



CURRICULUM
FOR
**TECHNICAL &
VOCATIONAL SKILLS**

**ACCELERATED LEARNING
PROGRAM (MIDDLE-TECH)**

Package D = (VI-VII Grades)
& Package E = (VIII Grade)

National Curriculum Council (NCC)
Ministry of Federal Education and Professional Training
(MoFEPT), Islamabad

Introduction:

The issue of out of school children (OOSC) is one of the major reasons that encumbers the socio-economic development of Pakistan. According to Pakistan Education Statistics Report 2016-17 published by the Academy for Educational Planning & Management (AEPAM), out-of-school children of 5-16 years of age in Pakistan are 22.8 million. Data further reveal that case load is grave on 10-16 years of age cohort as the same accommodates 78% of the total OOSC in Pakistan. It is important to specify that most of the children from 10-16 years of age cohort have become overage and it is difficult for them to study in formal schools. It is also assumed that a large proportion of these children are those who have completed primary education, but couldn't study further owing to unavailability of schools in their areas. This situation has caused girls to suffer more than boys as girls find it difficult to go outside of their areas to access educational facilities. Therefore, an alternative, accelerated and flexible learning programme that is available at their door-steps suits to the needs of these children, especially girls. In addition, people's distrust on education for its limited relevance to economic opportunities is one of the key reasons for keeping children out of schools.

Pakistan is ranked 154th among 189 countries on UN's Human Development Index (HDI) 2020 ranking. The HDI ranking is measured by combining indicators of health, education and standards of living. Among these foundation gauges of HDI, education is the key that also aids to the development of residual HDI indicators. The importance of getting educated loses its reputation among poor masses because of its irrelevance. Prevailing system of education is not contributing adequately in elevating its recipients economically, hence, unemployment continues to increase and the education system continues to struggle to win confidence among masses.

Pakistan is a developing country with 5th largest population in the world. According to ILO 63% of Pakistan's population is between the age of 15-30 years, declaring the country as second youngest country in South Asia and that the unemployment rate among the same age group is around 8.5%, one of the highest in the region. It is important to mention that COVID-19 pandemic has hit sever and the employment and entrepreneurship opportunities have reduced. This "youth bulge" provides unique challenges as well as opportunities for the country's social and economic development. The only remedy is to develop youth of Pakistan through education and training. Non-Formal Education (NFE) is a viable approach to develop human capital and to contribute to achieve the sustainable development goals (SDGs) in Pakistan. To give wide scale access to children, youth and adults, flexible and Accelerated Learning Programs (ALPs) will strategically address the Out-of-School Children (OOSC) crises by addressing learning needs of overage children by providing ALPs for Primary and Elementary. To control the increasing un-employment, promoting entrepreneurship (self-employment), alleviate poverty and provide skilled manpower for industrial/economic growth, need based, area appropriate, marketable and employable skills are integrated with ALP-Middle to provide children with viable options for learning continuity. Therefore, the ALP is termed as ALP (Elementary & Skills) or ALP (Middle-Tech). The ALP (Middle-Tech) is an accelerated learning programme / course that offers middle level education course in 18 months with an integrated vocational skills component. For this a stream of "vocational subjects" has been selected using market needs and the similar vertical "Matric-Tech" programme that is being offered by the NAVTTC (MoFEPT) and TEVTA, Government of the Punjab. The ALP (Middle-Tech), being an integrated and blended learning programme, offers middle level learning competencies that are equivalent to national curriculum 2006 and Single National Curriculum 2021 and selected vocational skill programmes that are equivalent to NVQF Level 1 & 2. The said ALP (MT) offers a combination of core/ compulsory subjects and Tech based subject offering 13 skill courses, where learners would select one. After selecting one skill course, the learners will study level 1 of the same during Package D and level of the same skill course in Package E. Students who are interested in continuing conventional formal education are required to study all the general subjects as specified in the scheme of studies, while those who are interested in opting a career of technical/ vocational education/ training, may opt tech/ vocational subjects. The latter (Tech/

vocational group) offers a range of 13 vocational skill subjects/ courses and the learners may opt any one of these, which will be offered in two levels; level 1 to be offered in Package D, and level 2 to be offered in Package E. The learners will undergo internal assessment after completing Package D to promote to Package E, while for skill course, certified and trained assessors or any authorized assessment agency will conduct assessment of skill subjects of level 1 and award L-1 certificate, which will allow either transfer to any other TVET institute or transit to level 2 of the same skill course in Package E, where learners will study core subjects and also the tech/ vocational skill course along with practical moderated/ instructed by the trained instructors. At the end of Package E, learners will undergo external/ terminal assessment of core subjects followed by certificates allowing transition to grade 9, while learners studying skill course of level 2 will undergo an assessment by the trained assessors/ authorized assessment agency, which will award L-2 certificate after necessary assessment procedures. The L-2 certificate will allow learners to transit to any recognized technical and vocational training/ education institution for studying level 3 of the same skill course.

Rationale:

According to data stated above, 10-16 years old children, being the largest in number and left with very limited opportunities to reconnect to education, are in need for an alternative, accelerated and equivalent learning system/ model that offers learning opportunities in fast track and flexible setting. At the same time, conventional formal education, with limited relevance to economic prospects, need for a “Tech” based learning programmes (vocational skills courses) is significant. In a situation where children and youth require an alternative and accelerated learning system as well as skills training courses, National Curriculum Council (NCC) has designed an Accelerated Learning Programme (ALP) – (Middle-Tech) that offers fast track learning at middle/ elementary level and integrates vocational skills to address learning needs of a range of children and youth who possess primary level competencies but couldn’t study further owing to access or other challenges. It is worthwhile to mention that children and youth who are deprived of their right to education despite possessing competencies equivalent to primary level generally belong to marginalized and disenfranchised population segments and their families want them to become economically independent at the earliest. Therefore, the said ALP (MT), will not only provide them with their right to education, but will also give them a chance to acquire vocational skills to become economically active and contribute to human capital development. The ALP (MT) increases the possibility of continuing education beyond middle level, as the same offers two streams under vertical programming; 1) ALP (MT) pass-outs may join grade nine of the formal education or Matric Tech, 2) pass-outs may join the advanced vocational skill courses/ programmes of level 3 in technical and vocational institutions to seek further and advanced skills for better career prospects. The ALP (MT) is an equivalent, accelerated and flexible learning model that offers both general education and skills training/ education in 18 months. This model is certifiable and the learners enrolled in this programme / course may transfer to any formal school during the course or after completing the course.

