapter: 1		

Servicing steering components		
1. Define steering system 2. State the functions of steering system 3. Explain the principles of steering system 4. Explain the types of steering system 5. Explain the components of steering system 6. List the types of steering gear box 7. Explain the basics of SRS system 8. State the advantages of SRS system 9. Ensure to disconnect the battery negative terminal before removing steering wheel 10. Ensure to tighten wheel nut to specified torque 11. Ensure to use appropriate PPE	**1.1. Replacing steering wheel**	
1. State the function of universal joint 2. State the function of steering column 3. Illustrate the construction of steering column *4. Ensure to take care of electrical components* *5. Ensure to use appropriate PPE*	**1.2. Replacing steering shaft**	
1. State the function of tie rod end 2. Explain the construction of tie rod end *3. Ensure appropriate use of PPE* *4. Ensure proper disposal of waste*	**1.3. Replacing tie rod end**	
1. State the function of rack and pinion 2. Explain steering gear mechanism 3. Calculate gear ratio 4. List the components of rack and pinion 5. Explain the operation of rack and pinion steering gear box ***6. Use tie rod end remover*** *7. Ensure to use appropriate PPE* *8. Ensure to jack up vehicle in correct position*	**1.4. Replacing rack and pinion assembly**	
1. State the functions of pitman arm *2. Ensure appropriate use of PPE* *3. Ensure to wedge the wheel*	**1.5. Replacing pitman arm**	

1. Illustrate the construction of recirculating type gear box 2. Ensure to wedge the wheel 3. E*nsure to use appropriate PPE*	**1.6. Replacing recirculating ball type steering gear box**	
1. Explain the operation of recirculating gear box 2. Ensuring that the gear oil is drained out without spil*ling and disposed in designated container*	**1.7. Overhauling re-circulating type steering gear box**	
1. Define backlash 2. State the purpose of backlash 3. Use dial gauge 4. Ensure dial gauge is handled safely 5. Ens*ure to use appropriate PPE*	**1.8. Adjusting steering gear backlash**	
1. Define power steering system 2. State the types of power steering 3. State the types of power steering gear box 4. Explain the construction of integral power steering gear box 5. Explain the operation of integral power steering gear box 6. Ensure proper disposal of used power steering fluid 7. Ensur1.9.3 *e to use appropriate PPE*	**1.9. Replacing integral power steering gear box**	
MODULE III: SERVICING STEERING SYSTEM		**XI**
1. State function of power steering system 2. Illustrate construction of hydraulic rack and pinion and power steering system 3. Explain the operation of hydraulic rack and pinion power steering system 4. Illustrate the construction of electronic power steering system 5. Explain the operation of electronic power steering system *6. Ensure steering fluid is disposed in a designated container*	**1.10. Replacing rack and pinion power steering gear box**	
1. State the function of power steering drive belt 2. State the types of power steering drive belt 3. List the belt defects and its causes ***4. Use belt tension gauge***	**1.11. Replacing power steering belt**	

5. *Ensure proper handling to belt tension gauge*		
1. State the function of power steering fluid 2. State the types of power steering fluid 3. List the properties of power steering fluid 4. *Ensure old steering fluid is disposed in designated container*	**1.12. Changing power steering fluid**	
1. State purpose of purging/bleeding hydraulic power steering ● *Ensure the fluid is not spilled*	**1.13. Purging hydraulic power steering**	
1. State the function of power steering pump 2. Explain the types of steering pump 3. Explain the construction of power steering pump 4. Explain the operation of power steering pump 5. *Ensure old steering fluid is disposed in a designated container*	**1.14. Replacing power steering pump**	
1. Explain the symptoms, causes and remedies of steering system failure	**1.15. Troubleshooting steering system**	
Chapter: 2 **Servicing Knuckle assembly**		
1. Define steering knuckle assembly 2. State the function of knuckle assembly 3. Describe the type of knuckle assembly 4. Explain the function of knuckle oil seal 5. Ensu*re proper handling of hand tools*	**2.1. Replacing knuckle assembly**	
1. State the function of steering knuckle bearing 2. explain the types of steering knuckle bearing 3. Illustrate the components of knuckle bearing 4. Replace knuckle bearing. 5. Ensu*re to dispose of the old knuckle bearing in a designated place.*	**2.2. Replacing knuckle bearing**	
1. State the function of knuckle spindle. 2. List down the components of knuckle spindle. 3. Replace knuckle spindle.	**2.3. Replacing knuckle spindle**	
Chapter: 3 **Performing Wheel Alignment**		
1. Define wheel alignment 2. Define steering geometry 3. State the factors affecting wheel alignment	**3.1. Performing pre-alignment**	

4. List the specification of tire pressure 5. State importance of pre-alignment ***6. Use Tire pressure gauge*** *7. Ensure compressed air is used for the right application*		
1. Define toe angle 2. State the purpose of maintaining toe angle 3. Explain turning radius of toe angle 4. tate the methods of adjusting toe-angle *5. Ensure the vehicle is wedged and engage parking brake securely* *6. Ensure proper handling of SST (Steering wheel lock)*	**3.2. Adjusting toe-angle**	
1. Define camber 2. State the purpose of camber 3. Determine the effects of camber failure 4. Explain steering axis inclination *5. Ensure vehicle is parked on level ground* *6. Ensure proper handling of hand tools and equipment*	**3.3. Adjusting camber angle**	
1. Define caster 2. State the purpose of caster 3. Explain the effects of caster failure *4. Ensure vehicle is parked on level ground* *5. Ensure proper handling of hand tools and equipment*	**3.4. Adjusting caster angle**	
Chapter: 4 **Carrying out wheel balancing**		
1. Define tire 2. State the function of tire 3. List the types of tires 4. Explain the construction of tire 5. List the defects of tire wear pattern 6. Explain the specification of tyre 7. Explain the symptoms and causes of tire wear *8. Ensure that the vehicle is supported with safety stand in correct position*	**4.1. Performing inspection on tire wear**	
1. Define wheel balancing	**4.2. Performing static test drive**	

2. State types of wheel balancing 3. Explain static wheel balancing. 4. State purpose of static test drive *5. Ensure that the vehicle is jacked up at correct position*		
1. Explain the purpose of dynamic test 2. Explain dynamic balancing 3. State the purpose of dynamic test 4. List the types of pre-driving check 5. Explain the importance of pre-driving check *6. Ensure that all safety factors are followed while driving on the high way*	**4.3. Performing dynamic test drive**	
1. State the purpose of wheel balancing 2. State the purpose of counter weight 3. Explain the causes and effects of unbalanced wheel 4. 4.4.4 Explain the proper handling of wheel balancing machine ***5. Operate wheel balancing machine*** *6. Ensure to check the machine prior to operation*	**4.4. Performing wheel balancing**	
MODULE IV: **OVERHAULING POWER OR DRIVE TRAIN**		
Chapter: 1 **Servicing propeller shaft**		
1. Define powertrain 2. State the components of powertrain 3. Explain the power flow mechanism in power train 4. Define propeller shaft 5. State function of propeller shaft 6. List types of propeller shaft 7. Explain purpose of slip joint 8. List components of propeller shaft and their functions *9. Ensure to place saddle in correct position when lifting the vehicle*	**1.1. Changing propeller shaft**	
1. Explain purpose of checking propeller shaft run out	**1.2. Checking propeller shaft run out**	

2. Explain function of counter weight on the propeller shaft *3. Ensure to use appropriate PPE*		
1. State function of cross bearing 2. List universal joint 3. List parts of cross bearing *4. Ensure to use gloves*	**1.3. Changing cross bearing**	
1. State function of centre bearing 2. Explain construction of centre bearing *3. Ensure to use gloves*	**1.4. Changing centre bearing**	
1. Explain the symptoms, causes and remedies of propeller shaft failure	**1.5. Troubleshooting propeller shaft failure**	
Chapter: 2 **Servicing Final Drive and Differential Components**		
1. State function of gear oil 2. List properties of gear oil 3. Explain classification and specification gear oil *4. Ensure to dispose used gear oil at designated container* *5. Ensure to use gloves*	**2.1. Changing transmission oil**	
1. Define transmission system 2. Explain functions of transmission system 3. List types of transmission system 4. List types of manual transmission ***5. Use transmission jack*** *6. Ensure to use gloves*	**2.2. Replacing transmission**	
1. Illustrate construction of manual transmission 2. Explain construction and operation of synchronising unit 3. Explain power flow in transmission 4. List types of gear used in manual transmission 5. Explain calculation of gear ratio 6. State functions of transmission components 7. Type of bearing used in manual transmission 8. Explain gear shifting mechanism ***9. Use oil seal remover*** ***10. Use bearing puller*** *11. Ensure to use gloves*	**2.3. Disassembling transmission components**	

1. Illustrate the defects of transmission components ***2. Use feeler gauge*** *3. Ensure proper disposal of damaged gear*	**2.4. Inspecting transmission component**	
• *Ensure to use gloves*	**2.5. Assembling manual transmission**	
1. State the purpose of transfer case 2. Illustrate the construction of transfer case 3. List types of transfer case 4. Explain the purpose of backlash/thrust play 5. Explain operation of full-time and part-time transfer case *6. Ensure to use gloves* *7. Ensure to use appropriate hand tools*	**2.6. Overhauling transfer case**	
1. Define transaxle 2. List types of transaxle *3. Ensure to use gloves*	**2.7. Replacing transaxle**	
1. Explain construction of transaxle 2. Explain power flow of transaxle *3. Ensure proper disposal old transaxle fluid at designated container*	**2.8. Disassembling transaxle components**	
1. State functions of transaxle components 2. State function of sealant 3. Explain application of sealant *4. Ensure to use gloves* *5. Ensure proper disposal of old sealant*	**2.9. Assembling transaxle components**	
1. Explain symptoms, causes and remedies of transmission failure	**2.10. Troubleshooting transmission failure**	
MODULE V: SERVICING ENGINE AUXILIARY SYSTEM		**XII**
Chapter: 3 Servicing wheel bearing and axle shaft components		
1. State function of wheel bearing 2. List types of wheel bearing 3. Explain construction of wheel bearing assembly 4. Explain components of wheel hub assembly and their functions 5. Explain purpose of hub greasing 6. Explain purpose of bearing pre load ***7. Use of preload gauge*** *8. Ensure proper disposal of used grease*	**3.1. Overhauling wheel hub assembly**	

9. Ensure to use gloves		
1. State function of axle 2. List types of axle 3. Illustrate construction of drive axle 4. List types of axle shaft 5. State function of axle shaft 6. Explain purpose of inspecting axle shaft *7. Ensure proper disposal of used lubricants* *8. Ensure to us gloves*	**3.2. Replacing drive/axle shaft**	
1. State function of CV joint 2. List types of CV joint 3. Explain construction of CV joint 4. Explain operation of CV joint *5. Ensure use of gloves*	**3.3. Changing CV joint**	
1. Explain symptoms, causes and remedies of wheel bearing failure	**3.4. Troubleshooting wheel hub assembly**	
1. Explain symptoms causes and remedies of drive/axle shaft failure	**3.5. Troubleshooting drive/axle shaft**	
Chapter: 4 **Servicing final drive and differential components**		
1. Explain changing interval of differential oil 2. Explain specification of differential oil 3. State function of differential oil 4. Explain the classification of differential oil *5. Ensure to use gloves*	**4.1. Changing differential oil**	
1. Define final drive 2. Define differential 3. List types of differentials 4. State function of final drive 5. State function of differential 6. Explain application of differential *7. Ensure proper jacking position of vehicle* *8. Ensure to use gloves*	**4.2. Replacing differential assembly**	
1. List types of final drive gear 2. Explain construction of differential 3. Explain working principle of differential 4. Explain differential gear ratio 5. State purpose of lock plates 6. State function of oil seal ***7. Use bearing puller***	**4.3. Disassembling differential assembly**	

8. Ensure to use gloves		
1. Define bearing preload 2. State purpose of bearing preload 3. Define backlash 4. State purpose of backlash 5. Explain gear tooth nomenclatures and gear contact pattern ***6. Use SST (Differential side bearing adjuster)*** *7. Ensure to use gloves* *8. Ensure to take care of drained gear oil*	**4.4. Assembling differential assembly**	
1. Explain symptoms, causes and remedies of final drive/differential failure	**4.5. Troubleshooting final drive and differential**	
Chapter: 5 **Overhauling and servicing clutch mechanism**		
1. Define clutch system 2. State function of clutch system 3. Explain the classification of clutch system 4. Illustrate construction clutch system 5. Explain operation clutch system *6. Ensure to use gloves* *7. Ensure to dispose used clutch plate at designated place*	**5.1. Replacing clutch assembly**	
1. Explain functions of clutch plate, pressure plate, release bearing, pilot bearing, flywheel and release fork 2. Illustrate parts of pressure plate 3. List types of pressure plate 4. Explain construction and function of clutch plate components 5. List types of clutch plate 6. List the types of flywheel ***7. Use straight edge gauge*** *8. Ensure to use gloves*	**5.2. Inspecting clutch components**	
1. Explain the interval of changing clutch fluid *2. Ensure proper disposal of used clutch fluid* *3. Ensure to use gloves*	**5.3. Changing clutch fluid**	
1. List components of clutch master cylinder 2. State function clutch master cylinder	**5.4. Replacing clutch master cylinder kits**	

3. Explain working principle of clutch master cylinder 4. State function of slave cylinder 5. List components of slave cylinder 6. Explain the working principle of slave cylinder *7. Ensure to use gloves and goggles* *8. Ensure to dispose used clutch fluid and kits in safe place*		
1. State function of clutch cable 2. Explain operation of clutch cable *3. Ensure to dispose old clutch cable to designated place* *4. Ensure to use gloves*	**5.5. Replacing clutch cable**	
1. Explain the purpose of adjusting clutch pedal height 2. Explain the specification of clutch pedal free play *3. Ensure to use gloves*	**5.6. Adjusting clutch pedal free play**	
1. Explain symptoms, cause and remedies of clutch failure	**5.7. Troubleshooting clutch system failure**	
MODULE V **SERVICING ENGINE AUXILIARY SYSTEM**		**XII**
Chapter: 1 **Servicing cooling system**		
1. Explain engine auxiliary system 2. State the function of cooling system 3. List the components of cooling system 4. Classify cooling system 5. Explain the operation of the cooling system. 6. Define coolant 7. State the function of coolant 8. List the properties of coolant 9. Explain water coolant ratio 10. State the importance of using distilled water 11. Explain the causes and effects of stray current *12. Ensure proper disposal of used coolant*	**1.1. Changing coolant**	
1. Explain the function of thermostat valve 2. List types of thermostat valve 3. Illustrate the construction of thermostat valve 4. Explain the operation of thermostat valve *5. Ensure proper use of hand tools*	**1.2. Changing thermostat valve**	

1. List types of leakages in cooling system 2. Explain causes of cooling system leakage ***3. Use pressure tester*** *4. Ensure safe handling of pressure tester* *5. Ensure that the vehicle is safely parked on level ground*	**1.3. Checking cooling system leakages**	
1. State function of radiator 2. List types of radiator 3. Illustrate construction of radiator 4. State function of radiator cap 5. State function of fan shroud 6. Explain purpose of bleeding air from cooling system *7. Ensure to remove radiator when the engine is cool* *8. Ensure proper handling of radiator fins*	**1.4. Changing radiator assembly**	
1. State functions of fan belt or drive belt 2. Classify drive belt or fan belt 3. Illustrate construction of fan belt 4. Explain the methods for adjusting the fan belt tension or drive belt 5. Explain the methods of checking fan belt tension 6. List the defects of belts *7. Ensure safe handling of belt tension gauge*	**1.5. Changing fan belt**	
1. State functions of water pump 2. State types of water pump 3. Illustrate the construction of water pump 4. Explain the working principle of water pump *5. Ensure proper disposal of used coolant and gasket* *6. Ensure to wear gloves*	**1.6. Changing water pump assembly**	
1. Explain the symptoms, causes and remedies of cooling system failure	**1.7. Troubleshooting cooling system**	
Chapter: 2 **Servicing Lubrication System**		
1. Define lubrication system 2. State types of lubrication system	**2.1. Changing engine oil**	

3. Classify methods of lubrication system 4. Explain construction of lubrication system 5. Explain operation of lubrication system 6. Define viscosity 7. State functions of engine oil 8. List properties of engine oil 9. Classify the specification of engine oil 10. Explain the changing interval of engine oil 11. State purpose of dipstick ***12. Use oil filter wrench*** *13. Ensure to dispose the old engine oil and oil filter at the designated container* *14. Ensure to wear gloves*		
1. State function oil pressure switch 2. Explain the operation of oil pressure switch	**2.2. Changing oil pressure switch**	
1. Explain symptoms, causes and remedies of lubrication system failure	**2.3. Troubleshooting lubrication System**	
3. Chapter: 3 **Servicing petrol fuel system**		
1. Define fuel system 2. State types of fuel system 3. List the components of fuel system 4. State the function of fuel filter 5. Describe the construction of fuel filter 6. State the types of petrol fuel filter 7. Explain the changing interval of fuel filter *8. Ensure to dispose old petrol fuel filter at the designated place* *9. Ensure to wear gloves and goggles*	**3.1. Changing petrol fuel filter**	
1. State the function of AC pump 2. Explain the construction the AC pump 3. Explain the operation of AC pump	**3.2. Servicing AC pump**	
1. Explain the emission control system 2. State the types of emission control system 3. Explain the exhaust emission and its effects on inhabitants 4. State the types of exhaust gas	**3.3. Checking exhaust gas emission**	

1. State the function of accelerator cable 2. Explain the operating mechanism of acceleration system *3. Ensure proper handling of hand tools*	**3.4. Changing accelerator cable**	
1. Define of EFI system 2. Differentiate carburetor and EFI system 3. State advantages of EFI 4. State the sub-system of EFI system 5. State function of engine sensors 6. State function of fuel injector 7. List the types of fuel injector 8. Explain the construction of fuel injector 9. Explain the operation of fuel injector *10. Ensure to gloves and goggles*	**3.5. Changing fuel rail (fuel delivery pipe) and injector**	
1. State function of PCV valve 2. Illustrate the construction of PCV valve 3. Explain the operation of PCV valve	**3.6. Changing positive crankcase ventilation (PCV) valve**	
1. State function of fuel tank 2. Illustrate the construction of fuel tank *3. Ensure proper storing of ignitable substances* *4. Ensure to wear gloves and goggles*	**3.7. Servicing fuel tank**	
1. Explain the symptoms, causes and remedies for carburettor fuel system failure	**3.8. Troubleshooting petrol fuel system**	
Chapter: 4 **Servicing Diesel Fuel System**		
1. Describe the diesel fuel system 2. State function of diesel fuel injection system 3. Illustrate the construction of diesel fuel injection system 4. Explain the operation of diesel fuel injection system 5. List the types of diesel fuel injection system 6. List the types of diesel fuel injection pump 7. State functions of diesel fuel filter 8. List the types of diesel fuel filter 9. Illustrate the construction of diesel fuel filter 10. Explain the changing intervals of diesel fuel filter	**4.1. Changing diesel fuel filter**	

11. Ensure to dispose old filter at the designated place *12. Ensure to wear gloves*		
1. List the types of hand feed pump 2. Explain function of hand feed pump 3. Explain the operation of feed pump	**4.2. Changing feed pump**	
1. State properties of diesel fuel 2. List the types of diesel fuel 3. State purpose of bleeding *4. Ensure to wear gloves and goggles*	**4.3. Bleeding fuel system**	
1. Illustrate the construction of fuel injection pumps 2. Explain the working principle of fuel injection pumps 3. Explain the working of centrifugal governor *4. Ensure appropriate use of PPE*	**4.4. Setting fuel injection timing (in-line type)**	
1. Explain function of fuel injector 2. List the types of fuel injector 3. Illustrate the construction of fuel injector 4. Explain the operation of fuel injector 5. Explain the opening pressure of fuel injector ***6. Use fuel injector pressure tester*** *7. Ensure safe handling of fuel injector pressure tester* *8. Ensure to wear gloves and goggles*	**4.5. Servicing fuel injector**	
1. Illustrate the construction of distributor type fuel pump 2. Explain the operation of distributor type fuel pump 3. Describe the components of fuel injection pump 4. Explain the operation of all speed governor ***5. Use dial gauge*** *6. Ensure safe handling of dial gauge*	**4.6. Setting fuel injection timing (Distributor type)**	
1. Explain the symptoms, causes and remedies for diesel fuel system failure 2. Explain the symptoms, causes and remedies for CRDI system failure	**4.7. Troubleshooting diesel fuel system**	
MODULE VI: **PERFORMING BASIC AUTO ELECTRICAL WORKS**		**XII**
Chapter: 1		

Replacing basic electrical components		
1. Define soldering 2. List types of soldering lead and its size 3. State the purpose of soldering iron 4. Explain the purpose of flux during soldering ***5. Use soldering iron*** *6. Ensure to use gloves, goggles and apron*	**1.1. Performing soldering**	
1. Explain basic electricity 2. List types of crimp terminal and connectors 3. List types of wire jointing 4. Illustrate colour coding and wire size *5. Ensure to use gloves* *6. Ensure to dispose wasted wires in proper place*	**1.2. Repairing wires and connectors**	
1. State function of fuse 2. List types of fuse 3. Illustrate fuse rating and colour coding	**1.3. Changing fuse**	
Chapter: 2 **Servicing Batteries and Jump start vehicle**		
1. Define battery and explain its function 2. Explain the purpose of disconnecting negative battery terminal *3. Ensure to disconnect battery negative terminal prior to changing battery* *4. Ensure to use gloves and apron*	**2.1. Changing battery**	
1. Explain the construction of battery *2. Ensure to use hand gloves*	**2.2. Performing visual inspection**	
1. Describe the specification of battery ***2. Use multimeter*** *3. Ensure proper handling of multimeter/voltmeter*	**2.3. Checking battery voltage**	
1. State the purpose of jump starting of battery 2. Construct circuit of jump start ***3. Use battery starter*** *4. Ensure proper handling of battery starter* *5. Ensure to use gloves*	**2.4. Performing jump starting**	
1. State the function of battery terminal 2. State the purpose of applying petroleum jelly *3. Ensure to proper handling of battery end remover*	**2.5. Changing battery terminal**	

5.4 Class-wise Competencies

1) CLASS IX COMPETENCIES

1. Carry out basic engineering drawings as per the requirement.
2. Ensure proper handling of drawing instruments.
3. Layout the drawing sheet as per the requirement.
4. Interpret signs and symbols as per the requirement.
5. Draw different types of line as per the application.
6. Draw letters and numbers as per the given scale.
7. Maintain dimension as per the standard.

2) CLASS X COMPETENCIES

1. Convert the drawing scales as per the standard ratios.
2. Draw isometric blocks and interpret any mechanical parts into 3D drawing as per the given dimension in standard procedures.
3. Draw isometric views and orthographic projections as per the standard dimension.

3) CLASS XI COMPETENCIES

1. Draw isometric views, orthographic projections, and mechanical machine part as the given dimension.
2. Draw mechanical parts as per job requirements.
3. Develop the surface of any mechanical machine parts.