SCHEME OF STUDIES
ALP (Middle-Tech) (Package D & E with Vocational Skills)

ALP (Middle): Course Duration: 18 Months

List of Subjects:

Following are core/ compulsory courses:

1. Urdu
2. English
3. Mathematics
4. Islamiyat / Religious Education
5. Science
6. Social Studies (History & Geography)
7. Information, Communication Technology (ICT)

ALP (Middle-Tech): Course Duration: 18 Months

Core Subjects:

Following are core/ compulsory courses:

1. Urdu
2. English
3. Mathematics
4. Islamiyat / Religious Education
5. Social study (History & Geography)

Tech/ Vocational Subjects:

Learners will select one skill course from the given list given under and study its Level-1 during Package D and the level-2 of the same skill course during Package E:

1. Hotel Management
2. Introduction to Tourism
3. Graphic Design
4. Media Production
5. Fundamentals of Cooking
6. Agriculture
7. Live-Stock
8. Internet of Things (IoT)
9. Dress Making
10. Beautician
11. Applied Electrician
12. Plumbing
13. Heating, Ventilation, Air Conditioning & Refrigeration (HVACR)

Equivalence Frame

Division of Packages and Grades

Division of Packages and equivalent grades of formal education along with duration and daily teaching & learning hours is as under:

Packages	Grades covered	Duration	Daily Instructions
Package D [Core subjects and level 1 of a skill course from Tech Subjects]	Grade 6 & 7	10 months	4 hours
Package E [Core subjects and level 2 of the same skill course from Tech Subjects]	Grade 8	08 months	4 hours
Total		18 months	

Packages/ Grades, Pre-Requisite, Course Duration and Certification

Packages, equivalent grades in formal education, pre-requisite for admission in ALP (Middle-Tech), information about assessment, certification and continuing education are given below:

Packages	Pre-requisite	Duration	Description	Subjects	Assessment	Certificate	Learning Continuing
Package D	Children after competing Package C of the ALP (Primary) Children after completing grade 5 from any formal public/ private schools Children demonstrating competencies equivalent to grade 5 or Package C (through placement tests).	10 months	Grades 6 & 7	Core Subjects: 1: Urdu 2: English 3: Mathematics 4: Islamiyat / religious education 5: Social study (History & Geography) Tech Subjects: Level 1 of one skill course to be selected from the list of Tech / Vocational subjects	Internal Assessment of general subjects Assessment of skill course of Level 1 will be conducted by trained/ certified assessors or by the authorized body to promote learners to level 2	Yes (Package D completion certificate after internal assessment) Package D-1 certificate after completing D-1 that is equivalent to grade 6 Package D-2 certificate after completing D-2 that is equivalent to grade 7 Certificate for skill programme may be awarded through certified assessors and may help in transiting to level 2 of the same skill course or connecting to TVET institutes for continuing skill course	Learners who opted "general group/ subject under optional group" after obtaining the specified certificate or demonstrating package/ grade equivalent competencies can join formal schools (public or private) or non-formal/ ALP centers during or after completing Package D Learners demonstrating competence equivalent to level 1 will be awarded a L-1 certificate of the skill course and may join the level 2 of the same skill course or join any TVET course for continuing skills training
Package E	Children after completing package D (package D completion	08 months	Grade 8	Core Subjects: 1: Urdu 2: English 3: Mathematics 4: Islamiyat/	External/ Terminal Assessment including assessment of vocational	Yes 1. upon completing package E through	Learners with package E certificate (who opted general group/ subjects under optional/

certificate) Children having grade 7 level competence or certificate Children demonstrating package D equivalent competence (through placement test)			religious education 5: Social study (History & Geography) Tech Subjects: Level 2 of one skill course selected already in Package D	subjects/ skill courses by certified assessors or Technical Board)	terminal assessment 2. During the course for transferring to other schools/ centers	elective category) can transit to grade 9 of the formal education Children can join formal (public or private schools) during Package E in grade 8 Learners demonstrating L-2 equivalents competence may join the relevant advanced skill course of Level 3 in TVET institution for continuing skills/ vocational education/ training
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Target group, enrollment, entry, exit and completion strategies

Target Group:

Age Group: The curriculum is designed for children of 10 to 16 years of age

Admission pre-requisite in ALP (Middle-Tech):

1. Children possessing primary completion certificate (from any formal school)
2. Children possessing Package C completion certificate (from NFBE/ ALP center)
3. Children who dropped out before completing grade 5, but are able to demonstrate grade 5 equivalent competence (through placement test)
4. Children who dropped out before completing Package C, but are able to demonstrate Package C equivalent competence (through placement test)
5. Children possessing grade 6 certificate (during the course before completion) can join Package D (D-1)

General characteristics of the target Group:

1. Children belonging to marginalized and disadvantaged population groups who generally remain excluded from their right to education will be preferred
2. Enrollment of "girls" will particularly be prioritized as they remain excluded for cultural and access issues
3. Children involved in labor will be prioritized and be placed in the right Packages as per their prior knowledge/ competence evaluated through the placement test
4. Refugee and stateless children as well as those who are displaced owing to natural disasters or local conflicts
5. Any other children who find it difficult to seek admission in formal schools

Entry and Exit Strategies

Following are key strategies for entry and exit of children in the ALP programme:

1. Placement test will be conducted to assess the prior knowledge/ competence of the children intending to seek admission in the ALP (Middle-Tech), which will help the teachers in placing the children in the Packages suitable for them.
2. Children intending to leave the center during the programme / course, will be given school leaving certificate after administering "exit test" so as the learners could seek admission in any other ALP or formal school for continuing education and learning.
3. It is apprised that the entry (placement) and exit tests will be derived from the curriculum and the teachers will be equipped with a set of "tests" to administer for children seeking admission or leaving the center.

Options for Completing the Packages and Programme / Course before the Prescribed Duration:

Following are a few options for completing a particular package or complete ALP (Middle-Tech) course before the prescribed time duration, which is 18 months.

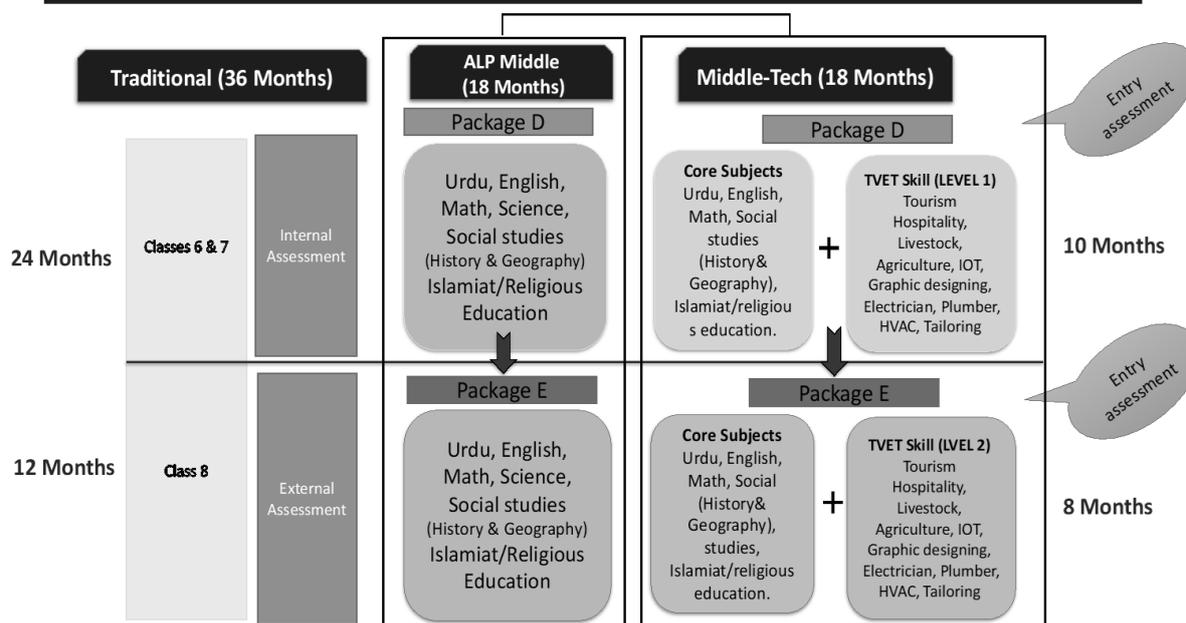
Flexible duration for children possessing prior knowledge:

The ALP (Middle-Tech) offers middle completion in 18 months, however, learners who were dropped out before completing the middle education cycle and demonstrating "Prior Knowledge/ Competence" through the entry/ placement test, will have the option to complete the middle education cycle before 18 months. For example, children dropped out in grade 7 and they were able to demonstrate the competence of grade 7, will be placed in Package E and be able to complete the middle education cycle in 08 months.

Prescribed duration for innovative learning strategies:

In case, any NFE/ ALP provider adopts innovative teaching & learning resources/ contents and teaching & learning strategies that helps in completing a particular Package or complete ALP (Middle-Tech), the time duration may be reduced accordingly, and the provider may offer to complete the ALP before 18 months.

ALP Middle & Middle-Tech Equivalency Model



Technical / Vocational Subjects / Courses:

No	Subjects	Page #
1.	Hotel Management	3
2.	Introduction to Tourism	33
3.	Graphic Design	60
4.	Media Production	89
5.	Fundamentals of Cooking	118
6.	Agriculture	163
7.	Live-Stock	189
8.	Internet of Things (IoT)	220
9.	Dress making	257
10.	Beautician	287
11.	Applied Electrician	320
12.	Plumbing	342
13.	Heating, Ventilation Air Conditioning & Refrigeration (HVACR)	379

Aims:

This curriculum aims to enable students to.

- Acquire a comprehensive understanding of the hotel industry.
- Develop the appropriate knowledge, skills values and attitude that support the improvement in the hotel industry.
- Identify, analyze, assess, and reflect on problems with Knowledge and skills under supervision.
- Participate in assignments related to operations, development, and administration within the hospitality industry.
- Develop human resources required for hospitality industry.
- Adopt positive attitudes towards the hospitality trade with greater initiative and self-confidence in handling operations.
- Learn basic of entrepreneurship skills.
- Learn to develop critical thinking for problem-solving, decision making during the service procedures.
- Enhance their awareness of the growing importance of the tourism and hospitality industry.

Objectives:

After completing this Middle level Hotel Management program, the students will be able to:

- Develop attitudes about the nature of the hospitality field and the importance of being a self-motivated and life-long learner.
- Understand organizational structure and function of hotel industry.
- Apply the acquired knowledge and skills in the field of hospitality.
- Start small business activity.
- Progress to higher levels of studies in hospitality industry.
- Develop a range of technical, personal, interpersonal, organizational, and basic skills that can be applied in various contexts, both within and beyond the workplaces of hospitality industry.

Hotel Management

Middle Tech (ALP) Hotel Management (Package-D)

Chapter 1 Introduction to Hospitality			Total 16 Period. T= 12, P= 4.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Basics of Hospitality	Student will be able to: <ul style="list-style-type: none"> Define the basics of hospitality. Describe the hospitality industry. 	<ul style="list-style-type: none"> Presentation Group activities about greetings in hotel 	4 Periods (T) 3 Periods (P)	Multimedia	Classroom
Scope of Hospitality Industry	Student will be able to: <ul style="list-style-type: none"> Know about the scope of hospitality industry in <ul style="list-style-type: none"> Hotels, Accommodation Food services (Restaurants) Transportation Events Travel and Tourism Describe scope of hospitality industry in Pakistan 	<ul style="list-style-type: none"> Presentation on different sector of hospitality Group activities of making charts related to different careers in hospitality Videos related to hotel services 	8 Periods (T) 1 Periods (P)	Multimedia Chart Paper Markers Multicolor Stationary	Classroom

Chapter 2 Introduction to Hotel Management			Total 23 Period. T=14, P= 9.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Hotel	Student will be able to: <ul style="list-style-type: none"> Define the hotel. Understand the function of hotel. Enlist some of the local hotels 	<ul style="list-style-type: none"> Presentation on functions of hotel Group discussion on local hotels 	4 Periods (T) 1 Periods (P)	Multimedia Stationary	Classroom
Organizational Structure of Hotel	Student will be able to: <ul style="list-style-type: none"> Describe the organizational structure of hotel Illustrate the hierarchy of hotel Describe the structure of organization. 	<ul style="list-style-type: none"> Presentation organization structure of hotel Group discussion on hierarchy Group work to draw hierarchy 	5 Periods (T) 2 Periods (P)	Multimedia Chart Paper Markers Multicolor Stationary	Classroom
Types of Hotels	Student will be able to: <ul style="list-style-type: none"> Define different types of hotels Differentiate between the different types of hotels Enlist different types of hotels in locality 	<ul style="list-style-type: none"> Presentation on types of hotels Group activities on exploring local hotel 	5 Periods (T) 6 Periods (P)	Multimedia Stationary	Classroom Industry visit