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	**Core concepts (Chapters/Topics)**	**Class**
Chapter 1: Drawing basic signs, symbols and dimension		**IX**
1. Define engineering drawing 2. State the purposes of engineering drawing 3. List the types of drawing instruments 4. List sizes of drawing papers 5. Ensure to maintain cleanliness and neatness of drawing *6.* Ensure proper handling of drawing instruments	**1.1 Using drawing instrument**	
1. Define layout of a drawing 2. Define the title block *3. Ensure to maintain cleanliness and neatness of drawing*	**1.2 Laying out drawing sheet**	

4. Ensure proper handling of drawing instruments		
1. Define signs and symbols 2. Define abbreviation *3. Ensure to maintain cleanliness and neatness of drawing* *4. Ensure proper handling of drawing instruments*	**1.3 Interpreting engineering sign, symbols and abbreviation**	
1. Define line 2. State types of line and its applications *3. Ensure to maintain cleanliness and neatness of drawing* 4. *Ensure proper handling of drawing instruments*	**1.4 Drawing different types of lines**	
1. Define lettering and numbering 2. Classify letters style 3. List the types of letters 4. Define freehand lettering 5. List the size of letters 6. State the rules for lettering and numbering *7. Ensure to maintain cleanliness and neatness of drawing* *8. Ensure proper handling of drawing instruments*	**1.5 Drawing letters and numbers**	
1. Define dimension 2. State the types of dimensions 3. Explain the system of dimensions 4. State the terminologies of dimensions 5. State the rules for dimensioning *6. Ensure to maintain cleanliness and neatness of drawing* 7. *Ensure proper handling of drawing instruments*	**1.6 Providing dimensions**	
Chapter 2: **Drawing isometric and orthographic projections**		**X**
1. Define drawing scale 2. List the types of scale *3. Ensure to maintain cleanliness and neatness of drawing* *4. Ensure proper handling of drawing instruments*	**2.1 Converting drawing scale**	
1. Define isometric drawing 2. State the isometric terminologies *3. Ensure to maintain cleanliness and neatness of drawing* *4. Ensure proper handling of drawing instruments.*	**2.2 Drawing isometric blocks**	

1. Define orthographic projections 2. Draw six principle views 3. Explain the method of obtaining six principle views 4. Explain four quadrants with the help of diagrams 5. Differentiate between first and third angle projections *6. Ensure to maintain cleanliness and neatness of drawing* *7. Ensure proper handling of drawing instruments*	**2.3 Drawing orthographic projections**	
	Chapter 3: Interpreting technical drawing	**XI**
1. Describe sectional views 2. State the purpose of sectional views 3. State the rules of sectioning 4. Describe auxiliary views 5. List the types of auxiliary views 6. State the purpose of auxiliary view *7. Ensure to maintain cleanliness and neatness of drawing* *8. Ensure proper handling of drawing instruments*	**3.1 Drawing sectional views for different joint**	
1. Define mechanical drawing 2. List types of mechanical drawing 3. Explain plan, elevation, and section *4. Ensure to maintain cleanliness and neatness of drawing* *5. Ensure proper handling of drawing instruments*	**3.2 Interpreting simple mechanical drawing**	
1. Development of surfaces 2. State the methods of surface development 3. Explain the principle of surface development *4. Ensure to maintain cleanliness and neatness of drawing* *5. Ensure proper handling of drawing instruments*	**3.3 Drawing development of surface**	

ANNEXURE VII: COMPUTER HARDWARE AND NETWORKING

Content mapping

Class	Module	Topic/Chapter	Lessons	Nominal duration (Hrs)
IX	**MODULE 1: Carry out installation and configuration of computer system and device**	**Chapter 1: Practising occupational health and safety (OHS) and workshop safety**	1.1 Applying principles of 5S 1.2 Using Personal Protective Equipment (PPE) 1.3 Maintaining workplace and personal safety 1.4 Maintaining tools and equipment safety 1.5 Using fire extinguisher	**16**
		Chapter 2: Performing PC assembly *(laptops and desktops)*	2.1 Identifying tools, materials and equipment for computer maintenance 2.2 Fixing motherboard 2.3 Mounting central processing unit 2.4 Mounting CPU fan 2.5 Fixing random access memory 2.6 Installing add-on cards 2.7 Installing HDD /SSD 2.8 Installing optical drive 2.9 Installing switch mode power supply (SMPS) 2.10 Configuring the front panel connection 2.11 Conducting test for PC assembly	**95**
		Chapter 3: Performing data backup	3.1 Performing cloud-based backup 3.2 Performing off-site back-up 3.3 Performing network- attached storage back-up	**65**
Total Hours				**176**

Class	Module	Topics/Chapter	Lessons	Nominal duration (Hrs)
X	**MODULE 1: Carry out installation and configuration of computer system and device**	**Chapter 4: Installing Operating System (OS) and application software**	4.1 Installing Windows Operating (OS) 4.2 Installing Mac OS 4.3 Installing Linux OS 4.4 Installing application software 4.5 Installing device driver 4.6 Formatting hard disk drive (HDD) 4.7 Customizing disk partition (through disk management)	**135**
		Chapter 5: Installing peripheral device	5.1 Installing printer 5.2 Installing projector 5.3 Installing scanner	**41**
Total Hours				**176**

Class	Module	Topics/Chapter	Lessons	Nominal duration (Hrs)
XI	**MODULE 2:** **Carry out troubleshooting ng of computer system and devices**	**Chapter 1: Diagnosing faults of computer system and device**	1.1 Attending customer complaint 1.2 Testing software compatibility 1.3 Checking software update 1.4 Performing system scan 1.5 Defragmenting hard disk drive (HDD) 1.6 Performing continuity test 1.7 Diagnosing boot error 1.8 Diagnosing frequent auto restart 1.9 Diagnosing blue screen of death (BSOD) 1.10 Checking screen error 1.11 Performing troubleshooting with inbuilt tools 1.12 Checking cable resistance 1.13 Testing hardware compatibility	**169**

			1.14 Checking network adapter	
		Chapter 2: Rectifying software faults	2. 1 Installing software update 2. 2 Repairing software 2. 3 Upgrading software 2. 4 Rectifying blue screen of death (BSOD) error 2. 5 Repairing operating System (OS)	**54**
		Chapter 3: Rectifying PC components faults	3. 1 Servicing cooling mechanism 3. 2 Servicing switched mode power supply (SMPS)	
	l Hours			

Class	Module	Topics/Chapter	Lessons	Nominal duration (Hrs)
XII	**MODULE 2: Carry out troubleshooting of computer system and devices**	**Chapter 3: Rectifying PC components faults**	3.1. Replacing laptop screen 3.2. Replacing motherboard 3.3. Replacing laptop speaker 3.4. Replacing laptop keyboard 3.5. Replacing laptop touchpad	**37**
		Chapter 4: Rectifying peripheral device faults	4.1. Servicing printer 4.2. Servicing photocopy machine 4.3. Servicing scanner	**36**
	MODULE 3: Carry out installation and configuration of network	**Chapter 1: Preparing for network installation**	1.1. Conducting site survey 1.2. Designing network topology 1.3. Preparing ethernet cable	**56**
		Chapter 2: Installing network	2.1. Performing PVC casing and capping 2.2. Fixing input/output (I/O) box 2.3. Performing fiber optic splicing 2.4. Installing firewall devices 2.5. Installing cisco router. 2.6. Installing network switch 2.7. Installing Wi-Fi router.	**64**

		Chapter 3: Configuring network	3.1. Configuring cisco router 3.2. Configuring Wi-fi router 3.3. Configuring network switch 3.4. Configuring computer on network 3.5. Configuring network security software 3.6. Documenting network details.	**63**
Total Hours				**256**
Total				**864**

5.4 Class-wise Competencies

1. CLASS IX COMPETENCIES

1. Practise OHS procedures in any task for safety.
2. Maintain hand tools and portable power tools for better performance.
3. Performing PC assembly *(laptops and desktops)*.
4. Performing data backup.

2. CLASS X COMPETENCIES

1. Install Operating System (OS) and application software.
2. Install peripheral devices.

3. CLASS XI COMPETENCIES

1. Diagnose faults of computer systems and devices.
2. Rectify software faults.
3. Rectify PC components faults.

4) CLASS XII COMPETENCIES

1. Rectify PC components faults.
2. Prepare for network installation.
3. Install network.
4. Configure network.

5.5 Learning Objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning Objectives	Core concepts (Chapters/Topics)	Class
MODULE 1: Carry out installation and configuration of computer system and device		
Chapter 1: Practising Occupational Health and Safety (OHS)		**IX**
1. Define 5S 2. State the purposes of 5S 3. Explain the principles of 5S 4. Define OHS 5. State the importance of OHS 6. Explain the rights of employee 7. State the main causes of accidents 8. State the safety rules 9. Ensure appropriate use of PPE 10. Ensure to *refer OHS manual*	**1.1. Applying principles of 5S**	
1. Define PPE 2. State the importance of PPE 3. List the categories of PPE 4. Ensure appropriate use of PPE 5. Ensure safe disposal of damage PPE 6. Ensure not to *use defective and damaged PPE*	**1.2. Using Personal Protective Equipment (PPE)**	
1. Define safety precaution 2. List the different types of safety 3. Explain workshop and personal safety 4. State the importance of maintaining a workplace and personal safety 5. Explain the importance of safety signs and symbols 6. Explain the emergency exit 7. Describe the layout of the workshop 8. Ensure to follow OHS procedures 9. Ensure to keep the workshop clean 10. Ensure to ring the alarm bell before the accident spreads over 11. Ensure to display safety signs and symbols 12. Ensure to use appropriate PPE in workplace 13. Ensure to avoid horseplay at workplace	**1.3. Maintaining workplace and personal safety**	

14. Ensure to avoid smoking and eating inside the workshop 15. Ensure to avoid *working under influence of alcohol*		
1. Explain tool and equipment safety 2. State the importance of maintaining tool and equipment safety 3. List the dos and don'ts for tool and equipment 4. Ensure all the tools are in workable condition 5. Ensure to keep tools clean and dry, and tore them properly after use 6. Ensure to operate the machine when instructed 7. Ensure to refe*r manual prior to operation of tools and equipment*	**1.4. Maintaining tools and equipment safety**	
1. Define fire extinguisher 2. Label the parts of fire extinguisher 3. State the types of fire 4. List the types of fire extinguishers 5. State the method of combating/extinguishing fires 6. *Ensure to read the instructions provided on the fire extinguisher* 7. *Ensure appropriate use PPE*	**1.5. Using fire extinguisher**	
	Chapter 2: Performing PC Assembly	
1. Classify tools, materials and equipment for computer maintenance. 2. Explain electrostatic sensitive device (ESD) equipment. 3. Explain the safe working principle of ESD. 4. Explain precautionary ESD signs and symbols. 5. Identify tools, materials and equipment for computer maintenance.	**2.1 Identifying tools, materials and equipment for computer maintenance**	
1. Define the motherboard 2. Label components of the motherboard 3. Classify types of motherboards 4. Label system case 5. List types of the system case 6. State functions of stand-off 7. Interpret manual 8. Align motherboard 9. Have works ethics and integrity 10. Be time conscious	**2.2 Fixing motherboard**	

11. Be efficient in using resource 12. Have patience 13. Proper handling of tools and storage of tools and materials *14. Ensure to avoid dropping the screws on motherboard to prevent short circuits* *15. Ensure to use anti-static wristband while fixing the motherboard* *16. Ensure safe handling of tools, materials and Motherboard*		
1. Define CPU 2. Explain CPU frequency 3. Categorise types of CPU 4. Interpret CPU alignment 5. List types of sockets 6. Describe the effect of binding pins 7. Align CPU on socket 8. *Ensure to align CPU on the socket after interpreting identification marks* 9. *Ensure to use anti-static wrist band* 10. *Ensure to switch off the power supply* *11. Ensure to maintain Zero Insertion force (ZIF)while fixing CPU*	**2.3 Mounting central processing unit (CPU)**	
1. Define CPU fan 2. Explain purpose of locking CPU fan 3. Explain computer cooling mechanisms and its function 4. Identify the ports and to connect CPU fan 5. *Ensure CPU fan is properly aligned and tightened* 6. *Ensure proper handling of CPU fan and tools* *7. Ensure power supply is unplugged*	**2.4 Mounting CPU fan**	
1. Define RAM 2. State the function of RAM 3. Classify types and size of RAM 4. Identify the RAM 5. Ensure RAM is seated firmly 6. *Ensure retaining clips are properly locked* 7. *Ensure compatible RAM is installed according to requirements* 8. *Ensure handle RAM lock with care* *9. Ensure to use anti-static wrist band*	**2.5 Fixing random access memory (RAM)**	
1. Define expansion card 2. State types of expansion slot and card 3. State purpose of add-on cards	**2.6 Installing add-on Cards**	

4. *Ensure to use antistatic wristband while installing Add-on card* 5. *Ensure safely handling Add-on cards*		
1. Define HDD and SSD 2. State functions of HDD and SSD 3. Explain the types, size and capacity of HDD and SSD 4. State the type of cables and its function 5. *Ensure to plug cables in designated ports* 6. *Ensure proper tight of screw* 7. *Ensure to proper connection and alignment of HDD*	**2.7Installing hard disk drive (HDD)**	
1. Define optical drive 2. List the types of optical drive 3. *Ensure to plug cables in designated port* 4. *Ensure to use antistatic wrist band while installing optical drive* 5. *Ensure screws are properly tightened*	**2.8 Installing optical drive**	
1. Define SMPS 2. Classify types of SMPS and its connectors 3. tate the function of SMPS 4. State the components of SMPS 5. State voltage rating of SMPS connectors 6. *Ensure SMPS is connected with correct connections* 7. *Ensure proper handling of tools and equipment* 8. *Ensure connections are correct and firmly fixed*	**2.9 Installing switch mode power supply (SMPS)**	
1. Define jumper 2. State the function of jumper and LED 3. Identify the jumper position 4. State the full form of printed abbreviation 5. *Ensure to use anti-static wristband and gloves* 6. *Ensure to correct configuration of jumper*	**2.10 Configuring the front panel connection**	
1. Define basic input /output system (BIOS) 2. State the function of BIOS 3. Identify the object that can be checked physically, visually and audibly 4. List types of BIOS manufacturer 5. Identify the key to enter BIOS setu*p* 6. *Ensure to BIOS setup and selection of key* 7. *Ensure not to make any critical changes in BIOS without having knowledge*	**2.11 Conducting test for PC assembly**	
	Chapter 3: Performing data backup	

1. Define backup 2. list the types of backups 3. Define cloud-based backup 4. State the pros and cons of cloud-based backup 5. Ensure appropriate use of PPE 6. Ensure to *avoid frequent plug and play*	**3.1. Performing cloud-based backup**	
1. Define off-site backup 2. State the types of off-site backup 3. State the function of off-site backup 4. State the advantages and limitations of off-site backup 5. *Ensure appropriate use of PPE* 6. *Ensure to follow the OHS rules and regulation*	**3.2 Performing off-site back-up**	
1. Define network-attached storage back-up 2. State the types of network-attached storage back-up 3. State the advantages and limitations of network -attached storage backup 4. Differentiate between network attached storage and offline backup 5. State the types of users 6. Ensure appropriate use of PPE 7. Ensure to follow *the OHS rules and regulation*	**3.3. Performing network- attached storage back-up**	
	Chapter 4: Installing Operating System and Application software	**X**
1. Define Operating System 2. State the functions of Operating System 3. List the types of Operating System 4. Identify versions and service pack of windows 5. State the purpose of product key 6. Examine methods of installation 7. Identify key to enter the BIOS 8. Explain the Hardware Compatibility 9. Ensure t*o check the configuration of hardware drive*	**4.1 Installing Windows Operating System (OS)**	
1. Define Mac OS 2. State the version of Mac OS 3. State the hardware compatibility 4. Explain the methods of installation	**4.2 Installing Mac OS**	

5. Ensure appropriate use of PPE 6. Ensure to follow the O*HS rules and regulation*		
1. Define Linux OS 2. State the features of Linux OS 3. State the advantages and limitation of Linux OS 4. State the types of Linux OS 5. Differentiate between the Microsoft window and Linux OS 6. Ensure appropriate use of PPE 7. Ensure to fo*llow the OHS rules and regulation*	**4.3 Installing Linux OS**	
1. Define application of software 2. State function of application software 3. List the types of application software 4. Differentiate between trial and licensed version 5. Explain the software compatibility 6. Interpret Read-me file 7. Ensure the installation of antivirus	**4.4. Installing application software**	
1. Define device manager 2. State the function of device manager 3. Explain the methods to install device driver 4. Identify the incompatibility sign on device manager 5. Explain the alternative ways to obtain device driver 6. Explain the importance if service tag, serial number and model number 7. *Ensure appropriate use of PPE* 8. *Ensure to follow the OHS rules and regulation* 9. *Ensure to check compatibility of device driver*	**4.5. Installing device driver**	
1. State the purpose of formatting 2. State the methods of formatting storage device 3. Illustrate file system 4. Differentiate between HDD while installing Windows and after booting 5. *Ensure to avoid repeated formatting*	**4.6. Formatting hard disk drive (HDD)**	

1. State function of disk management tools 2. Shrink volume 3. Delete volume 4. Format 5. Change drive letter 6. Illustrate of file system 7. Allocate the disk space to create partition 8. Explain the methods of browsing disk management window 9. Browse “disk management” tool 10. Ensure to shrink volume from the drive other than OS containing drive 11. Be patie*nt while customising disk partition*	**4.7 Customizing disk partition (through Disk management)**	
	Chapter 5: Installing peripheral device	
1. Define printer 2. Explain the types of printers 3. List types of printer toner 4. Explain methods of installing the printer 5. *Ensure to connect USB/COM cable in the right port* *6. Ensure to check the compatibility of device driver*	**5.1 Installing printer**	
1. Define projector 2. Specify the projector and its component 3. Set the projector 4. *Use drilling machine* 5. *Mount projector brackets* 6. *Ensure Video Graphic Array (VGA) cable is securely tightened* 7. *Ensure bracket is installed securely* 8. *Ensure the screw is tightened securely into the wall* 9. *Ensure appropriate use of PPE* *10. Ensure the proper disposal of waste*	**5.2 Installing projector**	
1. Define scanner 2. List types of scanners 3. Explain methods of installation *4. Ensure to install the right utility software*	**5.3 Installing scanner**	

	MODULE 2: Carry out troubleshooting of computer system and devices	**XI**
	Chapter 1: Diagnosing faults of computer system and device	
1. Estimate the costing 2. Prepare forms 3. State the technique to attend customer complaints and feedback 4. Keep records of documents 5. *Ensure appropriate use of PPE* 6. *Ensure to follow OHS rules and regulation*	**1.1 Attending customer complaint**	
1. Define software compatibility, web browser and uniform resource locators (URL) 2. State the methods to check software compatibility 3. *Use Internet* 4. *Ensure to browse safe websites* 5. *Be patient while checking software compatibility*	**1.2 Testing software compatibility**	
1. State the purpose for updating software 2. State the methods of updating software 3. Identify the software compatibility 4. Define the hardware compatibility 5. State the purpose of testing 6. State the methods to test hardware compatibility 7. Interpret manual 8. *Browse Control Panel* 9. *Be patient while updating software*	**1.3 Checking software update**	
1. Define virus and anti-virus 2. State the purpose of scanning 3. List the type of anti-viruses 4. List the types of scans 5. *Ensure to use genuine antivirus software*	**1.4 Performing system scan**	
1. Define defragment 2. State purpose of defragmentation 3. State the methods of defragmentation 4. Configure the time of schedule 5. *Ensure proper handling of materials and equipment*	**1.5 Defragmenting hard disk drive (HDD)**	
1. Define continuity test 2. State the purpose of testing	**1.6 Performing continuity test**	

3. List the types of multimeters 4. Use multimeter 5. *Ensure proper handling of tools and materials* 6. *Ensure to connect the jacks firmly and securely* 7. *Ensure to use right probe in right terminal*		
1. Define boot error 2. List the types of boot errors 3. Explain the causes and remedies of boot errors 4. *Ensure proper handling of tools and materials* 5. *nsure to use ESD wrist band*	**1.7 Diagnosing boot error**	
1. State the causes and remedies of frequent auto restart 2. State the methods of diagnosing frequent auto restart *3. Ensure appropriate use of PPE* *4. Ensure to follow the rules and regulations*	**1.8 Diagnosing frequent auto restart**	
1. Define blue screen of death (BSOD) 2. State the causes and effect of BSOD 3. State the methods to diagnose BSOD *4. Ensure to use appropriate use of PPE* *5. Ensure to follow the OHS rules and regulations*	**1.9. Diagnosing blue screen of death (BSOD)**	
1. List the types of screens 2. State the causes screen errors 3. State the methods of checking screen error 4. *Ensure to use ESD wristband while checking screen* 5. *Ensure proper handling of tools and materials*	**1.10 Checking screen error**	
1. Define troubleshooting 2. State purpose of performing troubleshooting 3. State types of troubleshooting *4. Ensure to use appropriate use of PPE* *5. Ensure to follow the OHS rules and regulations*	**1.11 Troubleshooting window with inbuilt tools**	
1. Define cable resistance 2. State the concept of open and closed circuit 3. State the purpose of checking the resistance	**1.12 Checking cable resistance**	

4. *Use mustimeter* 5. *Ensure appropriate use of PPE* 6. *Ensure to follow OHS rules and regulations* 7. *Ensure correct placement of probs in terminals*		
1. Define hardware compatibility 2. List the types of hardware compatibility 3. State the methods to check software compatibility 4. *Ensure to use Electrostatic discharge (ESD) tools* 5. *Ensure proper handling of tools and materials*	**1.13 Testing hardware compatibility**	
1. Define network adapter 2. State the types of network adapter 3. State the functions of network adapter 4. *Ensure appropriate use of PPE* 5. *Ensure to follow OHS rules and regulations*	**1.14 Checking network adapter**	
Chapter 2: Rectifying software faults		
1. Define software 2. List the types of software 3. Explain the importance of software updating 4. Explain methods of updating	**2.1 Installing software update**	
1. *Explain the purpose of repairing* 2. *Ensure to be patient while repairing software*	**2.2. Repairing software**	
1. State purpose of upgrading 2. Determine software versions 3. State the importance of checking compatibility 4. Differentiate between upgrade and updating of software 5. *Ensure to install software in a primary partition*	**2.3. Upgrading software**	
1. Explain the causes and remedies of BSOD errors 2. State the purpose of system restore and safe mode 3. Ensure to wear ESD wristband 4. Ensure to backup important files 5. Be *patient while rectifying BSOD error*	**2.4 Rectifying blue screen of death (BSOD) error**	

1. Explain causes and remedies of corrupted files in OS 2. *Navigate boot priority* 3. *Ensure to repair with correct OS version*	**2.5 Repairing Operating System (OS)**	
Chapter 3: Rectifying PC components faults		
1. Explain the types of cooling mechanism 2. Identify area/components for application of spray 3. State the function of the CPU fan, GPU and heat sink 4. *Ensure safe handling of tools and materials* 5. *Ensure not to apply spray on delicate components* 6. *Ensure not to apply excessive thermal paste on CPU*	**3.1 Servicing cooling mechanism**	
1. Define SMPS 2. Define soldering iron 3. Explain the function of SMPS 4. List the types of SMPS 5. List components of SMPS 6. Explain the concept of voltage 7. State the purpose of checking voltage 8. List the basic electronic components ● Capacitor ● Resistor ● Diode 9. Determine the value of resistor using colour-coding chart 10. Use soldering iron 11. Interpret the resistor colour coding chart 12. Ensure not to touch the tip of soldering iron 13. Ensure to return the soldering iron to its stand 14. Be pat*ient while repairing SMPS*	**3.2 Servicing switched mode power supply (SMPS)**	
1. State the component of laptop 2. List types of screens and its specification 3. State the causes of screen failure 4. *Use Screen Replacement Tool Kit* 5. *Ensure proper disposal of waste* 6. *Ensure to replace the screen with the same specification*	**3.3 Replacing laptop screen**	**XII**
1. Explain motherboard compatibility 2. State the causes of motherboard failure	**3.4. Replacing motherboard**	

3. *Ensure proper disposal of used motherboard* 4. *Ensure to check the compatibility of the motherboard before replacing*		
1. Classify types of speakers and its specification 2. State the causes of speaker failure	**3.5. Replacing laptop speaker**	
1. State the specifications of keyboard 2. State the methods of replacing a keyboard 3. State the causes of keyboard damages 4. *Ensure not to pull keyboard without disconnecting the cable* 5. *Ensure the keyboard is screwed or Ensure proper handling of tools and equipment*	**3.6. Replacing laptop keyboard**	
1. State the specifications of touchpad connectors 2. State the causes of touchpad failure 3. *Ensure not to pull touchpad without disconnecting the cable* 4. *Ensure to align touchpad with base*	**3.7. Replacing laptop touchpad**	
Chapter 4: Rectifying peripheral device faults		
1. Explain the importance of removing protected plastic 2. Explain the common printer error 3. Insert cartridge 4. Remove Jammed paper 5. Ensure no paper fragment are left inside 6. Ensure proper handling of equipment and materials 7. Ensure no paper fragment are left inside 8. Ens*ure proper disposal of used cartridge*	**4.1. Servicing printer**	
1. Categorise types of photocopy machine and specification 2. Explain the common photocopy machine error 3. Ensure no paper fragments are left behind 4. Ensure cartridge is inserted 5. Ensure to use PPE 6. Ensure to *avoid touching any metallic surface in the fuser area*	**4.2. Servicing photocopy machine**	
1. Categorise types of scanners and specification 2. Differentiate between automatic document feeder (ADF) and flatbed	**4.3. Servicing scanner**	

3. List types of cleaning material 4. State the causes of scanner failure 5. Ensure power is off before cleaning 6. Ensure not to use hard substances to scrub or wipe the glass 7. Ensure not to apply too much force on the glass 8. Ensure not to use thinner or corrosive solvent to clean the glass surface 9. Ensure not to spill the liquid into scanner mechanism or electronic component 10. Be patient *while servicing scanner*		
	MODULE 3: Carry out installation and configuration of network	
	Chapter 1: Preparing for network installation	
1. Define network 2. State the history of network 3. List the types of networks and networking model 4. State the benefit of network 5. Explain the network protocol 6. State the concept of data communication 7. State the importance of site survey *8. Ensure appropriate use of PPE* *9. Ensure to follow OHS rules and regulations*	**1.1. Conducting site survey**	
1. Define internet protocol (IP) addresses 2. List the types of network topology 3. State the advantages and limitations of network topology 4. State the function of topology 5. Explain the use of IP addresses 6. Explain the classes of IP addresses 7. Interpret the network drawing 8. Read distance unit	**1.2. Designing network topology**	
1. State the types of communication media 2. State the categories of unshielded twisted pair (UTP) cables 3. State the types of connection and its application 4. Use crimping tools	**1.3. Preparing ethernet cable**	