Chapter 3 Departments of Hotel			Total 21 Period. T=13, P= 8.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Operational Departments (Core Services departments)	Student will be able to: <ul style="list-style-type: none"> • Define core department of hotels. • Define core services departments <ul style="list-style-type: none"> ○ Front Office ○ Housekeeping ○ Food and Beverage Services (Restaurants) ○ Food and Beverage Production (Kitchen) • Distinguish the department wise hierarchy • Describe functions of core departments of hotels 	<ul style="list-style-type: none"> • Presentation on departments of hotel • Group discussion on different departments • Role Plays on reception duties 	6 Periods (T) 6 Periods (P)	Multimedia Stationary	Classroom Industry visit (nearest Hotel)
Administrative Departments (Non-Core department)	Student will be able to: <ul style="list-style-type: none"> • Describe non-core departments of hotel. • Define administrative departments <ul style="list-style-type: none"> ○ Finance ○ Human Resources and Trainings ○ IT ○ Sales and Marketing ○ Security ○ Engineering and maintenance • Distinguish the department wise hierarchy • Describe functions of core departments of hotels 	<ul style="list-style-type: none"> • Presentation on core department • Group discussion on core functions • Visit and identify core departments of local hotel. 	7 Periods (T) 2 Periods (P)	Multimedia Chart Paper Markers Multicolor Stationary	Classroom Industry visit (nearest Hotel)

Chapter 4 Front Office			Total 24 Period. T= 16 P= 8		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Front office	Student will be able to: <ul style="list-style-type: none"> • Define front office • Understand major function of front office • Describe the relation between department of hotel and front office. 	<ul style="list-style-type: none"> • Presentation on function of front office • Group discussion on relation between front office and other departments • Demonstration of reception desk in classroom 	8 Periods (T) 4 Periods (P)	Multimedia Stationary	Classroom
Organizational Hierarchy of Front office	Student will be able to: <ul style="list-style-type: none"> • Define hierarchy of front office • Explain roles and 	<ul style="list-style-type: none"> • Presentation on how the structure work in front office • Showing videos of 	8 Periods (T) 4 Periods (P)	Multimedia Stationary	Classroom Industry visit (nearest

	responsibilities of key personnel of front office: <ul style="list-style-type: none"> ○ Front office manager ○ Guest service officer ○ Guest relation officer ○ Bell captain ○ Valley parking officer ○ Telephone exchange officer. 	front office practices <ul style="list-style-type: none"> ● Demonstration of various roles ● Role plays student doing roles of GSO, Bell captain ● Related video to front office responsibilities ● Observe role of key personals of front office at nearest hotel. 			Hotel)
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Chapter 5 Food and Beverages Services			Total 21 Period. T= 15, P=6.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Food and Beverage Services	Student will be able to: <ul style="list-style-type: none"> ● Define Food and Beverage Services ● Explain major function of Food and Beverage Services ● Describe relation between departments of hotel and Food & Beverages 	<ul style="list-style-type: none"> ● Presentation on functions of F&B ● Class activity on presenting relation between restaurant and other department of hotel 	6 Periods (T) 2Periods (P)	Multimedia Stationary	Classroom
Organizational Hierarchy of Food and Beverage Services	Student will be able to: <ul style="list-style-type: none"> ● Define hierarchy of Food and Beverage Service department ● Describe roles and responsibilities of key personnel of Food and Beverage Services <ul style="list-style-type: none"> ○ Restaurant Managers ○ Floor Supervisor ○ Host/hostess ○ Waiter ○ stewards 	<ul style="list-style-type: none"> ● Presentation on hierarchy of F&B ● Showing videos of Food and Beverage Services departments various hotels ● Demonstration of various roles in hospitality 	9 Periods (T) 4 Periods (P)	Multimedia Stationary	Classroom

Chapter 6 Sectors of Food & Beverage Industry			Total 24 Period. T= 14, P= 10.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Scope of Food and Beverage Industry	Student will be able to: <ul style="list-style-type: none"> ● Define scope of F&B industry ● Describe sectors of F&B Services 	<ul style="list-style-type: none"> ● Presentation on scope of F&B ● Group activity display charts with number of career opportunities in the field 	7 Periods (T) 4 Periods (P)	Multimedia Stationary	Classroom
Types of Restaurants	Student will be able to: <ul style="list-style-type: none"> ● Define restaurants ● Understand classification of Restaurants 	<ul style="list-style-type: none"> ● Presentation on restaurants ● Group activity representing different type of restaurants 	7 Periods (T) 6 Periods (P)	Multimedia Stationary	Classroom Industry visit (nearest Hotel)

	<ul style="list-style-type: none"> • Figure out various types of restaurants <ul style="list-style-type: none"> ○ Fast-Food Restaurants ○ Casual Restaurants ○ Fast Casual-Dining Restaurants ○ Café ○ Coffeehouse 	<ul style="list-style-type: none"> displaying chart papers showing activities of different restaurants • Explore and visit different types of local restaurants 			
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Chapter 7 Housekeeping			Total 20 Period. T= 10, P=10.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Housekeeping	Student will be able to: <ul style="list-style-type: none"> • Define Housekeeping • Describe major function of Housekeeping. • Describe relation between departments of hotel & Housekeeping 	<ul style="list-style-type: none"> • Presentation on major function of housekeeping • Group activity on how the cleaning of school works and resent the idea of how it can be better. 	5 Periods (T) 4 Periods (P)	Multimedia Housekeeping related tools. Stationary	Classroom
Organizational Hierarchy of Housekeeping	Student will be able to: <ul style="list-style-type: none"> • Define hierarchy of Housekeeping • Define roles and responsibilities of key personnel of housekeeping. <ul style="list-style-type: none"> ○ Executive Housekeeper ○ Assistant Executive Housekeeper ○ Floor Supervisor ○ Public Area Supervisor ○ Room Attendant ○ Public Area Cleaner ○ Laundry Manager ○ Linen Store Room Supervisor ○ Gardner 	<ul style="list-style-type: none"> • Presentation on organizational structure of housekeeping • Showing videos of housekeeping departments various hotels • Demonstration of various role plays of housekeeping staff • Assign different housekeeping roles to students to perform duties 	5 Periods (T) 6 Periods (P)	Multimedia Stationary	Classroom

Chapter 8 Food Production (Culinary Art) – I			Total 20 Period. T= 12, P= 8.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Food Production (Culinary Art)	Student will be able to: <ul style="list-style-type: none"> • Define Culinary Art • Learn major function of food production unit (Kitchen) • Describe the relation between other departments of hotel & Food Production Unit 	<ul style="list-style-type: none"> • Presentation on major function of kitchen • Group discussion on function of food department 	5 Periods (T) 3 Periods (P)	Multimedia Stationary	Classroom Cooking lab

Organizational Hierarchy of Food Production (Culinary Art)	Student will be able to: <ul style="list-style-type: none"> • Define hierarchy in Food Production area (Kitchen) of hotel • Understand roles and responsibilities of key personnel of Food Production area <ul style="list-style-type: none"> ○ Executive Chef ○ Sous Chef ○ Chef de Partie ○ Butcher ○ Cook ○ Steward ○ Store Keeper ○ Kitchen Supervisor • Demonstrate role of key personals of Food Production area 	<ul style="list-style-type: none"> • Showing videos of Food Production Area of various hotels • Demonstration of various roles • Role plays of different kitchen staff representing their duties 	7 Periods (T) 5 Periods (P)	Multimedia Stationary	Classroom Cooking lab
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Chapter 9 Personal Grooming and Hygiene			Total 23 Period. T=14, P= 9.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Personal Grooming and Hygiene	Student will be able to: <ul style="list-style-type: none"> • Define personal hygiene and grooming in hotel industry • Describe basic grooming guidelines in hotel • Illustrate importance of oral hygiene 	<ul style="list-style-type: none"> • Presentation on personal hygiene • Showing videos about personal hygiene practices • Demonstrate good hygiene practices in class • Group presentation on oral hygiene and health 	7 Periods (T) 5 Periods (P)	Multimedia Stationary	Classroom Cooking lab
Professional Etiquettes	Student will be able to: <ul style="list-style-type: none"> • Learn the importance of uniform in every department of hotel • Describe the guidelines for maintaining professional attitude • Describe the basic communication and dealing with guests 	<ul style="list-style-type: none"> • Presentation on different departments in hotel • Prepare a chart for uniform of different departments in hotel • Role plays on professional etiquette 	7 Periods (T) 4 Periods (P)	Multimedia Stationary	Classroom Cooking lab

Chapter 10 Communication Skills			Total 44 Period. T= 18, P= 26.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Communication skills	Student will be able to: <ul style="list-style-type: none"> • Define communication • Know Process of communication • Describe models of communication process 	<ul style="list-style-type: none"> • Presentation on communication • Group discussion • Prepare a chart to show process of communication 	2 Periods (T) 3 Periods (P)	Multimedia Stationary	Classroom

Types of Communication skills	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Define various types of communication: <ul style="list-style-type: none"> ○ Verbal Communication ○ Non-Verbal Communication • Understand importance of Verbal and nonverbal communication 	<ul style="list-style-type: none"> • Presentation on types of communication. • Role play to demonstrate the difference between verbal and non-verbal communication • Activities based on listening speaking and writing 	<p>3 Periods (T) 4 Periods (P)</p>	Multimedia Stationary	Classroom
Effective Communication	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Define effective communication • Describe required skills for effective communication <ul style="list-style-type: none"> ○ Effective listening ○ Effective speaking ○ Effective Writing 	<ul style="list-style-type: none"> • Presentation effective communication • Videos on effective communication • Role play to demonstrate the effective communication 	<p>5Periods (T) 6 Periods (P)</p>	Multimedia Stationary	Classroom
Path of Success	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Define Self confidence • Explain value of time • Describe decision making • Explain Discipline • Explain how to avoid negative thinking • Define creativity and new thinking 	<ul style="list-style-type: none"> • Class activity of speech • Draw a nine point in a square shape and joint nine points without lifting the pencil complete in four lines 	<p>2 Period (T) 3 Period (P)</p>	Multimedia Stationary	Classroom
Communication with client	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Define value of client • Types of Communication • Negotiate with client effectively 	<ul style="list-style-type: none"> • Activity of guest serving and offering alternate food as the ordered food is not available • Activity of food order taking from client on call 	<p>4 Period (T) 5 Period (P)</p>	Multimedia Stationary	Classroom
Demonstrate Basic IT Skills	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Define computer • Know Input/output device • Create folders and save files • Learn major commands of operating system • Demonstrate basic command of MS word and MS excel • Explain use of internet 	<ul style="list-style-type: none"> • practice of applying different command and tools • Make invoice for client and send it by email • Save invoice in separate folder • Prepare invoice both in excel and word format 	<p>2 Period (T) 5 Period (P)</p>	Multimedia Stationary	Classroom

Middle Tech (ALP) Hotel Management (Package-E)

Chapter 11 Occupational Health, Safety and Safe Work Environment			Total 30 Period. T = 10, P = 20.		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Hazards at Workplace	Student will be able to: <ul style="list-style-type: none"> • Explain risks and Hazards at workplace. • Define what might be harmed (potential hazards) at workplace. • Define safety precautions. • Explain PPE's • Understand safety symbols. 	<ul style="list-style-type: none"> • Visit lab of your institute, • identify potential hazards. • List PPE available and required to work there. • Recognize the required tools, equipment, PPE's and consumable material. 	6 Period (T) 08 Period (P)	Resources, Stationary, PPE, Safety Charts, etc. Stationary	Classroom/ Lab Work place
Observing Occupational Safety and Health (OSH)	Student will be able to: <ul style="list-style-type: none"> • Define importance of OSH. • Explain health and safety precautions and other relevant guide lines & symbols. • Understand the importance of Keeping the work area clean and clear of obstructions, and proper cleaning & storing of tools or equipment. • Know how to deal with problems and ensure in time reporting of the problems to the supervisor. • Explain First aid treatment methods including methods of resuscitation 	<ul style="list-style-type: none"> • Supervisor will demonstrate working using appropriate PPE. • Demonstrate first aid procedure for any accident. • Perform cleaning and storing of tools / equipment. • Demonstrate the use of PPE's. • Keep work area clean and clear of obstructions. 	2 Period (T) 6 Period (P)	Resources, Stationary, PPE, Safety Charts, Gloves Masks Apron Cap Anti-slip Shoes Hairnet Stationary	Classroom/ Lab
Fire Extinguisher	Student will be able to: <ul style="list-style-type: none"> • Define fire extinguisher. • Explain the types of fire extinguishers and their uses. 	<ul style="list-style-type: none"> • Check the expiry date. • Observe how to Operate fire extinguisher. • Perform cleaning and storing of tools and equipment. 	2 Period (T) 6 Period (P)	Fire Extinguisher Stationary	Classroom / Lab