5. Use cable tester 6. *Ensure to follow OHS rules and regulation*		
	Chapter 2: Installing network	
1. State the specification of materials 2. State the purpose of casing and capping 3. Interpret drawing 4. Ensure appropriate use PPE 5. Ensure to follow OHS rules and regulation 6. Ens*ure proper disposal of waste*	**2.1. Performing PVC casing and capping**	
1. State function of I/O box 2. State the function of networking impact tools 3. Categorise colour coding cables for I/O box 4. Use networking impact tools 5. Use portable drilling machine 6. Ensu*re to use appropriate PPE*	**2.2. Fixing Input/Output (I/O) box**	
1. Define fiber optic cable 2. State the function of fiber optic cable 3. State the types of fiber optic cable 4. State the types of optic connector 5. Explain the methods of fiber splicing 6. State the advantages and limitations of fiber optic cables 7. State the function of optical time domain reflectometer (OTDR) 8. Use fiber splicer kit 9. Use fiber optic cleaver 10. Use OTDR 11. Ensure appropriate use of PPE 12. Ensure to follow OHS rules and regulations 13. Ensure *proper disposal of waste*	**2.3. Performing fiber optics splicing**	
1. Define firewall device 2. Explain the importance of firewall 3. list the types of firewall device 4. State the features of firewall device 5. Differentiate between hardware and software firewall 6. Select appropriate location for the installation of firewall device 7. Interpret installation manual 8. Ensure correct configuration of and selection of incoming and *outgoing ports*	**2.4 Installing firewall devices**	

1. Define cisco router 2. State function of cisco router 3. State the types of cisco router *4. Ensure appropriate use of PPE* *5. Ensure to follow OHS rules and regulations* 6. *Ensure correct connection of incoming and outgoing cables*	**2.5 Installing cisco router**	
1. Define network switch 2. List types of network switch 3. State function of the network switch 4. State the features of network switch 5. Interpret the installation manual 6. Ensure appropriate use of PPE (Dust mask, Safety Goggles) 7. Ens*ure correct configuration of incoming and outgoing port*	**2.6. Installing network switch**	
1. Introduce the wireless network 2. Introduce the access point controller 3. State the function of wireless router or access point (AP) 4. List the types of wireless local area network (WLAN) 5. State the categories of wireless standards 6. Ensure to select the strong security type 7. E*nsure selection of proper router location*	**2.7. Installing Wi-Fi router**	
	Chapter 3: Configuring network	
1. Explain the basic configuration commands of cisco router 2. Differentiate between privilege and user mode 3. Use communication skill *4. Ensure appropriate use of PPE* *5. Ensure to follow OHS rules and regulations* *6. Ensure correct configuration of commands*	**3.1 Configuring cisco router**	
1. Define internet service provider (ISP) 2. State service set identifier (SSID) and its uses 3. State the types of authentications 4. State the types of encryptions 5. State the importance of security key *6. Ensure appropriate use of PPE* *7. Ensure to follow OHS rules and regulations*	**3.2. Configuring Wi-fi router**	

1. State basic command line interface (CLI) commands 2. State purpose of configuring the switch 3. Ensure to follow OHS rules and regulations	**3.3 Configuring network switch**	
1. Explain the configuration of IP address and its version 2. Differentiate dynamic host configuration protocol (DHCP) and static internet protocol (IP) address 3. State the method of basic network troubleshooting commands 4. Ensure to select the correct option of static and dyn*amic IP address*	**3.4. Configuring computer on network**	
1. State the reasons for configuring the firewall 2. Explain the different setting available in windows firewall	**3.5. Configuring network security software**	
1. Explain the format of maintaining network details 2. Draw a network diagram 3. *Ensure safe handling of tools and materials*	**3.6. Documenting network details**	

ANNEXURE VIII: TSEMZO (TAILORING)

ཇོ་མ་བཟོ་འོ་ཆོ་མ་ཚན་དུ་གཞི་དང་ཁ་ནང་དོན་བཀོད་རྣམས།།

Content mapping

ཨོམ།	ཚན་ Module	སྡེ་ཚན། Chapter)	སློབ་ཚན། (Lessons)	ཐེ་རི y)	སྤྱི་རི ractical	རིམ་པ། al
IX	སྤྱི་ངོ་ཚན་དང་པ། དཀའ་དངའ་བཙོ་མ་ནོ།	སྤྱོད་པ། ཅེ་ན་གི་	۱.۱ 5S གི་དོན་དུ་བོད་ལག་ལེ་ན་འཐབ་ནི། (5S principles)	۱	۱	۱۰
			۱.۲ ལུ་གི་འཕྲོད་ཀྱི་བསྟེན་ན་ལག་ལེ་ན་འཐབ་ནི། (OHS)	۱	۱	

			๑.๓ ควรมีอุปกรณ์ป้องกันส่วนบุคคล (PPE)	๑	๒	
			๑.๔ มีการจัดเตรียมอุปกรณ์ป้องกันส่วนบุคคลให้เพียงพอ	๑	๒	
		๒. การจัดเตรียมสถานที่	๒.๑ ควรมีการจัดเตรียมสถานที่	๒	๒๐	๔
			๒.๒ ควรมีการแบ่งพื้นที่ให้ชัดเจน	๓	๑๒	
			๒.๓ ควรมีการแสดงป้ายบอกทาง	๑	๓	
			๒.๔ ควรมีอุปกรณ์ดับเพลิง	๑	๔	
			๒.๕ ควรมีการจัดเตรียมน้ำดื่ม	๒	๔	
			๒.๖ มีการจัดวางอุปกรณ์ให้เหมาะสม	๒	๓	
		๓. การจัดเตรียมอุปกรณ์	๓.๑ จัดเตรียมอุปกรณ์ตามรายการอุปกรณ์	๒	๓	๕๓
			๓.๒ การจัดวางเครื่องมือ	๒	๔	
			๓.๓ การจัดวางตำแหน่ง (ควรมีป้ายชื่อ)	๒	๘	
			๓.๔ การจัดวางสายไฟ	๒	๔	
			๓.๕ การจัดเก็บ	๒	๔	
			๓.๖ ควรมีการทำความสะอาด	๓	๑๐	
						๑๗๖

སློབ་ ིམ། Class	སྦྱོང་ཚན། (Module)	སྡོན་ཚན། (Chapter)	སློབ་ཚན། (Lessons)	ནང་ ྱོང་། ཆུ་ཚོད། (Theory)	ལག་ ྱོང་། ཆུ་ཚོད། (Practical)	ཆུ་ ོད། ཡོངས་ ། (Total)
X	སྦྱོང་ཚན་དང་པ། དཀྱི་ར་བཙེམ་ནི།	སྡོན་ཚན་གསུམ་པ། འཕྲོ་མཐུད) པང་ཐགས་འཕྲུལ་ཐགས་དང་དཀར་རྐྱང་དཀྱི་ར་བཙེམ་ནི།	༣.༧ སྐུད་པ་ཚོས་གཞི་ ག་ནི།	༢	༣	༡༢༠
			༣.༨ སྐུད་པ་བསྡམ་ལྡོད་ ི།	༢	༢	
			༣.༩ སོ་ཚེམ་/ལྷས་ཚེམ་ ནི།	༣	༦	
			༣.༡༠ གོམ་ཚད་བཀལ་ནི།	༣	༥	
			༣.༡༡ དཀྱི་ར་མ་མཐུད་ ནི།	༤	༢༠	
			༣.༡༢ དཀྱི་ར་སོ་སྒྲིལ་ ནི།	༣	༨	
			༣.༡༣ འཇའ་བཀལ་ནི།	༧	༥༡	
		སྡོན་ ི་པ། མཇུག་ ནི།	༤.༡ དབུར་ཏི་རྐྱབ་ནི།	༤	༣༢	༥༦
			༥.༢ ཏུམ་ཆ་བཏོན་ནི།	༢	༤	
			༥.༣ བལྡབ་ནི།	༣	༥	
			༥.༤ ཚེམ་གླ་ལེན་ནི།	༢	༤	
Total				༣༥	༡༤༡	༡༧༦

སློབ་ རིམ། Class	སྦྱོང་ ཚན། (Module)	སྡོན་ཚན། (Chapter)	སློབ་ཚན། (Lessons)	ནང་ སྦྱོང་། ཆུ་ཚོད།	ལག་ སྦྱོང་། ཆུ་ཚོད།	ཆུ་ཚོད། ཡོངས་ བསྡོམས། (Total)

				(Theory)	(Practical)	
XI	སྒྲུབ་ཚན་གཉིས། སྤྱོད་གོང་བཙོ་མ་ཞུ།	སྤྱོན་ཚན་དང་པ། སྤྱོད་གོང་གི་སྒགས་འབྲེལ་འཛད་དུ་བཙོ་མ་ཞུ།	༡.༡ སྤྱོད་གོང་གི་འདོད་རྒྱུ་ཆས་དང་ཅོ་ཆས་མགོ་སྒྲིག་འཛད་ཞུ།	༢	༣	༡༨༣
			༡.༢ རྩོལ་ཕྲད་བཀལ་ཞུ།	༢	༩	
			༡.༣ ཚད་ལེ་ཞུ།	༣	༡༨	
			༡.༤ གོང་དུ་རྒྱ་ཞུ་དང་སྦྱོག་ཞུ།	༣	༢༠	
			༡.༥ སྤྱོད་གོང་གི་བཟོ་བཀོད་འཛད་དུ་དྲ་ཞུ།	༦	༢༥	
			༡.༦ ཕྱུད་དུང་དང་ཕྱུད་ཐུ་དྲ་ཞུ།	༣	༡༦	
			༡.༧ ལྷས་ཚོ་མ་རྣམ་བཏང་ཞུ།	༢	༧	
			༡.༨ སྤྱོད་གོང་གི་བཙོ་མ་ཞུ།	༤	༣༨	
			༡.༩ མཇུག་བསྡུ་ཆ་ཚང་བཀོད་ཞུ།	༤	༡༦	
			༡.༡༠ ཕྱུད་དུང་བཙོ་མ་ཞུ།	༣	༤	
		སྤྱོན་ཚན་༢ པ། ཤན་སྒྲུབ་	༢.༡ གོང་དུ་རྒྱ་ཏེ་བཙོ་མ་ཞུ།	༢	༡༠	༧༣

		སྡེབ་གཞི་ཚན་མ།	३.२ ལག་ངམཐེན་དཀར་སྟངས་ཚད་ལེན་ཏེ་བཤད།	९	४	
			३.३ ཤེན་སྐབས་སྡེབ་གཞི་ཚན་ལེ་ནས་ཏེ་དཔྱད།	५	१३	
			३.९ ཤེན་སྐབས་སྡེབ་གཞི་ཚན་མ།	७	३५	
ཆུ་ཚོད།				५१	३०५	३५७

Class	(Module)	(Chapter)	(Lessons)	(Theory)	(Practical)	(Total)
XII	སྐབས་ཅན་གཞུང་ལུགས་པ། སྡེབ་གཞི་ཚན་མ། (Continued)	སྡེབ་ཚན་གསལ་བཤད་པ། འོག་འཇུག་	३.१ འོག་འཇུག་གི་སྐབས་དང་ཆས་མཁོ་སྐྱབས།	३	१	५०
			३.२ འོག་འཇུག་ལེ་ནས་ཏེ་ཐེག་དང་ཀ་ཁ་རྣམས།	५	१९	

		३.३ འོན་འཇུག་ཐབས་མང་ཀ་དང་བར་བྱ་ཆོ་མ་རྣམ་པ་ནི།	۱۰	۹۲	
སྦྱོར་ཆོན་བཞི་པ། (Pencil case/bag)		९.१ པ་ལ་སྐད་དང་ཡང་གཞི་ཐབས་ཀྱི་རིགས་ཤས་ཆེ་བ་ཞིག་ལས་ཐ་དད་པ་ཡིན་ནོ།	३	५	۱۱۲
		९.२ པ་ལ་སྐད་ཆོད་ཡོ་ན་ཁྱེ་བཟོ་བཀོད་འབྲུ་ཡིག་ཏུ་བྱས་པ་ཡིན་ནོ།	५	२१	
		९.३ པ་ལ་སྐད་ཐབས་མང་ཡིན་ནོ།	९	३०	
		९.९ དང་ལྡན་གཞི་ཆོད་ཡ་ན་ཐབས་བཀོད་འབྲུ་ཡིག་ཏུ་བྱས་པ་ཡིན་ནོ།	७	२५	
		९.५ དང་ལྡན་གཞུ་ཐབས་མ་ཡིན་ནོ།	३	۱۰	

		སྒོམ་ཚན་ལྟ་བུ། གཞོན་ཤབས་མ་དམ་ཁ་བཙོ་མ་ནི།	༤.༡ གོ་གཏེར་ཆུ་ཚན་དུ་རེན་ནི།	༩	༡༥	༦༩
			༤.༢ གོ་བཙོ་མ་ནི།	༤	༣༠	
			༤.༣ གོ་ཉུང་ཆུ་བཏོ་ནི།	༣	༢	
ཆུ་ཚོད།				༡	༥༠	༣༤༦
ཡོངས་བསྡོམས་ ཆུ་ཚོད།				༧༣	ཀ༣	༡༩

སྡེ་ཁག། Class	སྒྲིག་ཆས། Module	སྐོར་ཆེན། (Chapter)	སྡེ་ཁ་ཆེན། (Lessons)	ཆུ་ཚོད། ཡོངས་སྡོམ། (Total)
IX	སྒྲིག་ཆས་དང་པ། དཀའ་དངས་ བཙོ་མ་ནི།	སྐོར་ཆེན་ དང་པ། ཉེ་ནས་སྤང་ གཏོང་ཀར།	༡.༡ 5S གཞི་རྩ་དེ་ལགཏ་ལ་ནང་འཐབ་ནི། (5S principles) ༡.༢ ལཱ་གཏོ་འཕྲོད་ཅན་ཐེ་ནང་ཉེ་ནས་སྤང་ལགཏ་ལ་ནང་འཐབ་ནི། (OHS) ༡.༣ རང་གཏོ་ཉེ་ནས་སྤང་གཏོ་མཁོ་ཆས་ལགཏ་ལ་ནང་འཐབ་ནི། (PPE) ༡.༤ ས་ས་གཀོ་ཉེ་ནས་སྤང་དང་ལྡན་མ་ཐེ་བཞག་ནི།	༡༠
		སྐོར་ཆེན་ གཉིས་པ། འཕྲོད་ཆས་ ཉམས་བཙོ་ནང་ འཐད་ནི།	༢.༡ འཕྲོད་ཆ་ཚོ་མ་ལགཏ་ལ་ནང་འཐབ་ནི། ༢.༢ འཕྲོད་ཁབ་ས་ཀེ་མ་ས་གཅིག་འབད་ནི། ༢.༣ འཕྲོད་ས་རྩེ་མ་བཟེ་གཏ་ནི། ༢.༤ འཕྲོད་ཐག་ཐད་ཕྲེ་བཀལ་ནི། ༢.༥ འཕྲོད་གཟེ་རྒྱབས་དེ་ཁ་ཏོ་ནང་ཕཤ་ནི། ༢.༦ ཚོ་མ་ཁང་རྒཀོ་ས་ཀཤོ་ནང་འཐད་ནི།	༡༡༤

		སྡེབ་ཚན་གསལ་བཤུས། པང་ཐགས་འཕྲུལ་ཐགས་དང་དཀར་རྣག་དང་བཙོ་མཁན།	३.१ རཀཔྷ་ཆས་དང་ཆ་ཆས་མཁོ་སྒྲུབ་འབད་ཐུབ་ནི། ३.२ དཀའ་རྙོག་ཚད་ལེ་ཤེས། ३.३ དཀའ་རྙོག་གི་དཔྱད་བཟོ་ནི། (འཕྲུལ་ཐགས) ३.४ དཀའ་རྙོག་གི་ཁར་སྒྲིག་ནི། ३.५ དཀའ་རྙོག་མ་བཟོ་ནི། ३.६ འཇའ་དཀར་ཤོད།	५२
ཚིག་སྡེབས།				११७

སྡེ་ཚན། Class	སྒྲིག་ཆས། Module	སྡེབ་ཚན་གསལ་བཤུས། (Chapter)	སྡེ་ཚན་ཚན་ཆས། (Lessons)	ཆ་ཚན་གཡོང་སྡེབས། (Total)
X	སྒྲིག་ཆས་དང་པ། (continued) དཀའ་རྙོག་བཙོ་མཁན།	སྡེབ་ཚན་གསལ་བཤུས། (continued) པང་ཐགས་འཕྲུལ་ཐགས་དང་དཀར་རྣག་དང་ཤ་ཐུག་བཙོ་མཁན།	३.७ སྐད་ཡིག་ཚོང་གཞི་བསྒྲིགས། ३.८ སྐད་ཡིག་བསྡུ་ལྡེ་བཟློ་ནི། ३.९ སྔོན་མ/ལྷག་ཆ་མར་ཁྱབ་ནི། ३.१० གོམ་ཚད་བཀལ་ནི། ३.११ དཀའ་རྙོག་མ་མཐུད་ཅིང་ཁྱབ་ནི། ३.१२ དཀའ་རྙོག་སོ་སྐར་ལེ་ར་ཁྱབ་ནི། ३.१३ འཇའ་བཀལ་ནི།	११२०
		སྡེབ་ཚན་ཚན་ཆས། ཨང་གྲངས་བསྡུ་ལེན།	९.१ དབང་ཆ་ཁྱེར་ཁྱབ་ནི། ५.२ ཉུང་ཆ་བཏོ་ནི། ५.३ བཟློ་བ་ནི། ५.९ ཚོ་མ་གཟུ་ལེ་ནི།	५७
ཚིག་སྡེབས།				११७

ཨ་ལྷོར་ཁ་རྒྱལ། Class	ཨ་ཐུས་ཀོང་ཚོན། Module	ཨ་ཆུ་ཚོན། (Chapter)	ཨ་ལྷོར་ཁ་ཚོན། (Lessons)	ཆ་ཚོད་ཀྱི། ཡོངས་ཨ་རྟོམ། (Total)
XI	ཨ་ཐུས་ཀོང་ཚོན་གཉིས་པ། ཨ་ཡོད་གཞོ་བཙོ་མ་ནི།	ཨ་ཆུ་ཚོན་ཚོན་དང་པ། ཨ་ཆུ་གཞོ་སྒྲིག་འབད་དུ་བཙོ་མ་ནི།	༡.༡ ཨ་ཆུ་གཞོ་འཛིན་རྒྱུ་ཆས་དང་ཅ་ཆས་མཁོ་ས་ཨ་རྒྱུ་འབད་ནི། ༡.༢ རྒྱུ་ཕྱར་ཅ་ཡག་ནི། ༡.༣ ཚོད་ལེ་ན་ནི། ༡.༤ གཞོ་ད་རྒྱ་ནི་དང་ ཨ་ཡོག་ནི། ༡.༥ ཨ་ཆུ་གཞོ་བཟོ་ཐག་ད་འབད་ད་ཁ་རྒྱ་ནི། ༡.༦ ཕྱོ་དོ་ད་ཕྱོ་དོ་ཁ་ནི། ༡.༧ ལྷས་ཆོ་མ་རྒྱ་ནི། ༡.༨ ཨ་ཆུ་གཞོ་བཙོ་མ་ནི། ༡.༩ མཇུག་ཐལ་ཆ་ནི་དང་གཞོ་ཐག་ནི། ༡.༡༠ ཕྱོ་དོ་བཙོ་མ་ནི།	༡༨༣

		སྡེབ་ཚན་གཉིས་པ། ཤེས་སྐྱེད་སྡེབ་ཅིག་གི་ཐོག་ནས་ཀྱང་ཡོད་པ་ཡིན་ཏེ་ཞེས་སྨན་པ་ཡིན་ནོ།	༢.༡ གོང་དུ་ཁ་ཏོན་མཛད། ༢.༢ ལག་ངར་གསུན་དུ་སྤྱི་ཐོག་ཏུ་ཁ་ཏོན་མཛད། ༢.༣ ཤེས་སྐྱེད་སྤྱི་ཐོག་ཚད་ལེན་ཏུ་དུ་ནི། ༢.༤ ཤེས་སྐྱེད་སྤྱི་ཐོག་ཏུ་ཁ་ཏོན་མ་ནི།	༤༣
	ཐམ་ཡིག།			༢ཅ།ཆ
སྡེ་ཚན་རྣམ། Class	**སྐྱེ་ཚན། Module**	**སྡེབ་ཚན། (Chapter)**	**སྡེ་ཚན། (Lessons)**	**ཆ་ཚེར། ཡོངས་སྡེབ། (Total)**
XII	སྐྱེ་ཚན་གཉིས་པ། སྤྱི་ཐོག་ཏུ་ཁ་ཏོན་མ་ནི། (continued)	སྡེབ་ཚན་གསུམ་པ། འོན་འཇུག་ཏུ་ཁ་ཏོན་མ་ནི།	༣.༡ འོན་འཇུག་གི་རྒྱུ་ཚན་དང་ཅ་ཚན་མཁོ་སྒྲུབ་འབད་ནི། ༣.༢ འོན་འཇུག་ཚེད་ལ་ཀ་ཏོ་བཟོ་བཀོད་འབད་ད་ཏུ་ནི། ༣.༣ འོན་འཇུག་ཁ་ཏོན་མ་དང་བར་ཆད་ཆེ་མ་རྒྱུ་བ་ནི།	༡ ཅ
		སྡེབ་ཚན་ལྔ་པ། པེ་སི་ལ་ཀེ་དང་དང་ཐུག་ཁ་ཏོན་མ་ནི། (Pencil case/bag)	༥.༡ པེ་སི་ལ་ཀེ་དང་དང་ཐུག་ཁ་ཏོན་གི་རྒྱུ་ཚ་མཁོ་སྒྲུབ་འབད་ནི། ༥.༢ པེ་སི་ལ་ཀེ་ཚད་ལ་ཀ་ཏོ་བཟོ་བཀོད་འབད་ད་ཏུ་ནི། ༥.༣ པེ་སི་ལ་ཀེ་ཁ་ཏོན་མ་ནི། ༥.༤ དང་ལ་ཁུག་ཚད་ལ་ཀ་བཟོ་བཀོད་འབད་ད་ཏུ་ནི། ༥.༥ དང་ལ་ཁུ་ཁ་ཏོན་མ་ནི།	༡ ༡ ཅ
		སྡེབ་ཚན་ལྔ་པ། གོ་ནང་ཤབས་མ་ཁ་ཏོན་མ་ནི།	༤.༡ གོ་གི་རྒྱུ་ཚས་དུ་ནི། ༤.༢ གོ་ཁ་ཏོན་མ་ནི། ༤.༣ གོ་ཏུ་མ་ཆ་ཁ་ཏོ་ནི།	༦ཅ
	ཐམ་ཡིག།			༢ཅ།ཆ

5.4 Class-wise Competencies

1) CLASS IX COMPETENCIES

༡ 5s གི་རང་དོན་འདི་ནམ་འབད་རུང་ལག་ལ་ནང་ཐབ་ཆུ་གས།

๓ ལ་ཀ་འཛུགས་ཏེ་ས་ཆ་ནས་ཀུན་དང་ཉེ་གྲིབ་མ་མཁའ་ལ་ནི་འཐབ་ཆོག།

๔ ཉེ་ནས་ཀུན་གྱི་ཚེས་ཆོ་ཐོག་ཏུ་ཡང་ཡང་ཞུ་ལ་ལགས་ལ་ནི་འཐབ་ཆོག།

๕ ཆོ་མ་གྱི་ཅ་ཆས་ཆོ་ཆོ་ལ་འཐེན་ས་ཐ་མ་སྐོ་ཉེ་ཉེ་ནས་ཀུན་དང་ལུས་ནམ་ཡང་ལ་ནི་འཐབ་ཆོག།

๖ འཕྲུལ་ཆོ་མ་གྱིས་ཚོགས་ཆོ་དཔའ་བོ་ཕྱོགས་ཀྱི་ཐོག་ཏུ་ཡོད་པའི་ཚེ་ཡང་ལ་ནི་འཐབ་ཆོག།

๗ འཕྲུལ་ཆོ་མ་ངོགས་ཀྱི་ཁོངས་ཆོ་དཔའ་བོ་ཕྱོགས་ཀྱི་ཁ་འཕྲུལ་ཁའི་སྐབས་སུ་ཡང་ཐོག་ཏུ་ཡོད་ཆོག།

๘ འཕྲུལ་ཆོ་མ་ངོགས་མ་འདུ་ཤོ་ཆོ་ལ་དགོ་པའི་འཕྲུལ་སྟེ་མ་ཐུག་ཏུ་ཡང་ཐོག་ཏུ་ཡོད་ཆོག།

๙ འཕྲུལ་ཆོ་ཐག་འགོ་རྟ་ལ་ཏོ་ཆོ་ཤ་ཐོག་ཏུ་ཡོད་ཆོག།

๑๐ འཕྲུལ་གཅེར་ཤྱི་ནི་དང་ས་རྣམ་ནི་ཆོ་ མ་འཛོལ་བ་ཅི་ལ་གསལ་ཞིང་ཐོག་ཏུ་ཡོད་ཆོག།

๑๑ ཆོ་མ་ཁང་རྡོ་ཤུ་ནས་ཀྱོང་ངའི་ཐེ་ནི་ཐབས་རྣམས་ཀྱི་ཐོག་ཏུ་ཡོད་ཆོག།

๑๒ ཅ་ཆས་དང་ཆ་ཆས་ ས་ཕུ་ས་ཆོད་ཆ་ མགོ་སྐར་ཅི་ཡང་ཟེར་ཐོག་ཏུ་ཡོད་ཆོག།

๑๓ ཀུ་མ་ལ་རྟས་པ་མ་འདུ་ཤ་ཡོ་ད་མོ་ཆོ་ ཐ་གི་ཆོད་ཀྱི་ཐ་ཅ་ཅ་ལས་དང་འཕྲུལ་མ་ཅན་ཆོག།

๑๔ དཀྱི་ངོ་ཅོ་ཤེས་ཀྱི་ཐོག་ཏུ་ཡོད་པའི་ཚེ་ཡང་ཐོག་ཏུ་ཡོད་ཆོག།

๑๕ ཀུ་མ་ལ་རྟས་པ་མ་འདུ་ཤ་ཡོ་ད་མོ་ཆོ་ ཐ་གི་ཆོད་ཀྱི་ཐ་ཅ་ཅ་ལས་དང་འཕྲུལ་ཁ་མ་ཅན་ཆོག།

๑๖ འཇའ་དཀར་ཐ་ཅ་ལས་ཀྱི་ཁ་ཅ་ལས་པ་དང་ཐ་ཅ་ལས་འཕྲུལ་ཁ་དར་ཆོག།

2) CLASS X COMPETENCIES

๑ དཀྱི་ངོ་ཅ་གི་གཞི་དང་འཕྲུལ་ཁ་སྐྱ་དཔ་ཆོ་གཞི་སྐར་གི་ཆོག།

๒ ཆོ་མ་གྱི་ལ་ཞ་འབད་བའི་ཅ་སྐབས་ སྐྱ་དཔ་དམ་ལ་ཁོ་དེ་རན་ཁོ་གི་ཁོ་ཡོ་དེ་མ་ དབ་ཁ་དཔ་ཁ་འབད་དེ་ཡོད་ཆོག།

๓ འཕྲུལ་ཆས་ལ་ཁས་ཆོ་མ/མོ་ཆོ་མ་ཀྱི་ཁབ་དང་སྐྱ་དཔ་ཀྱི་དབྱེ་ཅ་ཅ་ཁ་ཁོ་ཁ་ལན་འཐབ་ཆོག།

๔ ངཕྱོ་ཆས་དང་བསྡུ་ཤའི་ཆོད་ཆོ་ལ་མཐུ་ན་ས་ཅ་དེ་ཐ་སྐར་གས་འབད་ཁ་ལག་ལ་ནི་འཐབ་ཆོག།

๕ དཀྱི་ངོ་མ་མཐུ་དེ་རྐྱབ་བ་ཅ་ཁ་དང་ཐ་སྐབས་ ངཕྱོ་ཆ་ཤྱི་ནང་བལ་ཁ་ཉོ་ཤ་ལས་ངཕྱོ་ཆའི་ཁ་ཤས་ཆའི་ཁ་ས་སྐར་གིས་ཁ་བཅོ་མ་ཆོག།

๖ དཀྱི་ངའི་ཁ་ངཕྱོ་ཆས་ཆོ་ མ་ས་སྐར་ལ་ས་ཀྱོ་མ་ཁོ་གི་ཁོ་འབད་བཅོ་མ་ཆོག།

๗ འཇའ་གི་ཁོ་བོ་ཐལ་དང་འཁྲུལ་ཁ་ དཀྱི་ངའི་འཇའ་གི་ས་ཡར་ངོ་ལ་ཉོ་ཤ་ལས་ཀྱི་ཐ་ཅ་ཅ་ལས་ཁོ་གི་ཁོ་ས་ཆོག།

๘ ངཕྱོ་ཆའི་ས་ཡུལ་ཁོ་ཤ་ཁོད་ཆོ་ལ་ཐ་ཅ་ལས་ཀྱི་ཐ་ཅ་ཅ་ལས་ཁོ་གི་ཁོ་འབད་བཅོ་མ་ཆོག།

๙ ཆོ་མ་གྱི་ཁང་རྡོ་ཤུ་ནས་ཀྱོང་ངའི་ཐེ་ནི་ཐབས་རྣམས་ཀྱི་ཐོག་ཏུ་ཡོད་ཆོག།

๑๐ དཀྱི་ངའི་ཅ་ཆུ་ལ་ཐབས་ཐ་ཤུ་ངོ་ཐ་ཁུ་བ་ཆོག།

๑๑ ཆོ་ང་ཐག་རྟ་ཤའི་དག་ཐ་ཐང་ངོ་ཐ་ག་ཆ་ཆོ་ང་རྟ་ཐ་ཁོ་ཁོ་ཆོག།

3) CLASS XI COMPETENCIES

๑ སྤྱོད་གཞོན་རྒཡུན་ཆས་དང་ རྩ་ཆས་ཀཡིར་གཡས་ཆོད་དབྱེ་བ་ཞྱི་ཞེན་ནས་ལས་ མགོ་སྒངས་བ་འབད་ཆོད་གས།

๒ སྤྱོད་གཞོ་ཚོད་ལ་ཏེ་ཁེ་ གོང་གི་རོ་ཚོད་ཁེ་ཁོ་ བཙོ་མ་ཆོད་གས།

๓ སྤྱོད་གཞོ་རྒཡུན་ཆས་ མགོ་སྒངས་བ་འབད་ཁེ་ ཚོད་ལ་ན་ཆོད་གས།

๔ སྤྱོད་གཞོ་ཧད་ཚོད་དང་འཁརྒལ་ ཚོད་ལ་ན་ཞེན་ནས་ལས་གོང་དརྒན་ཏེ་དང་ སྤྱོས་གོང་འོ་མ་གོང་ས་ཁྱོགས།

๕ སྤྱོད་གཞོ་རྒཡུན་ཆས་རོགས་ཆོད་ དབཡུ་ཅ་ཞྱི་ཞེན་ནས་ལས་ཐེགས་ཆོད་ལ་ན་ཐངས་ དབཡུ་ཞྱི་བཏཀོ་ན་ཐངས་ ཁརྒས་གཡར་གས་ཁེ་ དརྒཆོད་གས།

๖ ཧྲུ་དྲུང་དང་ཧྲུ་དྲུང་ཁ་ཆོད་གཞེན་དང་བསྡུན་ཁེ་ དརྒཆོད་གས།

๗ དཀཡུ་ཅང་ དྲུས་བཟོ་ཆོར་ཞེན་ལས་ལ་སྟེས་ཆེ་ས་རྨཡ་བ་ཆོད་གས།

๘ སྤྱོད་གཞོ་རྒཡུན་ཆས་རོགས་ས་འདརྒཚ་ཆོད་དབཡུ་ཅ་ཞྱི་ཞེན་ཁེ་ས་ཁྱུས་ཆོད་དང་ སྤྱོན་ས་བྱེ་ཅ་བཙོ་ས་ཆོད་གས།

๙ སྤྱོད་གཞོ་བཙོ་ས་དང་ ས་ཐྲུག་བལུ་ཁྱབ་ན་ཅེ་དང་ གོང་བཀལ་ཉོས་ཁོག་ཁོ་འབད་བཀལ་ཆོད་གས།

๑๐ ཧྲུ་དྲུང་བཙོ་ས་པའེ་ས་རྨབས་ རྒྱ་ཞྱི་ཅ་ཁེ་ བཙོ་ས་ཆོད་གས།

๑๑ ས་གཡ་ཆོད་གཞན་ཅང་འཁརྒལ་ ཚོད་ལ་ན་ཁེ་ གོང་ངེ་ཐྱུང་དྲུ་ཆོད་གས།

๑๒ ལག་ངརྒཤ་དྲུ་ཐངས་དང་ བཟོ་བག་ཁོ་འབད་བཙོ་ས་ཆོད་གས།

๑๓ ས་གཟུགས་ས་ཁོ་ཐས་དང་འཁརྒལ་ཆོད་ལ་ན་ཁེ་ཤན་འཇངས་ས་ཁོ་ཏ་གོ་ས་དརྒཆོད་གས།

๑๔ ཤན་ས་བཤངས་ས་ཁོ་ཏ་ས་ཞྱི་ཁེ་བཙོ་ས་ཆོད་གས།

4) CLASS XII COMPETENCIES

๑ འོན་འཇུ་ངརྒཡུན་ཆས་དང་རྩ་ཆས་དབཡུ་ཅ་ཞྱི་ཁེ་ ས་གོ་ས་རྨབས་འབད་ཆུ་གས།

๒ འོན་འཇུ་ དཔེ་ཆོད་དང་འཁརྒལ་ཁེ་འོན་འཇུ་ཆོད་ལ་ན་ཁེ་བཟོ་བག་ཁོ་འབད་ དེ་དརྒཆོད་གས།

๓ འོན་འཇུ་ངརྒཡུན་ཆས་དང་ རྩ་ཆས་དབཡུ་ཅ་ཞྱི་ཁེ་ བརྒབ་བཙོ་ས་རཆ་ཁོག་ཁོ་ས་ཏེ་ཅ་ཞྱི་ཁེ་ས་ཏེ་ཅ་ཞྱི་ཆོད་གས།

๔ པེ་ས་ས་རྐོད་དང་དྲུལ་ཁ་ཁེ་བཟོ་ན་ཅེ་ རྒཡུན་ཆ་མགོ་ཁེ་ས་འབད་ཆོད་གས།

๕ པེ་ས་ས་རྐོད་དང་དྲུལ་ཁ་ཁེ་ བཟོ་ངརྐས་དང་དབཡུ་བས་ བཟོ་བག་ཁོ་འབད་དེ་ བཙོ་ས་ཆོད་གས།

๖ པེ་ཏས་ས་རྐོད་ཀཡུ་ཏས་ཀཡིར་ལ་ཆོད་ལ་ན་ཁེ་བཟོ་བག་ཁོ་འབད་དེ་ དེ་ཁརྒན་ཅེ་དང་ སྤྱོས་ཀ་ཁོང་བལུ་ཁེ་ དརྒཆོད་གས།

๗ ཤ་ཏ་ཤ་ཏ་དང་སྤྱོས་བཙོ་ཁོག་ཁེ་ པེ་ས་ས་རྐོད་ཀཡུ་ཏབཡུ་བས་བཟོ་ཏག་ཁོ་འབད་དེ་ བཙོ་ས་ཆོད་གས།

๘ གོ་གཡོ་རྒཡུན་ཆས་ཆོད་འཕརྒོ་ས་གཡུ་ཁང་པང་ རན་ཁོ་གཡོ་ཁོ་ས་ཏེ་རྒཡུན་ཆས་དརྒཆོད་གས།

๙ དཔེ་ཆོད་དང་འཁརྒལ་ གོ་གོ་ཆོད་གཞེན་དང་ བཙོ་ས་ཐང་ས་ཀཡུ་ཅ་གོ་ཅ་ས་ས་འཛོ་ལ་བ་གོ་བཙོ་ས་ཆོད་གས།

๑๐ བཙོ་ས་ཆོད་བའེ་འཁརྒབ་བའབ་ས་ཆོད་ ས་ཀཡུ་དཔ་ཅ་བཁོ་གས་ཁེ་ཅ་ཡུས་ཆ་བཁོ་ན་ཆོད་གས།

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
	སྒྲུབ་ཚན་༡ པ། དཀའ་ངད་བཙོ་སྐྱེ།	
	སྤྱི་ནས་ཚན་དང་པ། ཉེ་ནས་ཀུང་གི་སྐོར།	IX
༡.༡.༡ 5S གི་དགོས་པ་བཤད་ཚུགས། ༡.༡.༢ 5S གི་རྩ་དེ་ནས་ཀོར་ལས་བཤད་པ་རྣམ་བཅུ་ཚུགས། ༡.༡.༣ **5S** གི་རྩ་དེ་ལག་ལེན་བྱེད་ཐབས།	༡.༡ **5S** གི་རྩ་དེ་ལག་ལེན་ལ་འཐབ་ནི། **(5S principle)**	
༡.༢.༡ ལཱ་གི་འཕྲོད་བསྟེན་ནང་གི་དགོས་པ་བཤད་ཚུགས། ༡.༢.༢ ལཱ་གི་འཕྲོད་བསྟེན་ནང་གི་ལག་ཆས་ཀྱི་འཛིགས་ཉེན་བཤད་ཚུགས། ༡.༢.༣ ལཱ་འབད་སའི་ས་གནས་ཀྱི་ཉེན་ཁྲ་གཡོག་པ་རྣམས་ཀྱི་ཁེ་ཕབ་ཚུགས། ༡.༢.༤ ལཱ་གི་འཕྲོད་བསྟེན་ནང་གི་དགོས་པ་བཤད་ཚུགས། Wangsel	༡.༢ ལཱ་གི་འཕྲོད་བསྟེན་ནང་གི་ལག་ལེན་ལ་འཐབ་ནི། **(OHS)**	
༡.༣.༡ རང་གི་ཉེ་ནས་ཀུང་གི་སྐད་ཆས་སྣ་ཚོགས་ལས་འགན་ལ་བཤད་རྣམས་ཚུགས། ༡.༣.༢ རང་གི་ཉེ་ནས་ཀུང་གི་སྐད་ཆས་ཐོབ་ཐག་ཆད་ཚུགས། ༡.༣.༣ རང་གི་ཉེ་ནས་ཀུང་གི་སྐད་ཆས་ངོས་འཛིན་འབད་ཚུགས། ༡.༣.༤ རང་གི་ཉེ་ནས་ཀུང་གི་སྐད་ཆས་ལག་ལེན་འཐབ་དགོ།	༡.༣ རང་གི་ཉེ་ནས་ཀུང་གི་སྐད་ཆས་ལག་ལེན་ལ་འཐབ་ནི། **(PPE)**	
༡.༤.༡ ཆ་ཚན་དང་ལུ་ཁའི་ཉེ་ནས་ཀུང་བཤད་ཚུགས། ༡.༤.༢ ཉེ་ནས་ཀུང་གི་དབྱེ་བ་བཤད་ཚུགས། ༡.༤.༣ ཉེ་ནས་ཀུང་གི་བཅའ་ཡིག་བཤད་ཚུགས། ༡.༤.༤ སྤྱི་ནས་ཉེ་ནས་བཤད་ཚུགས། ༡.༤.༥ ཉེ་ནས་ཀུང་སྐད་ཆས་ཀྱི་ངོ་སྤྲོད་བཤད་ཚུགས། ༡.༤.༦ ཆོང་སྐུ་ནའི་ཁའི་ཉེ་ནས་ཀུང་བཤད་ཚུགས། ༡.༤.༧ བསམ་སྤྱོད་ལས་བཟུ་ནའི་ཁའི་ཉེ་ནས་ཀུང་བཤད་ཚུགས། ༡.༤.༨ གཡོ་བ་ལྟར་སྣ་ཚོགས་ལག་ལེན་འཐབ་དགོ།	༡.༤ སྤྱི་ནས་ཉེ་ནས་ཀུང་དང་ལུ་ནམ་སྟེ་བཞག་ནི།	

སྤྱོད་ཚོན་གཉིས་པ། འཕྲུལ་ཆས་ཉམས་བཅོས་འབད་ནི།		
২.১.১ འཕྲུལ་ཆ་མ་གཏོས་ཀྱི་རང་ལས་བཤད་ཚུགས། ২.১.২ འཕྲུལ་ཆ་མ་གཏོས་དབྱེ་བ་བཤད་ཚུགས། ২.১.৩ ཉེན་སྐྱོང་ལག་ལེན་འཐབ་ཚུགས། ২.১.৪ འཕྲུལ་ཆ་མ་གཏོས་འགེལ་དོར་རྣམ་གཞུ་བཏོན་ཚུགས། ২.১.৫ ཀཱར་ཀཱྱི་གྲོས་ཤོད་དཔག་ཐུབ་ཚུགས། ২.১.৬ ཀཱར་ཀཱྱི་སྐོད་ཚང་ཆང་བཙོ་གསར་ཚུགས། ২.১.৭ སྐོད་ཚང་འཕྲུལ་ཆ་མ་གྲུབ་བཙོ་གསར་ཚུགས། ২.১.৮ འཕྲུལ་ཆ་མ་གྲུབ་ལྟ་སྐོད་བར་ཐུབ་ཚུགས། ২.১.৯ འོར་གསྐོད་འཕྲུལ་སྤྱི་གསར་གྱི་ཐོག་ལ་ལ་གསལ་ཤོམ་འབད་དགོ། ২.১.১০ འཕྲུལ་ཆས་དང་ཁབ་ཚུད་ལག་ལེན་ལ་གསལ་སྐོད་དེ་ཁོ་ཚོའི་ཐོག་ལ་ཞུ་ཐུབ་ཚུགས། ২.১.১১ སྐོད་ཚང་ཐུབ་ཀྱི་བཀའ་ཤོག་ཚུ་ཞིབ་ཞིབ་ལྟོས་དགོ། ২.১.১২ སྐོད་ཚང་ཐུབ་ཀྱི་སའི་སྐོར་ཚུད་ཀྱི་ཆ་འཕྲིན་ཁ་ཤས་ཀྱི་ཤོག་ཤེས་ཁ་གསལ་ལས་སྐོད་ཚང་ཐུབ་ཀྱི་བཙོ་གསར་ཚུགས།	২.১ འཕྲུལ་ཆ་མ་ལག་ལེན་འཐབ་ཀྱི།	
২.২.১ འཕྲུལ་ཁབ་ཀཱྱི་སྐོར་ལས་ཁ་ཤེད་ཚུགས། ২.২.২ འཕྲུལ་ཁབ་ཀཱྱི་དབྱེ་བ་ཁ་ཤེད་ཚུགས། ২.২.৩ འཕྲུལ་ཆ་མ་གྲུ་ཁབ་རྒྱབ་མར་ལྟ་མ་འཕྲོ་ལ་ཁ་བཙོ་ཚུགས་ཚུགས། ২.২.৪ འཕྲུལ་ཆ་མ་གྲུ་ཁབ་ཁ་བཙོ་ཚུགས་ཚུགས། ২.২.৫ འཕྲུལ་ཁབ་སྤྱི་མ་སྒྲིག་འབད་དགོ།	২.২ འཕྲུལ་ཁབ་སྤྱི་མ་སྒྲིག་འབད་ཀྱི།	
২.২.১ འཕྲུལ་སྣུམ་གཏོས་དབྱེ་བ་ཁ་ཤེད་ཚུགས། ২.২.২ འཕྲུལ་སྣུམ་ཁ་ཤེད་ཚུགས་དགོ་པའི་དགོས་པ་ཁ་ཤེད་ཚུགས། ২.২.৩ འཕྲུལ་སྣུམ་ཁ་ཤེད་ཚུགས་པའི་མ་ཚད་ལྟར་ལག་ལེན་འཐབ་ཚུགས། ২.২.৪ འཕྲུལ་སྣུམ་འདི་ཁོ་ཚོ་ལུ་ཡུ་འཁོར་མ་ཚུགས་པའི་དགོས་པ་ཁོ་ཚོས་ཤེས་རྟོགས་ཚུགས་དགོ།	২.২ འཕྲུལ་སྣུམ་ཁ་ཤེད་ཀྱི།	
২.৩.১ འཕྲུལ་ཁབ་ཀྱི་ཆ་ཤས་ཁ་ཤེད་ཚུགས། ২.৩.২ འཕྲུལ་ཁབ་ཀྱི་ཆ་ཤས་ཀྱི་ཐོག་ལ་ཞུ་ཐུབ་ཚུགས། ২.৩.৩ འཕྲུལ་ཁབ་ཀྱི་ཆ་ཤས་ཀྱི་ཐོག་ལ་ཞུ་ཐུབ་ཚུགས། ২.৩.৪ འཕྲུལ་ཁབ་ཀྱི་ཆ་ཤས་ཀྱི་ཐོག་ལ་ཞུ་ཐུབ་ཚུགས།	২.৩ འཕྲུལ་ཁབ་ཀྱི་ཆ་ཤས་ཀྱི།	
২.৪.১ འཕྲུལ་ཁག་ཤུང་བཀལ་དགོ་པའི་དགོས་པ་ཁ་ཤེད་ཚུགས། ২.৪.২ འཕྲུལ་ཆ་མ་གཏོས་ཀྱི་འགོ་ལོ་ཀྱི་ཐོག་གཡོག་ཁག་ཚུ་ཁ་ཤེད་ཚུགས། ২.৪.৩ འཕྲུལ་ཁག་བཀལ་ཚུགས།	২.৪ འཕྲུལ་ཁག་ ཁད་ཤུང་བཀལ་ཀྱི།	

২.৪.১ འཕྲུལ་གཟེར་གྱིས་དབྱེ་བ་བཤད་ཚུལ་གསལ། ২.৪.২ འཕྲུལ་གཟེར་བསྡམས་ལྷོད་བཤད་ཚུལ་གསལ། ২.৪.৩ འཕྲུལ་གཟེར་བསྡམས་ནི་དང་ཕྱེ་བའི་སྣ་ཚགས་ཚུལ་མཐུན་ནམ་བྱེ་བ་འབད་དགོ།	২.৪ འཕྲུལ་གཟེར་བསྡམས་ཀྱི་ནི་དང་ཕྱེ་ནི།	
৩.৬.১ ཚེ་མཁའང་རྒྱུན་སྣང་ངེད་འབདཝ་དགོ་པའི་དགོས་པ་བཤད་ཚུལ་གསལ། ৩.৬.২ མཐུན་རྐྱེན་ཅིག་ཤེས་བཅོས་དང་བསྐྱར་གསར་འབད་ཚུལ་གསལ། ৩.৬.৩ ཚེ་མཁའང་དང་མཐའ་འཁོར་གཙང་སེམས་བཟོ་ནི་ཚུལ་གསལ། ৩.৬.৪ ཅ་ཆས་དང་རྒྱུ་ཆས་ཚོ་རང་སོའི་སེམས་ཤེས་ཀྱི་ཐོག་ནས་ཕྱོགས་ཆ་ཚང་བ་ཞིག་ཏུ་བཟུང་ནི་ཚུལ་གསལ། ৩.৬.৫ ཅ་ཆས་དང་རྒྱུ་ཆས་ཀྱི་རིགས་ཤེས་ཀྱི་ཐོག་ནས་ཕྱོགས་ཆ་ཚང་བ་ཞིག་ཏུ་བཟུང་ནི་ཚུལ་གསལ། ৩.৬.৬ ངོ་རྟགས་ཚོད་ཚོ་ཚོ་ལ་མཐུན་སྣ་ཚགས་བཟུང་དགོ། ৩.৬.৭ སྒོ་བསྡམ་ནི་ནང་ཕྱེ་ནི་འའི་དོ་རྟེས་ཚོ་དང་གཏན་འཁེལ་བ་ཞིག་ཏུ་བཟུང་དགོ། ৩.৬.৮ འཕྲུལ་ཚེ་མ་ལགཅ་ལ་ནང་ཁབ་ཐོ་གཞུག་ལས་གཟུངས་ཆས་བཙོ་མ་ནི་ལྟ་གཞི་ཞིག་ཏུ་སྣ་ཚགས་ཀྱི་ཐོག་ནས་ཚོ་ཚོ་ལ་ཐོག་ཏུ་ཡོད་པ་ཞིག་ཏུ་བཟུང་དགོ།	৩.৬ ཚེ་མཁའང་རྒྱུན་སྣང་ངེད་འབདཝ་ནི།	
སྒོ་ནས་ཚོན་གསལ་ཡམ། པང་ཐགས་འཕྲུལ་ཐགས་དང་ དཀར་རྒྱང་དཀྱི་རར་བཙོ་མ་ནི།		
৩.১.১ དཀྱི་རའི་རྒྱུན་ཆ་དབྱེ་བ་ཕྱེ་ཚུལ་གསལ། ৩.১.২ སྐྱེད་མཁོ་སྣང་ཚུལ་གསལ། ৩.১.৩ སྣ་ཚོགས་ཆེད་དབྱེ་ཞི་འབད་ཚུལ་གསལ། ৩.১.৪ ཐོ་ནར་རྣམ་སྡུད་ཀྱི་ཐོག་ངོས་འཛིན་འབད་ཚུལ་གསལ།	৩.১ རྒྱུན་ཆས་དང་ཅ་ཆས་མཁོ་ནི་སྒྲུབ་འབད་ནི།	
৩.২.১ ཆེད་ལེ་ནི་གྱི་དགོས་པ་བཤད་ཚུལ་གསལ། ৩.২.২ འཛལ་ཐག་ལག་ལེ་ནི་འཐབ་ཐང་ཚད། ৩.২.৩ སྣ་ཚོགས་ལག་ལག་ལེ་ནི་འཐབ་ཐང་ཚད། ৩.৩.৪ གཞི་རྟེ་ནི་རྟེའི་གཏམ་ཚུ་བཤད་ཚུལ་གསལ། ১. ཕབ་རྟེ། ২. བག་རྟེའི། ৩. དགུ་འཐབ། ৪. བསྡུ་མ་རྟེའི། ৫. བར་ཆད་ཆ་ཕབ་ཚུལ་གསལ། ৩.২.৫ རྒྱུ་ཚེད་དང་རི་ཆེད་ལེ་ནི་ཚུལ་གསལ། ৩.২.৬ ཚེད་རྟགས་བཀལ་ཐང་བཤད་ཚུལ་གསལ།	৩.২ དཀྱི་རྟ་ཚེད་ལེ་ནི།	