Chapter 12 Fundamental of Hotel Management			Total 23 Period. T= 11, P= 12.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Hotel Management	Student will be able to: <ul style="list-style-type: none"> • Define management • Describe the meaning of hotel management • Describe the hotel managerial process 	<ul style="list-style-type: none"> • Presentation about hotel Management • Activity in class representing the managerial duties • Role play about managerial duties 	5 Periods (T) 6 Periods (P)	Multimedia Stationary	Classroom
Managerial Responsibilities and Relationships	Student will be able to: <ul style="list-style-type: none"> • Understand managerial duties • Define the primary and secondary group that manager deals with <ul style="list-style-type: none"> Primary group <ul style="list-style-type: none"> ○ Guest (customer) ○ Owner (boards of directors) ○ Subordinate managers ○ Employee Secondary group <ul style="list-style-type: none"> ○ Suppliers ○ Local community ○ Government regulatory agencies 	<ul style="list-style-type: none"> • Presentation about major duties at managerial positions • Group discussion about primary group that manager deal with • Role Plays. Give role of customer and supplier to students to perform their roles 	6 Periods (T) 6 Periods (P)	Multimedia Stationary	Classroom

Chapter 13 Classification of hotels			Total 21 Period. T=12, P= 9.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Purpose of Hotel Classification	Student will be able to: <ul style="list-style-type: none"> • Describe hotel classification • Understand the hotel classification <ul style="list-style-type: none"> ○ Uniformity in services • Describe purpose of hotel classification 	<ul style="list-style-type: none"> • Presentation about classification of hotel • Group discussion on types of hotels is in local area 	7 Periods (T) 5 Periods (P)	Multimedia Stationary	Classroom
Types of hotels	Student will be able to: <ul style="list-style-type: none"> • Define Types of hotels on the basis of <ul style="list-style-type: none"> ○ Size ○ Location ○ Service based • Differentiate the types of hotels 	<ul style="list-style-type: none"> • Presentation on size and location of hotel • Group discussion on service-based hotels • Group activity on enlisting hotel services 	5 Periods (T) 4 Periods (P)	Multimedia video Stationary	Classroom

Chapter 14 Food & Beverages (F & B) Services			Total 18 Period. T= 10, P= 8.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Types of services,	Student will be able to: <ul style="list-style-type: none"> • Enlist types of services • Describe guest services 	<ul style="list-style-type: none"> • Presentation on types of services • Group discussion on service type 	4 Period (T) 1 Period (P)	Multimedia Stationary	Classroom
F&B Sequence of Services	Student will be able to: <ul style="list-style-type: none"> • Define sequence of service • Describe the sequence of F & B services. • Know the table setting procedure. 	<ul style="list-style-type: none"> • Presentation sequence of services • Group discussion on table set up • Activity of setting up table in formal and informal style • Demonstrate a table Set up 	2 Period (T) 5 Period (P)	Multimedia Table Crockery Dinner set Tea set Cutlery Spoons, Forks, knives Glassware Water set Water Goblets Serving Trays Stationary	Classroom F&B Lab
Personal hygiene and sanitation in F&B services	Student will be able to: <ul style="list-style-type: none"> • Define personal hygiene and sanitation in F&B • Know the importance of personal cleanliness and clean up procedures • Familiarize with the common food service accidents 	<ul style="list-style-type: none"> • Class activity related to hygiene • Activity related to cross contamination and sanitation 	4 Period (T) 2 Period (P)	Multimedia Video Stationary	Classroom

Chapter 15 Front Office Operations Management			Total 29 Period. T = 12, P = 17.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Reception Operations	Student will be able to: <ul style="list-style-type: none"> • Learn the working at reception • Understand the working of reception • Describe reservation, check-in and check-out 	<ul style="list-style-type: none"> • Class activity related to greeting guest • Role lay of welcoming guest at reception • Role play on Manual check in. • Role play on Manual check out 	2 Period (T) 7 Period (P)	Multimedia Stationary	Classroom
Bell desk, Valet and Airport Service	Student will be able to: <ul style="list-style-type: none"> • Understand the working environment of Bell desk, Valet • Understand the process followed at Bell Desk, Valet service 	<ul style="list-style-type: none"> • Group discussion about bell services • Class activity performing bell desk duties • Class activity performing valet duties 	2 Period (T) 5 Period (P)	Multimedia Stationary	Classroom

Business center	Student will be able to: <ul style="list-style-type: none"> • Understand the working of business center • Identify the relationship of business with front office 	<ul style="list-style-type: none"> • Group discussion about working of business center • Role play presenting business center working • Role play offering business center services to customer 	4 Period (T) 2 Period (P)	Multimedia Stationary	Classroom
Safety security in Front office	Student will be able to: <ul style="list-style-type: none"> • Comprehend security aspects of front office in a hotel • Identify the roles and responsibilities of reception with regards to customer care 	<ul style="list-style-type: none"> • Presentation on front desk security • Role play • Customer service-related activity • Greeting role play 	4 Period (T) 3 Period (P)	Multimedia Stationary	Classroom

Chapter 16 Food Production (Culinary Art) – II			Total 28 Period. T = 11, P = 17.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Categories of Food	Student will be able to: <ul style="list-style-type: none"> • Define food categories • Know the basic knowledge of food Categories <ul style="list-style-type: none"> ○ Fruits and vegetables ○ Rice and Pulses ○ Meat and Poultry ○ Dairy Products 	<ul style="list-style-type: none"> • Video about categories of food • Class activity presenting food categories • Visit to nearest hotel / restaurants. 	2 Period (T) 2 Period (P)	Multimedia Stationary	Classroom Visit to nearest hotel/ restaurants
Starter and Appetizer preparation	Student will be able to: <ul style="list-style-type: none"> • Define starters and appetizers • Understand the basics of starters and appetizers • Demonstrate the preparation of starters and appetizers • Soups <ul style="list-style-type: none"> ○ Chicken corn soup ○ Clear Vegetable Soup ○ Hot and Sour soup • Crackers <ul style="list-style-type: none"> ○ Fish crackers • Salad <ul style="list-style-type: none"> ○ Fresh Garden Salad ○ Greek Salad ○ Russian salad 	<ul style="list-style-type: none"> • Video about categories of food • Lab activity (Practical) • Preparation of different soups • Preparation of fish cracker • Preparation of salads 	5 Period (T) 9 Period (P)	Stove, Energy Supply, working station for kitchen, Refrigerator, Pantry, cutting boards, (White, Green, Brown), Knife set, Soup Ladle, Whisker, Soup Bowl, Cooking pan, Corn Flour, Corn, Chicken, Vegetables, Egg, Black	Classroom Lab (Kitchen)