३.२.७ འཇལ་ཐག་ལག་ལེ་ནོ་འཐབ་ཐངས་། ३.२.८ འབྲེལ་བ་དང་གོང་བར་སྡུད་ཀྱི་ཆོག་ཤེས། ३.२.९० ཐེག་ཆོད་ཐོབ་ཐངས་དང་འགྲེལ་ལེ་ནོ་དག་། ३.२.९१ རྣམཔ་ཆས་ཆོད་འཛིན་སྐྱེ་ལག་ལེ་ནོ་འཐབ་དགོ་། ३.२.९० ཆོང་མག་ཡོན་པའི་གཟུགས་ལས་ཆོད་ཆུལ་དང་ལུནམ་སྐྱེ་ལེ་ནོ་དགོ་།		
३.३.१ དུམ་གཡིག་སྐོར་ལས་བཤད་ཆུགས། ३.३.२ ཆོང་མག་ཡོན་པའི་དུམ་ཆད་ལངས་ཏིང་ཐལ་ཆུགས། ३.३.३ དུམ་ཆང་ཏིང་ཐལ་ཆུགས། ३.३.४ དུམ་ཆད་ཐལ་ཆུགས། ३.३.५ དུམ་གཡེ་གཡངས་ཁ་ཐལ་ཆུགས། ३.४.७ དུམ་མ་ལངས་པ་ཅི་ནོ་ ལངས་ཐབས་བཟོ་དགོ་།	३.३ དཀའ་དག་དུམ་བཟོ་ནི། (འཕུལ་ཐགས)	
३.४.१ ཁར་སྒར་གི་ཐངས་གལ་ཆེ་ཆུལ་བཤད་ཆུགས། ३.४.२ ཁར་མག་མཇུག་ཐལ་ཆུགས། ३.४.३ ཁར་སྒར་གི་ཐངས་ཀྱེ་དབྱེ་བ་བཤད་ཆུགས། ३.४.४ ཁར་ཐེ་བ་ཐངས་ཐལ་ཆུགས། ३.४.५ ཁར་ཕྱེ་ནང་གི་ཁཀ་པར་ཐལ་ཆུགས། ३.४.६ ཁར་འོ་ས་སྐོ་འོ་ས་ཀྱི་ཐངས་བཤད་ཆུགས། ३.४.७ མ་བཙོ་མ་པའོ་གི་ངོ་ལས་ཁར་ལ་ཆ་ངོ་གོ་འབདཏ་ད་ཆོང་མག་ཡོན་པ་དང་མཉམ་འབྲེལ་འབདཏ་དགོ་།	३.४ དཀྱེ་ད་མ་བཟོ་ནི།	
३.५.१ མ་གི་གོ་དོ་ནོ་བཤད་ཆུགས། ३.५.२ མ་གི་དབྱེ་བ་དང་ཐེ་ཐལ་བཤད་ཆུགས། ३.५.३ རྣམཔ་ཆོད་དང་རི་ང་ཆོད་འཇལ་ཆུགས།	३.५ དཀྱེ་ད་མ་བཟོ་ནི།	
३.७.१ འཇའ་དཀར་ཀོ་གོ་རི་མ་བཤད་ཆུགས། ३.७.२ འཇའ་ཆོ་ཁ་གཞི་ཐེ་ཐལ་བཤད་ཆུགས། ३.७.३ འཇའ་གི་ཆད་གཞི་ང་ཁ་འཛིན་འབད་ ཆུགས། ३.७.४ དབུ་རབ་ཁྲི་རྒྱབ་ཐ་ཁྲ་འཇའ་ཐལ་ཁྲབ་ཤུལ་ཐཟོ་ནོ་དང་ཐེ་གི་འཐེ་ནོ་ཐངས། ३.७.५ འཇའ་གི་ཕྱེ་ནང་ཐལ་ཆུགས། ३.७.६ འཇའ་མཐུ་ཏ་ཐངས། ३.७.७ གཡེ་མ་ཙེ་ལག་ལེ་ནོ་འཐབ་ཐངས། ३.७.८ ཆོང་མག་ཡོན་པའི་དག་ཁ་མཁོ་དང་ འགྲེལ་འཇའ་གི་ཆད་གཞི་གཏང་དགོ་།	३.७ འཇའ་དཀྱེ་ནོ།	

३.७.१ འཇའ་དཀར་བའི་སྐབས་ས་དཀར་སྐྱེ་དཀར་དགོ།		
३.७.१ སྐད་དཔར་ཚོས་གཞི་སྒར་གྱི་དགོ་བའི་དགོས་པ་ཐབས་ཤེས་ཚུགས། ३.७.२ སྐད་དཔར་ཚོས་གཞི་དབྱེ་བ་ཕྱེ་སྟེ་ངོས་འཛིན་འབད་ཚུགས། ३.७.३ སྐད་དཔར་ཚོས་གཞི་དང་འཁྲིལ་ཏེ་ཡིག་ལེ་ཁེ་ལག་འཁྱབ་ཚུགས། ३.७.९ སྐད་དཔ་གི་རྒྱུན་ཆས་ཚུ་ཚུལ་མཐུན་སྐྱེ་ལག་ལེ་ཁ་འཐབ་ཚུགས།	३.७ སྐད་དཔ་ཚོས་གཞི་སྒར་གི་ཁ་ཤེས།	X
३.८.१ འོག་སྐད་དཔ་དང་ལྡན་གི་སྐད་དཔ་གཉིས་དམ་ལྡོན་སྟངས་ཚུགས། ३.८.२ ཚེ་མར་ཕུབ་པའི་སྐབས་སྐད་དཔ་གོང་འོག་གཉིས་དམ་ལྡོན་ཐེལ་ཐུབ་ཅང་དབྱེ་ཞིབ་འབད་དགོ།	३.८ སྐད་དཔ་སྡུམ་ལྡོན་བཟློག་ཁ།	
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๑.๔.๑ ཐཆོད་ཐཀོད་འཐད་དཀོད་པའི་དཀོས་པ་ཤ་ས་ཆུག ๑.๔.๒ ཁེག་ཚོད་འཁོད་ཐང་ངང་འཁྲིལ་ཚོད་ལ་ན་ཀ་དུ་ཐང་ཐམས་ཅད་ཆུག ๑.๔.๓ ཐཆོད་ཐཀོད་ཀྱེ་ཁཡུད་ཆོས་ཆུ་ཐཤད་ཆུག ๑. ཚོད་ཐཀལ་ཐང་། ๒. དབྱེ་ཐས་ཐཆོད་ཐང་། ๓. ཁར་ས་ཐཤེག་ཐང་ཐང་། ๔. རྒྱ་ཐཁང་ཐང་ཐང་། ๕. ཆོས་གཞི་ས་ཐཤེག་ཐང་ཐང་། ๖.སཡུལ་ཚོད་ས་རུ་ས་ཀུལ་ས་ཐཤེག་ཐང་ཐང་། ๑.๔.๔ ཤ་དུ་ཐང་ཐམས་ཅད་ཆུག ๑.๔.๕ ཤ་གི་ཐོ་ཐང་ཐང་ཐམས་ཅད་ཆུག ๑.๔.๖ ཐལ་ཆ་ས་ཁེ་དུ་ཐང་ཐམས་ཅད་ཆུག ๑.๔.๗ ཤ་གི་རྒྱ་དང་ཁར་ཐུ་ཐལ་ཆ་ས་ཁེ་དུ་ཐང་ཐམས་ཅད་ཆུག ๑.๔.๘ ཤ་གི་རྒྱ་དང་ཁར་ཐུ་ལ་གས་ཤ་ཤོ་ས་ཁེ་ཐཤེག་ས་ཁེ་དུ་དུག་ཐ་ས་ཐཤེག་ཐང་ཐང་།	๑.๔ ས་ཁོ་ག་ཐོ་ཐཁོ་ཐག་ཐོ་འཐད་དུ་ཤ་ས་ཐཤེག་ཐང་།	
๑.๖.๑ ཤ་དུ་ངུ་ཐག་ཚེད་གཞི་དང་དཐུ་ཐམས་ཐཁོ་ན་ཐང་ཐམས་ཅད་ཆུག ๑.๖.๒ ཤ་དུ་ངུ་དང་ ཤ་དུ་ངུ་ཐག་ཐ་དུ་ཐང་ཐཤེག་ས་ཁེ་ཐཤེག་ཐང་ཐམས་ཅད་ཆུག	๑.๖ ཤ་དུ་ངུ་དང་ཤ་དུ་ངུ་ཐག་ཐ་དུ་ནི།	

๑.๖.๓ རྣམ་པར་ཐབས་བཤད་ཚུལ། ๑.๖๔ ཚོད་དང་འཁྲིལ་ཏེ་དྲྭ་བཤམ་ཐབས་ཚུལ། ๑.๖.๕ ཕྱིན་ཆད་ངོས་འཛིན་འབད་བཤམ་ཐབས་ཚུལ།		
๑.๗.๑ ལྟས་ཚེ་མར་ཀློག་དགོ་པའི་དགོས་པ་ཐབས་ཚུལ། ๑.๗.๒ ལྟས་ཚེ་མར་ཀློག་ཐབས་ཀུན་དབྱེ་ཐབས་ཚུལ། ๑.๗.๓ མ་གཏོ་ཚོས་གཞི་དང་འཁྲིལ་ཏེ་ལྟས་ཚེ་མ་གཏན་ཚོས་དཔོན་ཚོས་གཞི་ལགཔ་ལེ་འཐབ་དགོ། ๑.๗.๔ ལྟས་ཚེ་མ་ཚུལ་ལས་ཁུངས་ཀྱི་རིགས་ཤོད།	๑.๗ ལྟས་ཚེ་མར་ཀློག	
๑.๘.๑ སྒོད་གོས་ལྟས་ཚེ་མར་ཀློག་དགོ་པའི་དགོས་པ་དང་གོས་ཀྱི་གཏན་ཚིགས་སྒོམ་ཐབས་སྐོར་ བཤད་ཚུལ། ๑.๘.๒ མཇུག་གཏོ་ཚེའི་གཞི་སྒོམ་མཐུ་དང་བཤམ་ཚུལ། ๑.๘.๓ གོང་ར་ཀློག་མེད་ཀུན་ངོས་འཛིན་འབད་ད་ གོང་ཁཐལ་ཐངས་བཤད་ཚུལ། ๑.๘.๔ ཕྱི་དུང་ཁ་ཕྱི་ཀྱི་ཚུལ་ཁྲིམས་ཀྱི་ཐོག་ནས་ཁ་ཐུག་དགོ་པའི་ཐབས་ཚུལ།	๑.๘ སྒོད་གོས་ཚུལ།	
๑.๙.๑ མཐའ་ཀློག་ཐབས་ཚུལ། ๑.๙.๒ གོང་ཁཐལ་ཐབས་ཚུལ། ๑.๙.๓ མཇུག་འབྲས་ཐབས་ཚུལ། ๑.๙.๔ ཚོ་མ་ཕར་ཆིང་ཐབས་ཚུལ། ๑.๙.๕ མཇུག་མཐུན་ར་ཀློག་བཤམ་ཐབས་ཚུལ། ๑.๙.๖ ཚད་གཞི་ངོས་བཤམ་ཐབས་ཚུལ། ๑.๙.๗ གོང་ར་ཀློག་མཐུན་དབྱེ་བ་དཔྱད་བཤམ་ཐབས་ཚུལ།	๑.๙ མཇུག་འབྲས་ཚུལ་ཁྲིམས་ཀྱི་ཐོག་ནས་ཁ་ཐུག་ལེ།	
๑.๑๐.๑ ཚད་གཞི་ལ་ཞུ་བཤམ་ཐབས་ཚུལ། ๑.๑๐.๒ ཁ་ཕྱི་འགྲུབ་མཐུན་ཁ་ཐུག་དགོ་པའི་ཐབས་ཚུལ། ๑.๑๐.๓ ཕྱི་དུང་གྲུ་ཁུངས་མཐུན་བཤམ་ཐབས་ཚུལ། ๑.๑๐.๔ མ་དང་ཕྱི་དུང་མཐུན་བཤམ་ཐབས་ཚུལ།	๑.๑๐ ཕྱི་དུང་བར་ཆད་ཚུལ།	

སྡུད་ཚན་༢པ། ཤན་སྦྱངས་སྡུད་གསོག་བཙམ་ཡོད།		
༢.༡.༡ གསོང་བཀའ་དགོས་པའི་དགོས་པ་བཤད་ཚུགས། ༢.༡.༢ གསོང་བཟོ་བཀོད་འབད་ད་དཔེ་ཐངས་བཤད་ཚུགས། ༢.༡.༣ གསོང་བཙམ་ཡོད་ཚུགས།	༢.༡ གསོང་དཔེ་སྡུད་བཙམ་ཡོད།	
༢.༢.༡ ལག་ངག་ཐུན་བཟོ་བཀོད་འབད་ད་དཔེ་ཐངས་བཤད་ཚུགས། ༢.༢.༣ ལག་ངག་ཐུན་བཙམ་ཡོད་ཚུགས།	༢.༢ ལག་ངག་ཐུན་དཔེ་སྡུད་བཙམ་ཡོད།	
༢.༣.༡ ཚད་ལེ་ཤེས་གྲངས་པ་བཤད་ཚུགས། ༢.༣.༢ ཚད་ལེ་ཤེས་ཐབས་བཤད་ཚུགས། ༢.༣.༣ གཞི་རྟེན་ཤོག་ཁྲ་སྡུད་ཚུགས། ༢.༣.༤ མ་གཞི་དབྱེ་བ་ངོས་འཛིན་འབད་ཚུགས། ༢.༣.༥ ཤན་འཇུག་སྡུད་གསོག་གཞི་སྒང་བཤད་ཚུགས།	༢.༣ ཤན་འཇུག་སྡུད་གསོག་ཚད་ལེ་ཤེས་ཀྱི་དཔེ།	
༢.༤.༡ མ་མཐུན་རྣམ་བཏགས་པའི་སྒང་བཤད་ཚུགས། ༢.༤.༢ ཚེ་མ་ཕར་ཉིན་སྒང་ཤེས་ཚུགས། ༢.༤.༣ ཚད་གཞི་སྐོར་ཐེངས་བཤད་ཚུགས།	༢.༤ ཤན་འཇུག་སྡུད་གསོག་བཙམ་ཡོད།	
སྒྲུབ་ཚན་གཉིས་པ། སྡུད་གསོག་ བཙམ་ཡོད། སྡུད་ཚན་༣ པ། འོན་འཇུ་ བཙམ་ཡོད།		XII
༣.༡.༡ འོན་འཇུའི་སྒོར་ལས་བཤད་ཚུགས། ༣.༡.༢ འོན་འཇུའི་རྒྱུ་ཆ་དང་ཆ་ཚས་ཀྱི་དབྱེ་བ་ཕྱེ་ཚུགས། ༣.༡.༣ འོན་འཇུག་ཆ་ཤས་དང་ཚད་གཞི་སྒང་བཤད་ཚུགས།	༣.༡ འོན་འཇུ་རྒྱུ་ཆས་དང་ཆ་ཚས་མཐོ་སྨུ་བ་འབད་ཡོད།	
༣.༢.༡ མ་གི་ཚད་ལེ་ཤེས་སྒོར་ལས་བཤད་ཚུགས། ༣.༢.༢ གསོང་གི་དགོས་པ་དང་ཚད་ད་ཐབ་གི་ཚད་ལེ་ཤེས་སྒོར་ལས་བཤད་ཚུགས། ༣.༢.༤ ཕྱོགས་ཀྱི་དང་ཕྱོགས་ཀྱི་ཐབ་གི་ཚད་ལེ་ཤེས་སྒོར་བཤད་ཚུགས། ༣.༢.༤ ཚོང་མཁྲོན་པའི་གཟུགས་ཚད་དང། ཡང་ན། དཔེ་ཚད་ལས་ལེ་ཤེས་ཚུགས།	༣.༢ འོན་འཇུ་ཚད་ལེ་ཤེས་ཀྱི་ཐབས་ཚད་དང་བཟུང་ཚེ་མ་རྣམ་བཏགས་ཡོད།	
༣.༣.༡ འོན་འཇུ་གི་ཕྱོགས་ཀྱི་བཙམ་ཡོད་ཐངས་སྒོར་བཤད་ཚུགས། ༣.༣.༢ མ་གཞུ་ཕྱོགས་ཀྱི་སྐབས་གཡོ་བཙམ་ཡོད་བཤད་ཚུགས།	༣.༣ འོན་འཇུ་བཙམ་ཡོད་ཀྱི་དང་བཟུང་ཚེ་མ་རྣམ་བཏགས་ཡོད།	

३.३.३ གོང་ཁག་ཁྱེ་སྙོན་གཙོ་ལ་རྒྱབ་ཐེབས་བཤད་ཆུག། ३.३.४ བར་དུ་ཆེ་མར་རྒྱབ་དགོ་པའི་ཁ་ངས་བཤད་ཆུག། ३.३.५ སྐབས་དཔ་ཆོས་གཞི་སྒང་གི་དགོ་པའི་དགོས་པ་ཤེས་ཆུག། ३.३.६ བར་དུ་ཆེ་མར་རྒྱབ་ཐེབས་མཐའ་ཆུག། ३.३.७ སྐབས་དཔ་ཆོས་གཞི་ང་ས་འཛིན་དང་ལགཔ་ལེ་ཤེས་འཐབ་ཐེབས་བཤད་བཤད་ཆུག། ३.३.८ ཕྱོགས་མ་གྱོས་ཐུན་རྒྱབ་ཁེ་བར་དུ་ཆེ་མར་རྒྱབ་ཐེབས་བཤད་ཆུག། ३.३.९ འོན་འཇུམ་ མ་དཔེ་བའི་ཁེ་མ་ཆོད་ བཀའ་ཐེབས་ དབྱིབས་བཟོ་ཐེབས་ ཁ་སྐོག་གེས་ཐེབས་ རྒྱབ་ཐེབས་ཆྱོ་གི་ཁ་ཡིད་ཆོས་ས་སས་ཁར་ཆོང་དགོ།		
སྟོན་ཆོད་ཅ། པི་སི་སྒོད་དང་དང་ལྟ་ཁུག་བཙོ་མ་ནི། **(Pencil case/bag, Gents/Ladies Purse)**		
९.१.१ པི་སི་སྒོད་ཀྱི་ རྒཡ་ཆའི་ངོས་འཛིན་སྐོར་ལས་བཤད་ཆུག།	९.१ པི་སི་སྒོད་དང་དང་ལྟ་ཁུག་བཟོ་ནི་གི་རྒཡ་ཆ་མས་ཁོང་སྐབས་ཐུབ་འབད་ནི།	
९.२.१ བཟོ་བཀོད་འབད་དགོ་པའི་དགོས་པ་བཤད་ཆུག། ९.२.२ དགོས་མཁོ་དང་འཚམ་ལ་བཟོ་བཀོད་འབད་ད་ དུ་ཆུག།	९.२ པི་སི་སྒོད་ཆེད་ལ་བཟོ་བཀོད་འབད་ད་ དུ་ནི།	
९.३.१ སྐབས་ལ་བཀའ་དགོ་པའི་དགོས་པ་དང་ སྐབས་ལ་སྐ་ཤོ་གོ་ཀོ་འབད་བཀའ་ཐེབས་བཤད་ཆུག། ९.३.२ ཤ་བ་ཤ་བ་བཙོ་ཆུག་དགོ་པའི་དགོས་པ་དང་ ཤ་བ་ཤ་བ་བཙོ་ཆུག་ཀ་ བཙོ་མ་ཐེབས་བཤད་ཆུག། ९.३.३ མཐའམ་གཉིས་ཀྱི་ སྐོར་ས་ཀོར་བཙོ་ཆུག་ཀ་ བཙོ་མ་ཐེབས་བཤད་ཆུག།	९.३ པི་སི་སྒོད་བཙོ་མ་ནི།	
९.९.१ བཟོ་བཀོད་འབད་དགོ་པའི་ དགོས་པ་བཤད་ཆུག། ९.९.२ དགོས་མཁོ་དང་འཚམ་ལ་བཟོ་བཀོད་འབད་ད་ དུ་ཆུག།	९.९ དང་ལྟ་ཁུག་ཚད་ལ་ བཟོ་བཀོད་འབད་ད་ དུ་ནི།	
९.५.१ སྐབས་ལ་བཀའ་དགོ་པའི་དགོས་པ་དང་ སྐབས་ལ་སྐ་ཤོ་གོ་ཀོ་འབད་བཀའ་ཐེབས་བཤད་ཆུག།	९.५ དང་ལྟ་ཁུག་བཙོ་མ་ནི།	

৩.৪.২ ཤ་བ་ཤ་བ་བཙོ་གས་དག་པའི་དག་སོ་པ་དང་ ཤ་བ་ཤ་བ་བཙོ་གས་ཀ་བཙ་མ་ཐངས་བཤད་ཆོ་གས།		
སྐོན་ཆོན་པ ཡ། གོ་ནང་ཤབས་མ་དམ་བཙ་མ་ནོ།		
৪.১.১ རགཅེ་ཆས་དཔེ་དག་པའི་དག་སེ་པ་བཤད་ཆོ་གས། ৪.১.২ ཆོད་གཞི་ལ་ན་ཐངས་བཤད་ཆོ་གས། ৪.১.3 ཆོད་རྟགས་བཀལ་ཐངས་བཤད་ཆོ་གས།	৪.১ གོ་གི་རགཅེ་ཆས་དཔེ་ནོ།	
৪.২.১ གོ་གི་གོ་དེ་བཤད་ཆོ་གས། ৪.২.২ གོ་གི་ཆ་ཤས་བདེ་དེ་རྟགས་གས་ཤ་བཤད་ཆོ་གས། ৪.২.3 གོ་གི་རགཅེ་ཆས་དབཅ་བཤད་ཆོ་གས། ৪.২.৩ སཀེ་དཔ་ཀཅི་ཆོ་ས་གཞི་དང་རགཅེ་ཆས་ཆོ་ས་སཀརི་གཐ་ཐངས་བཤད་ཆོ་གས། ৪.২.৪ ཤར་ཆོ་ས་རཀཅ་ཐངས་བཤད་ཆོ་གས། ৩.২.৬ བདེ་བ་ཆོ་ས་རཀཅ་ཐངས་བཤད་ཆོ་གས། ৩.২.৭ ས་ས་སཀརི་ལ་རཀཅ་ཐངས་བཤད་ཆོ་གས། ৩.২.৮ ལྟས་ཆོ་ས་རཀཅ་ཐངས་བཤད་ཆོ་གས། ৩.২.৯ དབེར་ཀེ་རཀཅ་ཐངས་བཤད་ཆོ་གས།	৪.২ གོ་བཙོ་ས་ནོ།	
৪.3.১ ཉུས་ཆ་བཀོད་དག་པའི་དག་ས་པ། ৪.3.২ འཁོད་འབེས་ས་སཀས་རཀཅ་ཐངས་བཤད་ཆོ་གས། ৪.3.3 སཀེ་དར་བཀོག་ཐངས་བཤད་ཆོ་གས།	৪.3 གོ་ཉུས་ཆ་བཀོད་ནོ།	

ANNEXURE IX: LHADRI (SHING TSHOEN)

ཞལཅེས་ཆོད་ཆ་ས་ཆོན་རྫོགཞུང་གཅེ་ནང་དོད་བཀོད་བཀོད་དེས།།

Content mapping

ལྷག་པའི། Class	སྡེ་ཚན། Module	ལེའུ་ཆུང་། Chapter	སྐོར་ཆུང་། Lessons	ཁྱད་པར་ཚད། Theory	ལག་ལེན་ཚད། Practical	ཚེས་གྲངས། Total (Hrs)
IX	སྡེ་ཚན་ཆེན་དང་པ། ཤིང་ཆོད་གཞི་མཛད་ཐབས།	ལེའུ་ཆེན་དང་པ། ལཱ་གིར་འཇུག་སྔོན་ལས་ཀྱི་ཐབས་བཏང་།	༡.༡ 5s གིར་རྩ་དོན་ལག་ལས་འཐབ་ནི།	1	2	10
			༡.༢ ལཱ་གིར་འཇུག་དོན་སྙིང་ཡིག་ལ་ནར་འཐབ་ནི། (OHS)	1	3	
			༡.༣ རང་གི་ཉེན་སྐྱོབ་གིར་མཁོ་ཆས་ལག་ལ་ནར་འཐབ་ནི། (PPE)	1	2	
		ལེའུ་ཆེན་གཉིས་པ། མ་ཏྲ་གི་གཞི་རའི་ཐབས་རྣམ་པ།	༢.༡ སྒམ་ནར་ཚོ་མ་ཅུ་གག་གིར་མ་ཏྲ་བྲིས།	1	4	72
			༢.༢ གསལ་ཡེ་མ་ཅུ་གག་གིར་མ་ཏྲ་བྲིས།	1	5	
			༢.༣ མཐོང་གསལ་མ་ཅུ་གག་གིར་མ་ཏྲ་བྲིས།	1	7	
			༢.༤ ལཱ་གསལ་པད་ཀཱ་ཤིར་མ་ཏྲ་བྲིས།	1	4	
			༢.༥ པད་སྒ་མགོ་ལང་མ་གིར་མ་ཏྲ་བྲིས།	2	5	
			༢.༦ ལོ་འདབ་ཀཱ་ཤིར་མ་ཏྲ་བྲིས།	2	5	
			༢.༧ གཤ་ལ་/ལོ་གཤ་གིར་མ་ཏྲ་བྲིས།	2	4	
			༢.༨ སྐྱེ་ཆ་ཉང་གིར་མ་ཏྲ་བྲིས།	2	5	
			༢.༩ པད་འདབ་ཀཱ་ཤིར་མ་ཏྲ་བྲིས།	2	8	
			༢.༡༠ མ་ཏྲ་གིར་མ་ཏྲ་ཡོངས་རྫོགས་བྲིས།	2	9	
		ལེའུ་ཆེན་གསུམ་པ། པ་ཏྲ་ཀྱལ་ཤ་ཀཱ་ཤིར་མ་ཏྲ་བྲིས།	༣.༡ པ་ཏྲ་སྒ་གཤོལ་མ་ཏྲ་ནི།	2	6	45
			༣.༢ པ་ཏྲ་བདེ་ཤ་མ་བྲིས།	2	9	
			༣.༣ ཞོ་རའི་ཁྱེན་པ་ཏྲ་བྲིས།	2	5	
			༣.༤ ཤིང་ལོ་པ་ཏྲ་བྲིས།	1	6	
			༣.༥ ཚོགས་རྒཱ་ཤ་ཏྲལ་རིར་མ་ཏྲ་བྲིས།	1	7	
			༣.༦ མ་རིག་པ་ཏྲ།	1	3	
	སྡེ་ཚན་གཉིས་པ། ཤིང་ཆོད་གཞི་གཏང་།	ལེའུ་ཆེན་དང་པ། ཤིང་ཆོད་ལཱ་གིར་འཇུག	༡.༡ཚོག་པར་བཟོ་ནི།	1	3	8
			༡.༢ བར་བ་ཤཱ་བཟོ་ནི།	1	3	

		སྒྲིགས་འབད་ནི།				
		སྡོན་ཚན་གཉིས་པ། ཤིང་ཚོན་གྱི་ཚོན་སྦྱོར་ནི།	༢.༡ ས་ཚོན་སྦྱོར་ནི།	1	3	4
		སྡོན་ཚན་གསུམ་པ། ཤིང་ཚོན་གྱི་ཏང་ཚོན་/ཏས་ཚོན་གཏང་ནི།	༣.༡ སྨན་རྩེ་མེ་ཏོག་དངམཐོང་གསལ་མེ་ཏོག་ཚོན་གཏང་ནི།	2	5	37
			༣.༢ ལྗགས་པད་དང་པད་མ་གོ་ལྔམ་ཚོན་གཏང་ནི།	2	5	
			༣.༣གསལཕ་/སེའུ་མེ་ཏོག་ཚོན་གཏང་ནི།	2	5	
			༣.༤ ལྗགས་པད་དང་པད་མ་གོ་ལྔམ་ཚོན་གཏང་ནི།	2	5	
			༣.༥ པདྨ་མེ་ཏོག་གསུམ་མདངས་དང་ཏང་ཚོན་གཏང་ནི།	6	10	
	བསྡོམས			**45**	**131**	**176**

སློབ་རིམ། **Class**	སྦྱོང་ཚན། **Module**	སྡོན་ཚན། **Chapter**	སློབ་ཚན། **Lessons**	ནང་སྦྱོང་། ཆུ་ཚོད། **Theory**	ལག་སྦྱོང་། ཆུ་ཚོད། **Practical**	ཆུ་ཚོད། ཡོངས་སྡོམ། **Total (Hrs)**
x	སྦྱོང་ཚན་དང་པ། ཤིང་ཚོན་གྱི་རི་མོ་བྲི་ནི།	སྡོན་ཚན་བཞི་པ། གོས་རིས་རིགས་ཀྱི་རི་མོ་བྲི་ནི།	༤.༡ སྤྲིན་རིས་རི་མོ་བྲི་ནི།	2	7	29
			༤.༢ གཡུང་དྲུང་གི་རི་མོ་བྲི་ནི།	1	5	
			༤.༣ ཁྲ་ཚོམ་རི་མོ་བྲི་ནི།	1	3	
			༤.༤ སྤས་རིག་ཀྱི་རི་མོ་བྲི་ནི།	1	3	
			༤.༥ ཀྲང་ཀ་རྦཐ་ཅནམ་དང་ཀྲང་ཀ་ཐད་རིལམོ་རི་མོ་བྲི་ནི།	1	5	
		སྡོན་ཚན་ལྔ་པ། མཆོད་རྫས་འདོད་ཡོན་ལྔའི་རི་	༥.༡ གཟུགས་ཀྱི་རི་མོ་མེ་ལོང་བྲི་ནི།	2	9	55
			༥.༢ སྒྲའི་རི་མོ་སྒྲ་སྙན་བྲི་ནི།	2	9	
			༥.༣ དྲིའི་རི་མོ་དྲི་ཆབ་དུང་དཀར་གྱི་རི་མོ་བྲི་ནི།	2	9	
			༥.༤ རོའི་རི་མོ་ཤིང་ཏོག་བིལ་བ་བྲི་ནི།	2	9	

		སྒོ་བརྙན་ནས།	༡.༥ རེ་གཏུལ་རིགས་སྒོ་དེར་དཔྱད་བརྒྱུད་ཐུབ།	**2**	**9**	
	སྒྲུབ་ཚོགས་གཅིག་པུ། ཤིང་ཚོགས་གཏེར་ཁ་ལྟ་གཞི་བཅད་ནས།	༩། ཤིང་ཚོགས་ཁ་གདོན་ལྟ་ལྷ་གཞི་སྒྲུབ་བཅད་ནས།	རམས་ཤིང་གཞི་སྒཾ་གཅིག་འབྱེད་ནས།	**2**	**7**	**9**
		སྤྱི་ཚོགས་གཞུང་ལུགས། ཤིང་ཚོགས་ཐོག་ཏུ་ཡོད་པའི་ཁྱད་པར།	༢.༡ བཟང་ཚོགས་སྒྲུབ་ནས།	**1**	**3**	**4**
		སྤྱི་ཚོགས་ཆགས་ཐབས། ཤིང་ཚོགས་གཞས་སུ་ཆགས་ཐབས་ཀྱི་ཐ་སྙད།	སྒྲུབ་ཚོགས་ཀྱི་སྐབས་གཡུང་དྲུང་ཚོགས་གཏུང་ནས།	**2**	**8**	**22.5**
			ཁྱབ་ཚོགས་དང་མཉམ་དུ་སྤྱོད་ཚུལ་ཚོགས་གཏུང་ནས།	**2**	**8**	
			ཀུན་ཀར་ཐུགས་རྒྱུད་ཀུན་ཏུ་ཡམ་ཚོགས་གཏུང་ནས།	**2**	**10**	
		སྤྱི་ཚོགས་ཆགས་ལུང་པ། ཤིང་ཚོགས་རྩེགས་སུ་ཆགས་ཐབས་གཏུང་ནས།	༡.༡ འདོད་ཡོན་ལུང་རྩེགས་སུ་ཆགས་གཏུང་ནས།	**3**	**40**	**43**
ཚད་སོས				**28**	**148**	**176**

སྡེ་ཁག། **Class**	སྒྲུབ་ཚོགས། **Module**	སྤྱི་ཚོགས། **Chapter**	སྒྲུབ་ཚོགས། **Lessons**	ཚད་སྒྲུབ། ཆུ་ཚོད། **Theory**	ལག་སྒྲུབ། ཆུ་ཚོད། **Practical**	ཆུ་ཚོད་དུ་སོས། **Total (Hrs)**
XI	སྒྲུབ་ཚོགས་དང་པ། ཤིང་ཚོགས་གཞི་སྒོ་ནས་ཚད་ལྡན་ཏེ།	སྤྱི་ཚོགས་ཆགས་དུས་ཤུལ། མཚོ་དུ་ཐར་ཀྱི་སྐབས་ཀུན་ཏུ་ཚོགས་ཀྱི་ཐབས་ཚད་ལྡན་ཏེ།	༦.༡ ཚས་ཁང་ཁྲལ་ཐུམ་གཏན་མོ་བྱེད་ཐུབ།	**3**	**15**	**126**
			༦.༢ གཞུང་ཆ་ནས་མཆ་ཐག་གཏན་མོ་བྱེད་ཐུབ།	**3**	**15**	
			༦.༣ ཚུང་ཁྲལ་ཤིང་གཏན་མོ་བྱེད་ཐུབ།	**3**	**15**	
			༦.༤ ཁ་དཀའ་སྐལ་ཁྲལ་ཐུམ་བྱེད་ཐུབ།	**3**	**15**	
			༦.༥ གཤ་རྒྱ་གཞི་ཤིང་གཏན་མོ་བྱེད་ཐུབ།	**3**	**15**	

			༦.༦ རྒྱལ་པོའི་སྙན་རྒྱན་གྱི་རི་མོ་བྲི་ནི།	3	15	
			༦.༧ བཙུན་མོའི་སྙན་རྒྱན་གྱི་རི་མོ་བྲི་ནི།	3	15	
	སྦྱོང་ཚན་གཉིས་པ། ཤིང་ཚོན་གཏང་ནི།	སྡེ་ཚན་དང་པ། ཤིང་ཚོན་ལུ་གི་དོན་ལུ་གྲ་སྒྲིག་འབད་ནི།	༡.༡ ལུ་ཁྲི་བཟོ་ནི།	2	4	36
			༡.༢ རས་གཞི་བཅའ་སྒྲིག་རྐྱབ་ནི།	2	10	
			༡.༣ པྱིར་བཟོ་ནི།	2	9	
			༡.༤ སྐྱོ་འབུར་བཟོ་ནི།	2	5	
		སྡེ་ཚན་གཉིས་པ། ཤིང་ཚོན་གྱི་ཚོན་སྦྱོར་ནི།	༢.༡ གྱིབ་ཚོན་སྦྱོར་ནི།	2	6	8
		སྡེ་ཚན་ལྔ་པ། ཤིང་ཚོན་རློན་མདངས་གཏང་ནི།	༥.༡ ནོར་བུ་ཆ་བདུན་རློན་མདངས་གཏང་ནི།	6	80	86
བསྡོམས				37	219	256

སློབ་རིམ། **Class**	སྦྱོང་ཚན། **Module**	སྡེ་ཚན། **Chapter**	སློབ་ཚན། **Lessons**	ནང་སྦྱོང་། ཆུ་ཚོད། **Theory**	ལག་སྦྱོང་། ཆུ་ཚོད། **Practical**	ཆུ་ཚོད། ཡོངས་བསྡོམས། **Total (Hrs)**
XII	སྦྱོང་ཚན་དང་པ། ཤིང་ཚོན་གྱི་རི་མོ་བྲི་ནི།	སྡེ་ཚན་བརྒྱད་པ། གཟུགས་བརྙན་འདབ་ཆགས་རིགས་ཀྱི་རི་མོ་བྲི་ནི	༨.༡ འདབ་ཆགས་ཁྲུང་ཁྲུང་གི་རི་མོ་བྲི་ནི།	3	15	54
			༨.༢ འདབ་ཆགས་རྨ་བྱའི་རི་མོ་བྲི་ནི།	3	15	
			༨.༣ འདབ་ཆགས་བྱ་ཆེ་རིང་གི་རི་མོ་བྲི་ནི།	3	15	
		སྡེ་ཚན་དགུ་པ། དམིགས་བསལ་མཚོན་བྱེད་གཟུགས་བརྙན་རིགས་ཀྱི་རི་མོ་བྲི་ནི།	༩.༡ ཙི་པ་ཏྲ/ཙི་མ་འདྲའི་རི་མོ་བྲི་ནི།	3	20	116
			༩.༢ རི་དྭགས་ཆོས་འཁོར་གྱི་རི་མོ་བྲི་ནི།	3	35	
			༩.༣ ངང་མཚོ་རལ་གྲིའི་༼སྡོམ་བརྩོན་དམ་པ་༽རི་མོ་བྲི་ནི།	3	30	
			༡༦) ཤིང་ཚོན་གྱི་ཚོན་སྦྱོར་ནི།	6	14	20

	སྒྲུབ་ཆོག་གཉིས་པ། ཤིང་ཚོན་གསལ་བཀོད་པ།	སྐྱོན་ཆོག་བཞི་པ།	৩.১ ཆུ་ཚོ་དང་གསལ་མདངས་ཤེས་གཏང་ནི།	3	20	66
			৩.২ ཚོ་པ་ཀུ་གསལ་མདངས་གཏང་ན་དང་པ་ཀུ་འི་ངེས།	3	40	
ཐམ་ཕྱོགས				21	235	256

5.4 Class- wise Competencies

ཀ། སྒྲུབ་པ་རྣམ་ར་ར་ཐབཞི་གཡེ་ར་གཏང་ལ་ལྷོ་གསུགས་ཤུ།

དང་པ། སྒྲུབ་ར་མ་ཤ ཐའེ་ར་གར་ལ་ལྷོ་གསུགས་ཤུ། (Competencies)

১. 5S འདྲི་ནམ་ར་འབདྲ་ར་ཀུང་ ལ་ག་ཅི་འབདྲ་ར་ཀུང་ ང་ས་གཏན་ལགཏ་ལ་ན་འཐབ་ཆོག།

২. ལ་ག་འཕར་དཀས་ཏ་ནད་ཅ་ན་རུང་གི་ ཐག་སགེའི་ར་ཤ་ལགཏ་ལ་ན་འཐབ་ཆོག།

৩. ཅ་ན་རུང་གི་མགེ་ཆས་ཆོ་ དགེས་མགེ་དང་འཁ་ལ་ ལགཏ་ལ་ན་འཐབ་ཆོག།

৪. ལ་དང་ཁ་ལ་ཏ་ཅ་ ཅ་ན་རུང་གི་མགེ་ཆས་ ལགཏ་ལ་ན་འཐབ་ཆོག།

৫. སྐན་ར་ཆེ་མ་ཏ་ཀེག་ ར་ཁ་ས་སྙན་ཀ་ཡི་ར་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

৬. ལ་ཐས་པདྲ་ར་ཁ་ཡང་ཤབ་དང་ གཅེས་ར་ཆེ་གི་གི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

৭. པདྲ་མགེ་ལ་ང་མ་དང་གཅེས་ར་ཆེ་གི་གི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

৮. ལ་ར་འདྲ་ཀ་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལགཏ་ལ་ན་འཐབ་ཆོག།

৯. གུ་ལ་ལ་/ལ་གུ་ལ་ ར་ཀ་ཡི་ས་དུ་ཀ་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১০. སྐུ་ཅུ་ར་ ར་ཀ་ས་ས་དུ་འབ་ི་ང་གས་ཤ་གི་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১১. སྐུ་ཅུ་ར་ ར་ཀ་ས་ས་དུ་འབ་ི་ང་གས་ཤ་གི་ཡི་ར་ི་མ་ཤ་འདྲ་ལས་ ར་ཐས་ཐཀ་དང་ར་ས་འབདྲ་ ལགཏ་ལ་ན་འཐབ་ཆོག།

১২. པདྲ་འདྲ་ཀ་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১৩. མ་ཀུ་གཡ་ཡ་ངས་ར་ཇ་གས་ཀ་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১৪. པ་ཀུ་ར་མགེ་ཏ་ག་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১৫. པ་ཀུ་བདྲ་ན་མ་ག་ཡི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১৬. ཤེ་ང་ལ་པ་ཀུ་འི་ར་ི་མ་ཤ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১৭. ཤེ་ང་ལ་པ་ཀུ་འི་ར་ི་མ་ཤ་འདྲ་ དཔ་ཏགསར་ཁ་ཐཀ་ཅ་འབདྲ་ ལགཏ་ལ་ན་འཐབ་ཆོག།

১৮. ས་ཆོ་ན་སྒུ་ར་ན་འདྲ་ ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

১৯. སྐན་ར་ཆེ་ཏ་མ་ཀུ་གཏང་ན་འདྲ་ ཤེ་ང་ཆོ་ན་གཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

২০. གསལཁ་མ་ཏ་ཀུ་གཏ་ཆོ་ན་གཏང་ན་འདྲ་ ཤེ་ང་ཆོ་ན་བཏང་པའི་ས་ཁ་ལགཏ་ལ་ན་འཐབ་ཆོག།

२१. མཐོང་གསལ་མ་ཁྱོག་ཚོན་གཏང་ན་འདུག ཤིང་ཚོན་གཏང་བའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
२२. པདྨ་མ་མ་ཁྱོག་ཉང་ཚོན་གཏང་ན་འདུག ཤིང་ཚོན་གཏང་བའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
२३. ནོར་འཛིན་པ་ཁར་གིས་རས་མོ་ ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
२४. ཚིགས་རྒྱན་པ་ཁར་གིས་རས་མོ་ ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།

གཉིས་པ། སློབ་ཁྲིད་ ༡༥ པའི་རིགས་རྩལ་ལྡོག་གས་གཅིག། (Competencies)
१. སྤྱན་ཤེས་འདུ་ཤེས་ཤིང་ཚོན་དེའི་ཐོག་ནས་ཤོག་ཤོག་པ་ གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
२. སྤྱན་ཤེས་འདུ་ཤེས་ དེ་ནང་གི་ཁར་ཅི་འདྲ་ལག་ལེན་འཐབ་ཆོག།
३. ཁར་ཚོན་མ་གཏིས་ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
३. གཡོན་དཀྱིར་ རྒྱས་ནས་དེའི་ཐོག་ཤོག་གཏིས་ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
५. གཡོན་དཀྱིར་ རྒྱས་ནས་དེའི་ཐོག་ཤོག་གཏིས་ དེ་ནང་གི་ཁར་ཅི་འདྲ་ཅིག་ཡོད་ལག་ལེན་འཐབ་ཆོག།
५. འདོད་ཡོན་ལྟ་འོག་ཤིང་ཚོན་དེའི་ཐོག་ནས་ཤོག་ཤོག་པ་ གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
६. བཟང་ཚོན་སྒྲིག་ཆ་ནས་ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
७. ནོར་འཛིན་པ་ཁར་གསལ་ཤས་ མདངས་གཏང་ན་འདུག ཤིང་ཚོན་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
८. ཚིགས་རྒྱན་པ་ཁར་ གསལ་ཤས་མདངས་གཏང་ན་འདུག ཤིང་ཚོན་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
९. པདྨ་མཁའ་ལང་མར་དང་གཉིས་ར་ཁྲ་གི་ཚུ་ གསལ་ཤས་མདངས་གཏང་ན་འདུག ཤིང་ཚོན་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
१०. ཤིང་ལོ་པ་ཁར་གསལ་ཤས་མདངས་གཏང་ན་འདུག ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
११. འདོད་ཡོན་ལང་ར་ལྷ་ན་མདངས་གཏང་ན་འདུག ཤིང་ཚོན་དང་ལྡན་ཁ་ཡིས་ཤ་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
१२. འདོད་ཡོན་ལང་ར་ལྷ་ན་མདངས་འདུ་ ཁང་མིག་ལ་ས་གས་པའི་མཛེ་ས་ཐག་དཀྱིལ་ལུ་ གཏང་ཆོག།

གསུམ་པ། སློབ་ཁྲིད་ ༡༡ པའི་རིགས་རྩལ་ལྡོག་གས་གཅིག། (Competencies)
१. ཆོས་རྣམས་ཀྱི་རང་བཞིན་བདུན་གྱི་ཐོག་ནོར་ཚོན་དང་ལྡན་པའི་ས་གས་ལ་ གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
२. ཚོན་གཏང་ན་གི་དོན་ལུ་ ལ་ཁྲ་ནས་བཟོས་ཏེ་ ལག་ལེན་འཐབ་ཆོག།
३. ཚོན་གཏང་ན་གི་དོན་ལུ་ ཚགས་པར་བཟོས་ཏེ་ ལག་ལེན་འཐབ་ཆོག།
४. དཔེ་མང་བཀའ་ཤོག་ལག་ལེན་འཐབ་ས་ཏེ་ ཚགས་པར་བཟོ་ཚུགས།
५. རྣ་བ་ཕྱེ་ཏེ་བཟོ་ན་འདུག་ ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
६. རས་གཞི་བཙའ་ས་ཁྱེ་གི་རྣམ་པ་ན་འདུག་ ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
७. སྤྱི་བཏེ་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
८. གཡུག་ཚོན་སྒྲིག་ཆ་ནས་ཤིང་ཚོན་གཏང་པའི་སྣ་ཚད་ལག་ལེན་འཐབ་ཆོག།
९. དཔེ་མང་ཅ་ཚས་ལག་ལེན་འཐབ་ཐོག་ལས་གཡུག་ཚོན་སྒྲིག་ཆ་ནས་ཤིང་ཚོན་གཏང་ཆོག།

10. ནང་བྱང་ཆུ་བའི་རྒྱུན་སྐད་ཀྱང་ཤོག་ཚོན་ལ་སོགས་པ་གཏང་བའི་སྐབས་ལུ་ལག་ལེན་འཐབ་ཆོག།
11. ནང་བྱང་ཆུ་བའི་རྒྱུན་སྐད་འདས་འདི་ ཁང་མིག་ལ་སོགས་པའི་མཛོ་མ་བཀོད་ཀྱི་ནོར་ཆོག།

བཞི་པ། སྒྲུབ་བར་མ་ ༡༢ པའི་རིགས་རྣམ་ལུ་ཚུགས་གཟུབ། (competencies)