				Pepper, White Pepper, Salt, Soya Sauce, Chili Sauce, Vinegar Stationary	
Snacks preparation	Student will be able to: <ul style="list-style-type: none"> • Understand the basics of Snacks • Demonstrate the preparation of snacks <ul style="list-style-type: none"> ○ Chicken Sandwich ○ Egg Sandwich ○ Vegetable Sandwich 	<ul style="list-style-type: none"> • Video about categories of food • Lab activity (Practical) • Preparation chicken sandwich • Preparation of egg sandwich • Preparation of vegetable sandwich 	2 Period (T) 3 Period (P)	Bread, chicken, Mayonnaise, Black Pepper, White Pepper, Salt, Egg, Vegetables, Cutting Board, Spatula, Working Station, Knife, Cling Foil Stationary	Classroom Cooking lab
Beverage's preparation	Student will be able to: <ul style="list-style-type: none"> • Understand the basics of Beverages • Demonstrate the preparation of Beverages <ul style="list-style-type: none"> ○ Lemonade ○ Mint Margareta ○ Cardamom Tea ○ Green tea ○ Fresh juice 	<ul style="list-style-type: none"> • Video about categories of food • Lab activity (Practical) • Group activity making fresh juice of any local fruit available • Group activity making tea / green tea • Group activity making fresh juice of beverages 	2 Period (T) 3 Period (P)	Cold Beverages, Lemon Soda, Sugar, Mint, Black salt, Water, Hot Beverages, Milk, Tea leaves, Lemon Grass, Cardamom, Tea Set, Glass Goblets Stationary	Classroom Cooking lab

Chapter 17 Housekeeping Management				Total 25 Period. T = 7, P = 18.	
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Guest Room Cleaning	Student will be able to: <ul style="list-style-type: none"> • Define cleaning • Describe the cleaning procedures of guestrooms • Describe the procedure of room deep cleaning services 	<ul style="list-style-type: none"> • Group discussion on cleaning • Demonstrations of dusting, • Demonstrations of mopping, 	2 Period (T) 7 Period (P)	Multimedia, duster, mop, cleaner Stationary	Classroom Visit to nearest hotel

Types of Cleaning	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Define types of cleaning <ul style="list-style-type: none"> ○ Front-of-the-house in hotel areas ○ other functional area, ○ parking • Identify housekeeper cleaning responsibilities in front-of-the-house areas of the hotel • Describe typical cleaning responsibilities of the housekeeping department in food serving areas • Know about maintaining cleaning in administrative offices etc. 	<ul style="list-style-type: none"> • Presentation on front house cleaning in hotel • Group discussion on cleaning responsibilities in hotel • Demonstrations of cleaning with broom etc. 	<p>2 Period (T) 5 Period (P)</p>	<p>Multimedia, duster, mop, cleaner Stationary</p>	<p>Classroom Visit to nearest hotel</p>
Bed Making	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Know about components of Bed. • Understand the sequence of bed making. • Demonstrate bed Making. 	<ul style="list-style-type: none"> • Presentations on bed making • Group discussion on bedmaking • Demonstrations of Bed Making • Class activity related to class dusting and cleaning of furniture 	<p>3 Period (T) 6 Period (P)</p>	<p>Multimedia, bed, bed making material dusting Stationary</p>	<p>Classroom Visit to nearest hotel</p>

Chapter 18 Time Management			Total 11 Period. T = 8, P = 3.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Importance of time Management	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Define Time Management • Describe the concept of time management. • Explain the importance of time-management. 	<ul style="list-style-type: none"> • Presentation on time management • Group discussion on time management • Show video on importance of time • Class activity making planner on charts 	<p>4 Period (T) 1 Period (P)</p>	<p>Multimedia video Stationary</p>	<p>Classroom Visit to nearest hotel</p>
Time Management Plan	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Know how to Schedule tasks according to time slots. • Know how to develop personal and professional work plan. 	<ul style="list-style-type: none"> • Videos on effective communication • Prepare a monthly planner and present in class. • Present daily personal schedule in classroom 	<p>4 Period (T) 2 Period (P)</p>	<p>Multimedia Stationary</p>	<p>Classroom Visit to nearest hotel</p>

Chapter 19 Team Work			Total 7 Period. T= 4, P = 3.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Importance of team Work	Student will be able to: <ul style="list-style-type: none"> Describe the concept of team work. Describe the importance of team work 	<ul style="list-style-type: none"> Presentation on team work Group discussion on team work in class Show video on importance of teamwork 	2 Period (T) 1 Period (P)	Multimedia Stationary	Classroom
Types of team work.	Student will be able to: <ul style="list-style-type: none"> Describe types of teamwork <ul style="list-style-type: none"> Collaboration Cooperation Coordination 	<ul style="list-style-type: none"> Divide class in team and assign cleaning task to each group Demonstrate Role play on teamwork 	2 Period (T) 2 Period (P)	Multimedia Stationary	Classroom

Chapter 20 Entrepreneurship Skill			Total 4 Period. T = 2, P =2.		
Themes / Contents	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to entrepreneurship	Student will be able to: <ul style="list-style-type: none"> Define entrepreneurship. Know the key concept of entrepreneurship. Understand business plan/activity. 	<ul style="list-style-type: none"> Presentation on entrepreneurship Design business activity 	2 Period (T) 2 Period (P)	Multimedia Stationary	Classroom

Basic Requirements for Lab (Tools / Equipment)

Crockery, Dinner set, Tea set, Cutlery, Spoons, Forks, knives, Glassware, Water set, Water Goblets, Serving Trays.	Cold Beverages, Lemon Soda, Sugar, Mint, Black salt, Water, Hot Beverages, Milk, Tea leaves, Lemon Grass, Cardamom, Tea Set, Glass Goblets
Stove, Energy Supply, working station for kitchen, Refrigerator, Pantry, cutting boards, (White, Green, Brown), Knife set, Soup Ladle, Whisker, Soup Bowl, Cooking pan, Corn Flour, Corns, Chicken, Vegetables, Egg, Black Pepper, White Pepper, Salt, Soya Sauce, Chili Sauce, Vinegar	duster, mop, cleaner
Bread, chicken, Mayonnaise, Black Pepper, White Pepper, Salt, Egg, Vegetables, Cutting Board, Spatula, Working Station, Knife, Cling Foil	bed, bed making material dusting