1. གཟུགས་བརྙན་འདྲ་ཆགས་ རིགས་ཀྱི་རིམ་ཤོ་ ཤིང་ཚོན་དང་ལྡན་ཨེ་བམ་རིམ་ལ་སོགས་པ་ གཏང་བའི་སྐབས་ལུ་ལག་ལེན་འཐབ་ཆོག།
2. གཟུགས་བརྙན་འདྲ་ཆགས་ རིགས་ཀྱི་རིམ་འདི་ དེ་མང་བཀོད་རིམ་ཨེ་ལ་ བཏོན་ཆོག།
3. དམིགས་བསལ་མཚོན་བཟུ་ དཀའ་ཚུགས་བརྙན་རིགས་ཀྱི་རིམ་ཤོ་ ཤིང་ཚོན་དང་ལྡན་ཨེ་བམ་རིམ་ལ་སོགས་པ་ བཏོང་བའི་སྐབས་ལུ་ལག་ལེན་འཐབ་ཆོག།
4. བཟོ་ཚོ་ དེའི་གོམ་སྟབས་གཏན་འཁེལ་ཨེ་ཤོ་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེ་ནང་ལས་ཀ་ཡིག་ཆ་ཚུ་ ལག་ལེན་འཐབ་ཆོག།
5. བཟོ་ཚོ་ དེའི་གོམ་སྟབས་འདི་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེ་ནང་ལས་ཀ་ཡིག་ཆ་ཚུ་ བཏོང་བའི་སྐབས་ལུ་ ཨེ་ཤོ་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེན་འཐབ་ཆོག།
6. ཚོང་པ་ཏུ་ གཟུགས་སྐད་འདས་གཏན་འཁེལ་ཨེ་ཤོ་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེ་ནང་ལས་ཀ་ཡིག་ཆ་ཚུ་ བཏོང་བའི་སྐབས་ལུ་ ཨེ་ཤོ་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེན་འཐབ་ཆོག།
7. ཚོང་པ་ཏུ་ གཟུགས་སྐད་འདས་ཀྱི་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེ་ནང་ལས་ཀ་ཡིག་ཆ་ཚུ་ བཏོང་བའི་སྐབས་ལུ་ ཨེ་ཤོ་ ཤིང་ཚོན་ལས་ལུ་ ལག་ལེན་འཐབ་ཆོག།

5.5 Learning objectives, Core concepts (Chapters/Topics) and Process Essential Skills

Learning objectives	Core concepts (Chapters/Topics)	Class
སྒྲུབ་ཆོག་དང་པ། ཤིང་ཚོན་གཟུབ་མ་ཚུ་ནས། ཤིང་ཚོན་གཏན་འཁེལ་ཐུབ་ཆོག་པའི་ལག་ལེན་འཐབ་ཆོག།		IX
༡.༡.༡ 5S གི་ངོས་དཀྱིལ་ལག་ལེན་འཐབ་ཆུགས། ༡.༡.༢ 5S གི་དགོས་པ་བཤད་ཆུགས། ༡.༡.༣ 5S གི་ངོས་དཀྱིལ་སྐོར་ལས་བཤད་པ་རྣམས་བཏོན་ཆུགས། ༡.༡.༤ 5S སྤྱི་བོའི་དང་གཅིག་སྒེའུ་ཁུ་སྤྱི་ལག་ལེན་འཐབ་ཆུགས།	༡.༡ 5S གི་ངོས་དཀྱིལ་ལག་ལེན་འཐབ་ནི།	
༡.༢.༡ ལཱ་གི་འཕྲུལ་དེབ་སྟེ་ནང་ཁ་ཏོ་ཐུབ་པ་ བཤད་ཆུགས། ༡.༢.༢ ལཱ་གི་འཕྲུལ་དེབ་སྟེ་ནང་ཁ་ཏོ་ཐུབ་ཀལ་ཆུ་ བཤད་ཆུགས། ༡.༢.༣ ལཱ་གི་འཕྲུལ་དེབ་སྟེ་ནང་ཁ་ཏོ་ཐུབ་ཀྱི་རྟེ་ཁུ་ཏོ་འཐབ་བའི་དབང་སྐྱོང་ བཤད་ཆུགས། ༡.༢.༤ ལཱ་གི་འཕྲུལ་དེབ་སྟེ་ནང་ཁ་ཏོ་ཐུབ་ཀལ་རྩྭ་སྒང་འཇོག་འབའ་དགོ་པ་ བཤད་ཆུགས། ༡.༢.༥ ལཱ་གི་འཕྲུལ་དེབ་སྟེ་ནང་ཁ་ཏོ་ཐུབ་ལག་ལེན་འཐབ་ཆུགས།	༡.༢ ལཱ་གི་འཕྲུལ་དེབ་བསྟེ་ནང་ཁ་ཏོ་ཐུབ་ལག་ལེན་འཐབ་ནི། (OHS)	

๑.๓.๑ རང་གི་ཉེན་སྐྱོང་གི་མཁོ་ཆས་སྐར་ལས་འགན་ལ་བཀོད་རྒྱབ་ཆོད་གྱིས། ๑.๓.๒ རང་གི་ཉེན་སྐྱོང་གི་མཁོ་ཆས་ཁག་ཆ་ཚ་ཚེན་ལེན་བཅད་ཆོད་གྱིས། ๑.๓.๓ རང་གི་ཉེན་སྐྱོང་གི་མཁོ་ཆས་ངོས་འཛིན་འབད་ཆོད་གྱིས། ๑.๓.๔ གནས་སྟངས་དང་འཐུན་པའི་རང་གི་ཉེན་སྐྱོང་གི་མཁོ་ཆས་ལག་ལེན་འཐབ་དགོ།	๑.๓ རང་གི་ཉེན་སྐྱོང་གི་མཁོ་ཆས་ལག་ལེན་འཐབ་ནི། (PPE)	
སྤྱོད་ཚོད་གཉེན་པ། མ་ཏུ་གོ་རྟོགས་ཀྱི་རང་མོ་འབྲེལ་ཏེ།		
๒.๑.๑ སྒེན་རྩེ་མ་ཏུ་གོ་གི་ གོ་དོན་ཅན་ཞིག་ཆོད་གྱིས། ๒.๑.๒ སྒེན་རྩེ་མ་ཏུ་གོ་གི་ འགྲེལ་པར་སྐྱབས་ཆོད་གྱིས། ๒.๑.๓ སྒེན་རྩེ་མ་ཏུ་གོ་གི་ འཛིན་ཐབས་ཞིག་ཆོད་གྱིས། ๒.๑.๔ སྒེན་རྩེ་མ་ཏུ་གོ་གི་ དཔྱ་ཏ་ཕྱེ་ཏོ་ཆོད་གྱིས། ๒.๑.๕ སྒེན་རྩེ་མ་ཏུ་གོ་གི་ རིམ་པ་ཅིག་ཆོད་གྱིས། ๒.๑.๖ སྤྱིར་ཏང་གི་སྒེན་རྩེ་ལ་ལས་ ལུ་འཐད་ཆོད་གྱིས།	๒.๑ སྒེན་རྩེ་མ་ཏུ་གོ་གི་ རིམ་པ་ཅིག་འགྲུབ་ནི།	
๒.๒.๑ གསལ་མ་ཏུ་གོ་གི་ གོ་དོན་ཞིག་ཆོད་གྱིས། ๒.๒.๒ གསལ་མ་ཏུ་གོ་གི་ འགྲེལ་པར་སྐྱབས་ཆོད་གྱིས། ๒.๒.๓ གསལ་མ་ཏུ་གོ་གི་ འཛིན་ཐབས་ཞིག་ཆོད་གྱིས། ๒.๒.๔ གསལ་མ་ཏུ་གོ་གི་ དཔྱ་ཏ་ཕྱེ་ཏོ་ཆོད་གྱིས། ๒.๒.๕ གསལ་མ་ཏུ་གོ་གི་ རིམ་པ་ཅིག་ཆོད་གྱིས། ๒.๒.๖ སྤྱིར་ཏང་གི་སྒེན་རྩེ་ལ་ལས་ ལུ་འཐད་ཆོད་གྱིས།	๒.๒ གསལ་མ་ཏུ་གོ་གི་རིམ་པ་ནི།	
๒.๓.๑ མཐོང་གསལ་ཏུ་གོ་གི་ གོ་དོན་ཞིག་ཆོད་གྱིས། ๒.๓.๒ མཐོང་གསལ་མ་ཏུ་གོ་གི་ འགྲེལ་པར་སྐྱབས་ཆོད་གྱིས། ๒.๓.๓ མཐོང་གསལ་མ་ཏུ་གོ་གི་ འཛིན་ཐབས་ཞིག་ཆོད་གྱིས། ๒.๓.๔ མཐོང་གསལ་མ་ཏུ་གོ་གི་ རིམ་པ་ཅིག་ཆོད་གྱིས། ๒.๓.๕ སྤྱིར་ཏང་གི་སྒེན་རྩེ་ལ་ལས་ ལུ་འཐད་ཆོད་གྱིས།	๒.๓ མཐོང་གསལ་མ་ཏུ་གོ་གི་རིམ་པ་ནི།	
๒.๔.๑ ལྷག་མཁོ་པདཀ་གྱི་ གོ་དོ་ཅན་ཞིག་ཆོད་གྱིས། ๒.๔.๒ ལྷག་མཁོ་པདཀ་གྱི་ འགྲེལ་པར་སྐྱབས་ཆོད་གྱིས། ๒.๔.๓ ལྷག་མཁོ་པདཀ་གྱི་ འཛིན་ཐབས་ཞིག་ཆོད་གྱིས། ๒.๔.๔ ལྷག་མཁོ་པདཀ་གྱི་ དཔྱ་ཏ་ཕྱེ་ཏོ་ཆོད་གྱིས། ๒.๔.๕ ལྷག་མཁོ་པདཀ་གྱི་ རིམ་པ་ཅིག་ཆོད་གྱིས། ๒.๔.๖ སྤྱིར་ཏང་གི་སྒེན་རྩེ་ལ་ལས་ ལུ་འཐད་ཆོད་གྱིས།	๒.๔ ལྷག་མཁོ་པདཀ་གི་རིམ་པ་ནི།	
๒.๕.๑ ཐོབ་ཐང་ཅན་གྱི་ གོ་དོ་ཅན་ཞིག་ཆོད་གྱིས། ๒.๕.๒ ཐོབ་ཐང་ཅན་གྱི་ འགྲེལ་པར་སྐྱབས་ཆོད་གྱིས། ๒.๕.๓ ཐོབ་ཐང་ཅན་གྱི་ འཛིན་ཐབས་ཞིག་ཆོད་གྱིས། ๒.๕.๔ ཐོབ་ཐང་ཅན་གྱི་ དཔྱ་ཏ་ཕྱེ་ཏོ་ཆོད་གྱིས། ๒.๕.๕ ཐོབ་ཐང་ཅན་གྱི་ རིམ་པ་ཅིག་ཆོད་གྱིས། ๒.๕.๖ སྤྱིར་ཏང་གི་སྒེན་རྩེ་ལ་ལས་ ལུ་འཐད་ཆོད་གྱིས།	๒.๕ ཐོབ་ཐང་ཅན་གྱི་རིམ་པ་ནི།	
๒.๖.๑ ལོ་འདབ་ཀྱི་ གོ་དོ་ཅན་ཞིག་ཆོད་གྱིས། ๒.๖.๒ ལོ་འདབ་ཀྱི་ འཛིན་ཐབས་ཞིག་ཆོད་གྱིས། ๒.๖.๓ ལོ་འདབ་ཀྱི་ དཔྱ་ཏ་ཕྱེ་ཏོ་ཆོད་གྱིས། ๒.๖.๔ ལོ་འདབ་ཀྱི་ རིམ་པ་ཅིག་ཆོད་གྱིས། ๒.๖.๕ སྤྱིར་ཏང་གི་སྒེན་རྩེ་ལ་ལས་ ལུ་འཐད་ཆོད་གྱིས།	๒.๖ ལོ་འདབ་ཀྱི་རིམ་པ་ནི།	

২.৯.১ གྲུག་ལ་གི་གོ་གོང་ དེ་ནས་ཤད་ཆོག། ২.৯.২ གྲུག་ལ་གི་ འཁུ་ལ་པ་ར་ཀཱ་ཆ་ཆོག། ২.৯.৩ གྲུག་ལ་གི་ འཕྱོ་ལས་ཤས་ཆོག། ২.৯.৪ གྲུག་ལ་གི་ དབུ་ོ་ཅ་ཞུ་ོ་ཆོག། ২.৯.৫ གྲུག་ལ་གི་ རེ་མོ་ཅ་ཆོག། ২.৯.৬ སྟབ་ོ་ཅ་དང་གཅི་གི་སྒར་ལ་ལས་ ལ་ོ་འབད་ཆོག།	২.৯ གྲུག་ལ་གི་དེ་མོ་ འབར་ེ་ནི།	
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ས་ོ་ནོ་ཆེ་གས་ཤུ་མ་བ། པ་ཏྲ་གི་ོ་རེ་མོ་འབར་ེ་ནི།		
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३.३.९ ཀྱིང་ལོ་པ་ཏུ་ཀཱ་ཅེ་རེ་མོ་ཏུ་ཆུ་གཡས། ३.३.५ སྐབས་ཅ་དང་གཅིག་སྐར་ལ་ཐོ་ལས་ལུ་འབད་ཆུ་གཡས།		
३.९.१ ནོ་རཏ་འཕྲིན་པ་ཏུ་གི་ གོ་དོ་ནོ་ཅཤད་ཆུ་གཡས། ३.९.२ ནོ་རཏ་འཕྲིན་པ་ཏུ་གི་ འགུ་ལ་པ་རཀཅ་ཆུ་གཡས། ३.९.३ ནོ་རཏ་འཕྲིན་པ་ཏུ་གི་ འཐོ་ཅ་ལམ་ཕཅ་ཆུ་གཡས། ३.९.९ ནོ་རཏ་འཕྲིན་པ་ཏུ་གི་ རེ་མོ་ཏུ་ཆུ་གཡས། ३.९.५ སྐབས་ཅ་དང་གཅིག་སྐར་ལ་ལས་ ལུ་འབད་ཆུ་གཡས།	३.९ ནོ་རཏ་འཕྲིན་པ་ཏུ་འབུ་ནི།	
३.५.१ ཚེགས་རཀཅ་པ་ཏུ་གི་ གོ་དོ་ནོ་ཅཤད་ཆུ་གཡས། ३.५.२ ཚེགས་རཀཅ་པ་ཏུ་གི་ འགུ་ལ་པ་རཀཅ་ཆུ་གཡས། ३.५.३ ཚེགས་རཀཅ་པ་ཏུ་གི་ འཐོ་ཅ་ལམ་ཅཤད་ཆུ་གཡས། ३.५.९ ཚེགས་རཀཅ་པ་ཏུ་གི་ རེ་མོ་ཏུ་ཆུ་གཡས། ३.५.५ སྐབས་ཅ་དང་གཅིག་སྐར་ལ་ལས་ ལུ་འབད་ཆུ་གཡས།	३.५ ཚེགས་རཀཅ་པ་ཏུ་གི་ རེ་མོ་ཏུ་ནས་ནི།	
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སྐབས་ཅ་ཚོན་ཁ་པ། ཀྱིང་ཚོ་ནོ་ཁ་ཏུ་གི་ནོ་ལུ་གཡས་ཐབས་ཀྱི་གཡས་འབད་ནི།		
५.५.१ ཚོག་པཅ་ཁ་གི་ གོ་དོ་ནོ་ཅཤད་ཆུ་གཡས། ५.५.२ ཚོག་པཅ་ཁ་གི་འགུ་ལ་ཅཤད་པ་ཆུ་གཡས། ५.५.३ ཚོག་པཅ་ཁ་གི་དབཅ་ཅ་ཅཤད་ཆུ་གཡས། ५.५.९ ཚོག་པཅ་ཁ་གི་འཐོ་ཅ་ལམ་ཕཅ་ཆུ་གཡས། ५.५.५ ཚོག་པཅ་ཅཟོ་ཆུ་གཡས། ५.५.६ སྐབས་ཅ་དང་གཅིག་སྐར་ལ་ཐོ་ལས་ལུ་འབད་ཆུ་གཡས།	५.५ ཚོག་པཅ་ཅཟོ་ནི།	
५.२.१ ཅངཀ་ཁ་གི་ གོ་དོ་ནོ་ཅཤད་ཆུ་གཡས། ५.२.२ ཅངཀ་ཁ་གི་འགུ་ལ་ཅཤད་པ་ཆུ་གཡས། ५.२.३ ཅངཀ་ཁ་གི་དབཅ་ཅ་ཕཅ་ཆུ་གཡས། ५.२.९ ཅངཀ་ཁ་གི་འཐོ་ཅ་ལམ་ཅཤད་ཆུ་གཡས། ५.२.५ ཚོག་པཅ་ཅཟོ་ཆུ་གཡས། ५.२.६ སྐབས་ཅ་དང་གཅིག་སྐར་ལ་ཐོ་ལས་ལུ་འབད་ཆུ་གཡས།	५.२ ཅངཀ་ཕཅ་ཅཟོ་ནི།	
སྐྱོན་ཚན་གཅིག་པ། ཀྱིང་ཚོ་ནོ་ལུ་གི་ནོ་ལུ་གཀཀ་སྐར་ལ་ཐབས་འབད་ནི།		
२.५.१ ཚོ་ཁ་ཏོ་གི་ གོ་དོ་ནོ་ཅཤད་ཆུ་གཡས། २.५.२ ཚོ་ཁ་ཏོ་གི་ འགུ་ལ་ཅཤད་ཅཀཅ་ཆུ་གཡས། २.५.३ ཚོ་ཁ་ཏོ་གི་ དབཅ་ཅ་ཅཤད་ཆུ་གཡས། २.५.९ ཚོ་ཁ་ཏོ་གི་ འཐོ་ཅ་ལམ་ཅཤད་ཆུ་གཡས། २.५.५ ཚོ་ཁ་ཏོ་གི་ དགོ་ཁ་པ་ཅཤད་ཆུ་གཡས། २.५.६ ཚོ་ཁ་ཏོ་ ཁཅ་ཆུ་གཡས།	२.५ ཚོ་ཁ་ཏོ་ཁཅ་ནི།	

३.१.७ སྐབས་བཅད་དང་གཅིག་སྐར་ལ་ལས་ ལུ་འབད་ཚུགས། ३.१.८ ཅ་ནི་སརྒང་དང་ལྟ་ནས་འབད་ བཅོ་ཚུགས།		
སྤྱོད་ཚོན་གསལ་བཤད། ཤིང་ཚོ་ནག་གཡུ་ཅར་/ཅས་ཚོ་ནག་གཅར་ན།།		
३.१.१ སམ་ན་རྫ་མ་ཅུ་གི དང་མཐོང་གསལ་མ་ཅུ་གི་གི་ གོ་དོ་ན་བཤད་ཚུགས། ३.१.२ སམ་ན་རྫ་མ་ཅུ་གི་དང་མཐོང་གསལ་མ་ཅུ་གི་དང་གི་ འགྲེ་ལ་པ་རྣམ་ཚུགས། ३.१.३ སམ་ན་རྫ་མ་ཅུ་གི་དང་མཐོང་གསལ་མ་ཅུ་གི་ གི་དབྱེ་ཅ་བ་བཤད་ཚུགས། ३.१.४ སམ་ན་རྫ་མ་ཅུ་གི་དང་མཐོང་གསལ་མ་ཅུ་གི་གི་ འཐོ་བ་ལས་ཁྱེ་ཚུགས། ३.१.५ སམ་ན་རྫ་མ་ཅུ་གི་དང་མཐོང་གསལ་མ་ཅུ་གི ཚོ་ན་ གཅང་ཚུགས། ३.१.६ སྐབས་བཅད་དང་གཅིག་སྐར་ལ་ལས་ ལུ་འབད་ཚུགས། ३.१.७ ཅ་ནི་སརྒང་དང་ལྟ་ནས་འབད་ གཅང་ཚུགས།	३.१ སམ་ན་རྫ་མ་ཅུ་གི་ཚོ་ན་ གཅང་ན།།	
३.२.१ གསལཁ་མ་ཅུ་གི་གི་ གོ་དོ་ན་བཤད་ཚུགས། ३.२.२ གསལཁ་མ་ཅུ་གི་གི་འགྲེ་ལ་པ་རྣམ་ཚུགས། ३.२.३ གསལཁ་མ་ཅུ་གི་གི་ དབྱེ་ཅ་བ་བཤད་ཚུགས། ३.२.४ གསལཁ་མ་ཅུ་གི་གི་ འཐོ་བ་ལས་ཁྱེ་ཚུགས། ३.२.५ གསལཁ་མ་ཅུ་གི་ ཚོ་ན་གཅང་ཚུགས། ३.२.६ སྐབས་བཅད་དང་གཅིག་སྐར་ལ་ལས་ ལུ་འབད་ཚུགས།	३.२ གསལཁ་/ཧ་འུ་མ་ཅུ་གི་ ཚོ་ན་གཅང་ན།།	
३.१.१ པདམ་མ་ཅུ་གི་ཅང་ཚོ་ན་/ཅས་ཚོ་ན་གསལ་མ་མདང་ གཅང་ན།། ३.१.२ པདམ་ཅང་ཚོ་ན་གི་ གསལ་མ་མདང་གོ་དོ་ན་བཤད་ ཚུགས། ३.१.३ པདམ་ཅང་ཚོ་ན་དང་གསལ་མ་མདངགི་ འགྲེ་ལ་པ་ རྣམ་ཚུགས། ३.१.४ པདམ་ཅང་ཚོ་ན་ དང་གསལ་མ་མདངགི་ དབྱེ་ཅ་ བཤད་ཚུགས། ३.१.५ པདམ་ཅང་ཚོ་ན་དང་གསལ་མ་མདང་གི་ འཐོ་བ་ལས་ ཁྱེ་ཚུགས། ३.१.६ པདམ་ཅང་ཚོ་ན་ དང་གསལ་མ་མདང་གཅང་ཚུགས། ३.१.७ སྐབས་བཅད་དང་གཅིག་སྐར་ལ་ལས་ ལུ་འབད་ཚུགས།	४.१ པདམ་མ་ཅུ་གི་ཅང་ཚོ་ན་/ ཅས་ཚོ་ན་གཅང་ན།།	
སྤྱོད་ཚོན་དང་པ། ཤིང་ཚོ་ནག་གི་ངོ་མ་ཏྲ་ན།། སྤྱོད་ཚོན་གསལ་མ་པ། གོ་སངས་ཀྱི་གསལ་གྱི་ཏྲ་ན།།		X
४.१.१ སྐབས་ཀྱི་གསལ་གྱི་ གོ་དོ་ན་ བཤད་ཚུགས། ४.१.२ སྐབས་ཀྱི་གསལ་གྱི་ འགྲེ་ལ་པ་ རྣམ་ཚུགས། ४.१.३ སྐབས་ཀྱི་གསལ་གྱི་ འཐོ་བ་ལས་ བཤད་ཚུགས། ४.१.४ སྐབས་ཀྱི་གསལ་གྱི་ དབྱེ་ཅ་ བཤ་ཚུགས། ४.१.५ སྐབས་ཀྱི་གསལ་གྱི་ ངོ་མ་ བཏྲ་ཚུགས། ४.१.६ སྐབས་བཅད་དང་གཅིག་སྐར་ལ་ལས་ལུ་འབད་ཚུགས།	३.१ སྐབས་ཀྱི་ངོ་མ་གྱི་ངོ་ མ་ཏྲ་ན།།	

๑.๒.๑ གསུང་དཔེ་གཞི་ནས་དེ་ཉིད་ཀྱི་བསྟན་པ་ཞུགས།	๓.๒ གསུང་དཔེ་ནས་ཀྱི་ དེ་མཚོན་ཏེ།	
๑.๒.๒ གསུང་དཔེ་ནས་ འདུ་ལ་བཤད་ནས་ཀཱཡ་བ་ཆོ་གས།		
๑.๒.๓ གསུང་དཔེ་ནས་ འཇིག་ལས་བཤད་ཆོ་གས།		
๑.๒.๔ གསུང་དཔེའི་དབྱེ་བ་བཤད་ཆོ་གས།		
๑.๒.๕ གསུང་དཔེ་ནས་ རྣ་མཚོན་ཏེ་ཆོ་གས།		
๑.๒.๖ སྤང་བ་དང་གཅིག་སྒྲིལ་ལས་ ལུ་འབད་ཆོ་གས།		
๑.๓.๑ ཐུན་ཆོ་མ་ གོ་དོ་ཆ་ བཤད་ཆོ་གས།	๓.๓ ཐུན་ཆོ་མ་གཟུགས་རྣ་མཚོན་ཏེ།	
๑.๓.๒ ཐུན་ཆོ་མ་ འདུ་ལ་བཤད་ རྒཱཡ་ཆོ་གས།		
๑.๓.๓ ཐུན་ཆོ་མ་ འཇིག་ལས་ བཤད་ཆོ་གས།		
๑.๓.๔ ཐུན་ཆོ་མ་ རྣ་མཚོ་ ཏེ་ཆོ་གས།		
๑.๓.๕ སྤང་བ་དང་གཅིག་སྒྲིལ་ལས་ ལུ་འབད་ཆོ་གས།		
๑.๔.๑ སྤྱི་སེམས་ཀ་གོ་ཆོ་ཆ་བཤད་ཆོ་གས།	๓.๔ སྤྱི་སེམས་ཀ་གཟུགས་ཀྱི་ རྣ་མཚོ་ཏེ་ཆོ་ཆ།	
๑.๔.๒ སྤྱི་སེམས་ཀ་གཟུགས་ཀྱི་ འདུ་ལ་བཤད་རྒཱཡ་ཆོ་གས།		
๑.๔.๓ སྤྱི་སེམས་ཀ་གཟུགས་ཀྱི་ འཇིག་ལས་བཤད་ཆོ་གས།		
๑.๔.๔ སྤྱི་སེམས་ཀ་གཟུགས་ཀྱི་ རྣ་མཚོ་ཏེ་ཆོ་གས།		
๑.๔.๕ སྤང་བ་དང་གཅིག་སྒྲིལ་ལས་ ལུ་འབད་ཆོ་གས།		
๑.๖.๑ སྤྱི་སེམས་ཁད་ར་ལས་ཀྱི་ དོ་ཆ་བཤད་ཆོ་གས།	๓.๖ སྤྱི་སེམས་ཁད་ར་ལས་ཀྱི་ རྣ་མཚོ་ཏེ་ཆོ་ཆ།	
๑.๖.๒ སྤྱི་སེམས་ཁད་ར་ལས་ཀྱི་ འདུ་ལ་བཤད་རྒཱཡ་ཆོ་ གས།		
๑.๖.๓ སྤྱི་སེམས་ཁད་ར་ལས་ཀྱི་ འཇིག་ལས་བཤད་ཆོ་གས།		
๑.๖.๔ སྤྱི་སེམས་ཁད་ར་ལས་ཀྱི་ རྣ་མཚོ་ཏེ་ཆོ་གས།		
๑.๖.๕ སྤང་བ་དང་གཅིག་སྒྲིལ་ལས་ ལུ་འབད་ཆོ་གས།		
སྤྱོད་ཆོ་གཞུང་ལས་འདོད་ཡོན་ལྟའི་རང་མཚོན་ཏེ།		
๒.๑.๑ གཟུགས་ཀཱཡ་ གོ་དོ་ཆ་བཤད་ཆོ་གས།	๔.๑ གཟུགས་ཀཱཡ་རྣ་མཚོ་ཏེ་ཆོ་ཆ།	
๒.๑.๒ གཟུགས་ཀཱཡ་ འདུ་ལ་བཤད་རྒཱཡ་ཆོ་གས།		
๒.๑.๓ གཟུགས་ཀཱཡ་ འཇིག་ལས་བཤད་ཆོ་གས།		
๒.๑.๔ གཟུགས་ཀཱཡ་ རྣ་མཚོ་ཏེ་ཆོ་གས།		
๒.๑.๕ སྤང་བ་དང་གཅིག་སྒྲིལ་ལས་ ལུ་འབད་ཆོ་གས།		
๒.๒.๑ སྐར་འོ་གོ་དོ་ཆ་བཤད་ཆོ་གས།	๔.๒ སྐར་འོ་རྣ་མཚོ་ སྐར་མཉེ་ཏེ་ཆོ་ཆ།	
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๒.๓.๕ ཀཱར་འོ་དགོ་སྤ་བ་བཤད་ཆོ་གས།		

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༦.༡.༡ བསེ་རུ་རྭའི་གོ་དོན་བཤད་ཚུགས། ༦.༡.༢ བསེ་རུ་རྭའི་ཁུངས་བཀོལ་ཚུགས། ༦.༡.༣ བསེ་རུ་རྭའི་འཐོབ་ལམ་ཕྱེ་ཚུགས། ༦.༡.༤ བསེ་རུ་རྭའི་རི་མོ་བྲི་ཚུགས། ༦.༡.༥ སྤྲོ་བ་དང་གཅིག་སྒྲིལ་ཐོག་ལས་ལུ་འབད་ཚུགས།	༦.༡ བསེ་རུའི་རྭ་ཀྱི་རི་མོ་འབྲི་ནི།	

৬.২.১ གཟུངས་ཆ་ནས་མཆ་གཟུ་གོ་དུ་ནས་ཤད་ཆུ་གམ། ৬.২.২ གཟུངས་ཆ་ནས་གཟུ་མཆ་ཁངས་ཀཀལ་ཆུ་གམ། ৬.২.৩ གཟུངས་ཆ་ནས་གཟུ་མཆ་འཐོ་བ་ལམ་བཤད་ཆུ་གམ། ৬.২.৪ གཟུངས་ཆ་ནས་གཟུ་མཆ་རྟ་མོ་བ་རྟུ་ཆུ་གམ། ৬.২.৫ སྦ་རོ་བ་དང་གཅིག་ག་སཁུ་ལ་ཐོ་གི་ལས་ལ་ཞུ་འབད་ཆུ་གམ།	৬.২ གཟུངས་ཆ་ནས་མཆ་བའི་རྟ་མོ་བ་རྟུ་ནི།	
৬.৩.১ བཟུ་རུ་ཤི་ང་གི་གཡོ་དུ་ནས་ཤད་ཆུ་གམ། ৬.৩.২ བཟུ་རུ་ཤི་ང་གི་ཁ་ཁངས་ཀཀལ་ཆུ་གམ། ৬.৩.৩ བཟུ་རུ་ཤི་ང་གི་འཐོ་བ་ལམ་བཤད་ཆུ་གམ། ৬.৩.৪ བཟུ་རུ་ཤི་ང་གི་རྟ་མོ་བ་རྟུ་ཆུ་གམ། ৬.৩.৫ སྦ་རོ་བ་དང་གཅིག་ག་སཁུ་ལ་ཐོ་གི་ལས་ལ་ཞུ་འབད་ཆུ་གམ།	৬.৩ བཟུ་རུ་ཤི་ང་གི་རྟ་མོ་བ་རྟུ་ནི།	
৬.৪.১ སེ་ང་གེ་ས་ཀུ་གི་གཡོ་དུ་ནས་ཤད་ཆུ་གམ། ৬.৪.২ སེ་ང་གེ་ས་ཀུ་གི་ཁ་ཁངས་ཀཀལ་ཆུ་གམ། ৬.৪.৩ སེ་ང་གེ་ས་ཀུ་གི་འཐོ་བ་ལམ་ཐཱུ་ཆུ་གམ། ৬.৪.৪ སེ་ང་གེ་ས་ཀུ་གི་རྟ་མོ་བ་རྟུ་ཆུ་གམ། ৬.৪.৫ སྦ་རོ་བ་དང་གཅིག་ག་སཁུ་ལ་ཐོ་གི་ལས་ལ་ཞུ་འབད་ཆུ་གམ།	৬.৪ སེ་ང་གེ་ས་ཀུ་འི་ང་ནི་རྟ་མོ་བ་རྟུ་ནི།	
৬.৫.১ གས་རྒ་གཟུ་གི་ཀུ་གས་ཤི་ང་གི་གཡོ་དུ་ནས་ཤད་ཆུ་གམ། ৬.৫.২ གས་རྒ་གཟུ་གི་ཀུ་གས་ཤི་ང་གི་ཁ་ཁངས་ཀཀལ་ཆུ་གམ། ৬.৫.৩ གས་རྒ་གཟུ་གི་ཀུ་གས་ཤི་ང་གི་འཐོ་བ་ལམ་བཤད་ཆུ་གམ། ৬.৫.৪ གས་རྒ་གཟུ་གི་ཀུ་གས་ཤི་ང་གི་རྟ་མོ་བ་རྟུ་ཆུ་གམ། ৬.৫.৫ སྦ་རོ་བ་དང་གཅིག་ག་སཁུ་ལ་ཐོ་གི་ལས་ལ་ཞུ་འབད་ཆུ་གམ།	৬.৫ གས་རྒ་གཟུ་གི་ཀུ་གས་ཤི་ང་གི་ཁ་ཁངས་ཀཀལ་ཆུ་གམ།	
৬.৬.১ རྡཀཡ་ལ་པ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་གཡོ་དུ་ནས་ཤད་ཆུ་གམ། ৬.৬.২ རྡཀཡ་ལ་པ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་ཁ་ཁངས་ཀཀལ་ཆུ་གམ། ৬.৬.৩ རྡཀཡ་ལ་པ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་འཐོ་བ་ལམ་བཤད་ཆུ་གམ། ৬.৬.৪ རྡཀཡ་ལ་པ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་རྟ་མོ་བ་རྟུ་ཆུ་གམ། ৬.৬.৫ སྦ་རོ་བ་དང་གཅིག་ག་སཁུ་ལ་ཐོ་གི་ལས་ལ་ཞུ་འབད་ཆུ་གམ	৬.৬ རྡཀཡ་ལ་པ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་རྟ་མོ་བ་རྟུ་ནི།	
৬.৭.১ བཙོ་ནས་མ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་གཡོ་དུ་ནས་ཤད་ཆུ་གམ། ৬.৭.২ བཙོ་ནས་མ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་ཁ་ཁངས་ཀཀལ་ཆུ་གམ། ৬.৭.৩ བཙོ་ནས་མ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་འཐོ་བ་ལམ་བཤད་ཆུ་གམ། ৬.৭.৪ བཙོ་ནས་མ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་རྟ་མོ་བ་རྟུ་ཆུ་གམ། ৬.৭.৫ སྦ་རོ་བ་དང་གཅིག་ག་སཁུ་ལ་ཐོ་གི་ལས་ལ་ཞུ་འབད་ཆུ་གམ།	৬.৭ བཙོ་ནས་མ་འི་ང་སཀྱ་ནས་རྡཀཡ་ནས་གཟུ་གི་རྟ་མོ་བ་རྟུ་ནི།	
སྦཡཱ་ང་ཚེནགཉེས་པ། ཤི་ང་ཚེན་གཏང་ནི། སཀྱ་ནས་ཚེན་དང་པ། ཤི་ང་ཚེ་ན་ལ་ཞུ་གི་ང་ནི་ལ་ཀུ་གམ་སཁུ་ལ་ཐོ་གི་འབད་ནི།		
৭.১.১ ལ་ཁུ་ཁམ་ཁ་གི་གི་ང་ནི་ཤད་ཆུ་གམ།	৭.১ ལ་ཁུ་ཁམ་ཁ་བཟ་ནི།	

༡.༡.༢ ལཱ་ཁྲི་གི་འགྲེལ་བཤད་རྒྱབ་ཚུགས། ༡.༡.༣ ལཱ་ཁྲི་གི་དབྱེ་བ་ཕྱེ་ཚུགས། ༡.༡.༤ ལཱ་ཁྲི་བཟོ་ནིའི་རྒྱུ་ཆས་དང་ལག་ཆས་ཀྱི་སྐོར། ༡.༡.༥ ལཱ་ཁྲི་བཟོ་ཚུགས།		
༡.༢.༡ རས་གཞི་གི་གོ་དོན་བཤད་ཚུགས། ༡.༢.༢ ཁ་ཤ་སྤྲིང་དགོ་པའི་དགོས་པ་ཤེས་ཚུགས ༡.༢.༣ ཕྱོགས་བཞི་སྤྲིང་ཐངས་ཤེས་ཚུགས། ༡.༢.༤ ཀ་ར་བཏང་དགོ་པ་པའི་ཁུངསཤེས་ཚུགས ༡.༢.༥ ཀོ་སྤྱི་ན་གར་ལྷམ་སྒྲིག་ཐངས་ཤེས་ཚུགས ༡.༢.༦ བརྡར་ཅུ་རྒྱབ་དགོ་པའི་ཁུངས་དང་ཤེས་ཚུགས ༡.༢.༧ བརྡར་ཅུ་དབུར་ཐངས་ཤེས་ཚུགས། ༡.༢.༨ བརྡར་ཅུ་འཐོ་བ་ཤེས་ཚུགས། ༡.༢.༨ བརྡར་ཅུ་རྒྱབ་ཚུགས།	༡.༢ རས་གཞི་བཅའ་སྒྲིག་རྒྱབ་ནི།	
༡.༣.༡ པྱིར་གྱི་གོ་དོན་བཤད་ཚུགས། ༡.༣.༢ པྱིར་གྱི་འགྲེལ་བཤད་རྒྱབ་ཚུགས། ༡.༣.༣ པྱིར་གྱི་བཟོ་ནི་སྤུ་ངོས་འཛིན་འབད་ཚུགས། ༡.༣.༤ པྱིར་བཟོ་ཚུགས། ༡.༣.༥ སྤྲོ་བ་དང་གཅིག་སྒྲིལ་ཐོག་ལས་ལཱ་འབད་ཚུགས། ༡.༣.༦ པྱིར་བཟོ་ནི་ལུ་སྤྲོ་བ་དང་ རྩིས་མཐོང་བསྐྱེད་ཚུགས། ༡.༣.༧ གཞོག་ཆས་ཀྱི་རིགས་ཚུ་ ཉེན་སྲུང་དང་ལྡནམ་འབད་ ལག་ལེན་འཐབ་ཚུགས།	༡.༣ པྱིར་བཟོ་ནི།	
༡.༤.༡ སྐྱོ་འབུར་གྱི་གོ་དོན་བཤད་ཚུགས། ༡.༤.༢ སྐྱོ་འབུར་གྱི་འགྲེལ་བཤད་རྒྱབ་ཚུགས། ༡.༤.༣ སྐྱོ་འབུར་གྱི་དབྱེ་བ་བཤད་ཚུགས། ༡.༤.༤ སྐྱོ་འབུར་གྱི་འཐོ་བ་ལམ་ཕྱེ་ཚུགས། ༡.༤.༥ སྐྱོ་འབུར་བཟོ་ཚུགས།	༡.༤ སྐྱོ་འབུར་བཟོ་ནི།	
སྡོན་ཚན་གཉིས་པ། ཤིང་གྱི་ཚོན་སྦྱོར་ནི།		
༢.༡.༡ གྱིབ་ཚོན་གྱི་འགྲེལ་བཤད་རྒྱབ་ཚུགས། ༢.༡.༢ གྱིབཚོན་གྱི་དབྱེ་བ་ཕྱེ་ཚུགས། ༢.༡.༣ གྱིབ་ཚོན་གྱི་འཐོ་བ་ལམ་བཤད་ཚུགས། ༢.༡.༤ གྱིབ་ཚོན་རྩ་བའི་ཚོན་གྱི་མིང་། ༢.༡.༥ ཚོན་སྦྱོར་ཐང་། ༢.༡.༦ གྱིབ་ཚོན་སྐྱཝ་གྱི་མིང་། ༢.༡.༧ གྱིབ་ཚོན་ལྡན་ཐབས། ༢.༡.༨ ཤིང་ཚོན་དོན་ལུ་གྱིབ་ཚོན་སྐྱཝ་གི་བསྡུར་ཚད། ༢.༡.༩ གྱིབ་ཚོན་སྦྱོར་ཚུགས། ༢.༡.༡༠ སྤྲོ་བ་དང་གཅིག་སྒྲིལ་ཐོག་ལས་ལཱ་འབད་ཚུགས།	༢.༡ གྱིབ་ཚོན་སྦྱོར་ནི།	
སྡོན་ཚན་ལྔ་པ། ཤིང་ཚོན་རྭོན་མདངས་གཏང་ནི།		

༤.༡.༡ ཚོང་གཏང་སའི་སས་ས་ཁ་སི་ཚུགས། ༤.༡.༢ ཚོང་གཪ་ཐང་ཐང་ཤ་སི་ཚུགས། ༤.༡.༣ ཚོང་སདངས་གི་ས་ཀ་ལས་ཤ་སི་ཚུགས། ༤.༡.༤ ཚོང་སདངས་གཏང་ཚུགས། ༤.༡.༥ ཀ་ཐ་ས་རུ་ང་དང་ལ་ཐ་ཟས་འབད་བཅ་ཚུགས།	༤.༡ ཁ་ཏང་བུ་ཆ་བདེ་ཐབས་ཀྱི་རྒྱུ་ཁ་སདངས་གཏང་ནི།	
ས་ཐ་ང་ཚནོ་དང་བ། ཤི་ང་ཚོ་ནོ་གཪ་ཀི་རྒྱ་ས་ང་ཐ་རུ་ནི།		XII
ས་ཀྱ་ནོ་ཚནོ་བདར་ཁ་བ། གཟུགས་བདར་ཆ་འདབ་ཆགས་ར་གས་ཀཪ་ཀི་རྒྱ་ས་ང་ཐ་རུ་ནི།		
༥.༡.༡ ཁར་ཤང་ཁར་ཤང་གི་གཡོ་ད་ཀ་བཤད་ཚུགས། ༥.༡.༢ ཁར་ཤང་ཁར་ཤང་གི་འཕུ་ལ་བཤད་ར་ཀཪ་ཚུགས། ༥.༡.༣ ཁར་ཤང་ཁར་ཤང་གི་གི་ཐ་ཡ་བ་ལས་བཤད་ཚུགས། ༥.༡.༤ ཁར་ཤང་ཁར་ཤང་ཀཪ་ཀི་རྒྱ་ཚུགས། ༥.༡.༥ པར་ཡ་དང་གཅོག་ས་ཀར་ཀི་ཐ་ཡ་གི་ལས་ལ་འབད་ཚུགས།	༥.༡ འདབ་ཆགས་ཁར་ཤང་ཁར་ཤང་གི་ད་ས་ཀི་རྒྱ་ནི།	
༥.༢.༡ འདབ་ཆགས་ར་ཟླ་བཪ་འི་གཪ་ཀི་ད་ད་ཀ་བཤད་ཚུགས། ༥.༢.༢ འདབ་ཆགས་ར་ཟླ་བཪ་འི་གཪ་འཕུ་ལ་བཤད་ར་ཀཪ་ཚུགས། ༥.༢.༣ འདབ་ཆགས་ར་ཟླ་བཪ་འི་ཐ་ཡ་བ་ལས་བཤད་ཚུགས། ༥.༢.༤ འདབ་ཆགས་ར་ཟླ་བཪ་འི་གཪ་ཀི་ས་ཀི་རྒྱ་ཚུགས། ༥.༢.༥ པར་ཡ་དང་གཅོག་ས་ཀར་ཀི་ཐ་ཡ་གི་ལས་ལ་འབད་ཚུགས	༥.༢ འདབ་ཆགས་ར་ཟླ་བཪ་འི་ས་ཀི་རྒྱ་ནི།	
༥.༣.༡ བཪ་ཚི་ར་འི་ད་གི་གི་ད་ད་ཀ་བཤད་ཚུགས། ༥.༣.༢ བཪ་ཚི་ར་འི་ད་གི་འཕུ་ལ་བཤད་ར་ཀཪ་ཚུགས། ༥.༣.༣ བཪ་ཚི་ར་འི་ད་གི་འཐི་བ་ལས་བཤད་ཚུགས། ༥.༣.༤ བཪ་ཚི་ར་འི་ད་འི་ས་ཀི་རྒྱ་ཚུགས། ༥.༣.༥ པར་ཡ་དང་གཅོག་ས་ཀར་ལ་ལས་ལ་འབད་ཚུགས།	༥.༣ འདབ་ཆགས་བཪ་ཚི་ར་འི་ད་གི་ས་ཀི་རྒྱ་ནི།	
ས་ཀྱ་ནོ་ཚནོ་དགུ་པ། དས་གས་བསལ་སཚནོ་བཪ་ཀ་གཟུགས བདར་ཆ་འི་གས་ཀཪ་ཀི་རྒྱ་ནི།		
ཁ.༡.༡ ཙོ་པ་ཀར/ཆ་སི་འདར་ར་འི་ར་ས་ཀི་རྒྱ་ནི་དག་ད་པ་བཤད་ཚུགས། ཁ.༡.༢ ཙོ་པ་ཀར/ཆ་སི་འདར་ར་འི་ར་ས་ཀི་རྒྱ་འཕུ་ལ་བཤད་ར་ཀཪ་ཚུགས། ཁ.༡.༣ ཙོ་པ་ཀར/ཆ་སི་འདར་ར་འི་ར་ས་ཀི་རྒྱ་ནི་ཐ་ཡ་བ་ལས་བཤད་ར་ཀཪ་ཚུགས། ཁ.༡.༤ ཙོ་པ་ཀར/ཆ་སི་འདར་རྒྱ་ཚུགས། ཁ.༡.༥ པར་ཡ་དང་གཅོག་ས་ཀར་ཀི་ཐ་ཡ་གི་ལས་ལ་འབད་ཚུགས	ཁ.༡ ཙོ་པ་ཀར/ཆ་སི་འདར་ར་འི་ར་ས་ཀི་རྒྱ་ནི།	
ཁ.༢.༡ རི་ད་དཔ་གས་ཆ་ས་འཐ་ར་གི་ད་ར་ས་ཀི་རྒྱ་གི་ད་ད་ཀ་བཤད་ཚུགས། ཁ.༢.༢ རི་ད་དཔ་གས་ཆ་ས་འཐ་ར་གི་ད་ར་ས་ཀི་རྒྱ་འཕུ་ལ་བཤད་ར་ཀཪ་ཚུགས། ཁ.༢.༣ རི་ད་དཔ་གས་ཆ་ས་འཐ་ར་གི་ད་ཐ་ཡ་བ་ལས་བཤད་ཚུགས། ཁ.༢.༤ རི་ད་དཔ་གས་ཆ་ས་འཐ་ར་གི་ད་ར་ས་ཀི་རྒྱ་ཚུགས། ཁ.༢.༥ པར་ཡ་དང་གཅོག་ས་ཀར་ཀི་ཐ་ཡ་གི་ལས་ལ་འབད་ཚུགས	ཁ.༢ རི་ད་དཔ་གས་ཆ་ས་འཐ་ར་གི་ད་ར་ས་ཀི་རྒྱ་ནི།	

ཞ.༣.༡ དངོས་མཚོན་རལ་གྲི་འོག་གཡུན་རིམ་གཡུན་གྱི་དོན་བཤད་ཚུགས། ཞ.༣.༢ དངོས་མཚོན་རལ་གྲི་འོག་གཡུན་རིམ་གཡུན་འགྲེལ་བཤད་རྒྱབ་ཚུགས། ཞ.༣.༣ དངོས་མཚོན་རལ་གྲི་འོག་ཐེབ་ཀ་ལམ་བཤད་རྒྱབ་ཚུགས། ཞ.༣.༤ དངོས་མཚོན་རལ་གྲི་འོག་གཡུན་རིམ་ཇི་ཚུགས། ཞ.༣.༥ སྤར་ཁ་དང་གཅིག་སྒྲིལ་ཐེག་ལམ་ལ་འབད་ཚུགས།	ཞ.༣ དངོས་མཚོན་རལ་གྲི་འོག་ཁས་ཀྱེས་བརྡེན་དམ་པ། རིན་མཇུག་བསྡུ་ཚུགས།	
སྡུག་ངུ་ཚན་གཉིས་པ། ཤིང་ཚོ་ནི་གཏང་ནི།		
སྡུག་ཚན་བཞི་པ། ཤིང་ཚོ་གམ་སྐད་ཡིག་གཏང་ནི།		
ཅ.༡.༡ བཟོ་ཚོ་རིང་གམ་སྐད་ཡིག་གཏང་ནི་གཡུ་གི་དོན་བཤད་ཚུགས། ཅ.༡.༢ ཚོ་ན་བཏང་སའི་ས་གྲུ་བཤད་ཚུགས། ཅ.༡.༣ བཟོ་ཚོ་རིང་གི་ཚོ་ན་གཡུ་ཐེ་བ་ལམ་ཚུགས། ཅ.༡.༤ བཟོ་ཚོ་རིང་གམ་སྐད་ཡིག་གཏང་ཚུགས། ཅ.༡.༥ སྤར་ཁ་དང་གཅིག་སྒྲིལ་ཐེག་ལམ་ལ་འབད་ཚུགས།	ཅ.༡ བཟོ་ཚོ་རིང་གམ་སྐད་ཡིག་གཏང་ནི།	
ཅ.༢.༡ ཙོང་པ་ཏུ/ཙོང་མ་འདུ་འོག་གམ་སྐད་ཡིག་གཏང་ནི་གཡུ་གི་དོན་བཤད་ཚུགས། ཅ.༢.༢ ཚོ་ན་བཏང་སའི་ས་གྲུ་བཤད་རྒྱབ་ཚུགས། ཅ.༢.༣ ཙོང་པ་ཏུ/ཙོང་མ་འདུ་འོག་ཚོ་ན་ཐེ་བ་ལམ་བཤད་ཚུགས། ཅ.༢.༤ ཙོང་པ་ཏུ/ཙོང་མ་འདུ་འོག་གམ་སྐད་ཡིག་གཏང་ཚུགས། ཅ.༢.༥ སྤར་ཁ་དང་གཅིག་སྒྲིལ་ཐེག་ལམ་ལ་འབད་ཚུགས།	ཅ.༢ ཙོང་པ་ཏུ/ཙོང་མ་འདུ་གམ་སྐད་ཡིག་གཏང་ནི།	

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