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Introduction to Tourism

Aims and Objectives:

The specific objectives of developing these qualifications are as under:

- Provide students with a smooth transition to work.
- Develops job-readiness & enhance students' trade-specific employable skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I - II technical training certification or equivalent in each trade.
- To set high profile standard professions for the industry to generate standard outputs.
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this, the students will be able to:

- Explain the core elements and the historical development of the tourism value chain.
- Give an account of essential tourism trends.
- Demonstrate an understanding of different tourism and hospitality products.
- Understand the evolution of tourism and hospitality products, how they were marketed both historically and currently.
- Point out relevant industry stakeholders & their roles in driving innovative tourism policy making and decision-making processes strategically forwards.
- Discuss central challenges in tourism today, such as that of the impacts of tourism and corporate social responsibility practices for implementation.
- The core elements in tourism & the historical development of the tourism industry.
- Core challenges in tourism today, such as the human, economic and environmental of tourism.

Middle Tech (ALP) Introduction to Tourism (Package-D)

Chapter # 1 Health and Safety in Tourism			Total 24 Period. T= 15, P=9.		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Health and Tourism	The student will be able to: <ul style="list-style-type: none"> • Define what is health • Describe basic principles of health. 	<ul style="list-style-type: none"> • Give a Presentation on principles of good health with respect to tourism. 	05 Periods (T) 03 Periods (P)	Computer Multimedia High speed internet.	Classroom
Personal Hygiene	The student will be able to: <ul style="list-style-type: none"> • Understand the personal hygiene • Define the importance of following: <ul style="list-style-type: none"> ○ Grooming ○ Uniform (Clean) ○ Appearance ○ Deodorizers ○ Shoes • Understand protocols of personal hygiene 	<ul style="list-style-type: none"> • Give a presentation on personal hygiene. 	04 Periods (T) 02 Periods (P)	Computer, Multimedia	Classroom, Field, Lab
Safety in Tourism	The student will be able to: <ul style="list-style-type: none"> • Know safe and reliable tourism • Understand about safety and security precautions during travel and tour • Understand safety and security precautions in different situations. 	<ul style="list-style-type: none"> • Discussion about safe and reliable tourism considering local case studies 	06 Periods (T) 04 Periods (P)	Computer High speed internet.	Classroom, Field, Lab

Chapter # 2 Personal Protective and Safety Equipment			Total 18 Period. T=10, P=8		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Personal Protective Equipment (PPE)	The student will be able to: <ul style="list-style-type: none"> • Briefly define PPEs • Enumerate the required Personal Protective Equipment for various types of tourism activities • Describe personal protective equipment in terms of type and quantity according to the situation 	<ul style="list-style-type: none"> • Enlist personal protective equipment according to the tours locally conducted • Demonstrate the proper storage of PPEs after use. 	05 Periods (T) 04 Periods (P)	PPEs Kit for Tourism Computer, Multimedia High speed internet	Classroom
Safety Equipment	The student will be able to: <ul style="list-style-type: none"> • Know the personal protective equipment according to job requirements • Know the importance of proper storage of safety equipment. 	<ul style="list-style-type: none"> • Conduct Group discussion on various types of tourism and their required PPEs. 	05 Periods (T) 04 Periods (P)	PPEs Kit for Tourism Computer, Multimedia High speed internet	Classroom, Field, Lab

Chapter # 3 Introduction to Tourism			Total 25 Period. T=13, P=12		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Definition of Tourism	<p>The student will be able to:</p> <ul style="list-style-type: none"> Define tourism Describe key elements in tourism. 	<ul style="list-style-type: none"> Give a presentation on Tourism. 	06 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet, tourist map, national / regional maps, World map,	Classroom / Lab
Basics of Tourism	<p>The student will be able to:</p> <ul style="list-style-type: none"> Differentiate between the following <ul style="list-style-type: none"> travelers, tourists, excursionists, explorer, tourism promoters, tourism service suppliers 	<ul style="list-style-type: none"> Prepare an assignment on different types of tourism services providers. 	04 Periods (T) 06 Periods (P)	Computer, Multimedia, High speed internet	Classroom, Field, Lab
Importance of Tourism	<p>The student will be able to:</p> <ul style="list-style-type: none"> Define the role of tourism in national economy. Describe various economic activities in tourism. 	<ul style="list-style-type: none"> Present a speech on "tourism as a major contributor in economy of a region". 	03 Periods (T) 02 Periods (P)	Computer, Multimedia, High speed internet, National Map	Classroom, Field, Lab

Chapter # 4 History of Tourism			Total 23 Period. T=15, P=8		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Tourism	<p>The student will be able to:</p> <ul style="list-style-type: none"> Define history of tourism. Recognize the importance of history in tourism. Know modern history of tourism. 	<ul style="list-style-type: none"> Carryout Group Discussion on the history of Tourism 	05 Periods (T) 02 Periods (P)	Computer, Multimedia, High speed internet,	Classroom
Evolution of Tourism	<p>The student will be able to:</p> <ul style="list-style-type: none"> Understand various phases of history of tourism <ul style="list-style-type: none"> pre-historic period travel Roman Empire Middle Age 16th Century 17th Century Industrial Revolution 19th to 20th Centuries Describe various phases of history 	<ul style="list-style-type: none"> Give a presentation on various phases of the history 	05 Periods (T) 3 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab

Development of Tourism as Industry	The student will be able to: <ul style="list-style-type: none"> • Understand the following periods: <ul style="list-style-type: none"> ○ industrial period tourism ○ modern tourism • Describe important occasions during these era's. 	<ul style="list-style-type: none"> • Carry out group discussion to find out the important occasions during these era's 	05 Periods (T) 3 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
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Chapter # 5 Types of Tourism			Total 28 Period. T=12, P=16		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Major Types of Tourism	The student will be able to: <ul style="list-style-type: none"> • Learn about various types of tourism: <ul style="list-style-type: none"> ○ Eco-Tourism ○ Adventure Tourism ○ Archeological tourism ○ Agri-Tourism ○ Cultural heritage tourism ○ Religious tourism ○ Medical Tourism ○ Sports Tourism • Discuss various types of tourism existing in Pakistan • Discover important sites\attractions of various types of Tourism in Pakistan 	<ul style="list-style-type: none"> • Give a presentation on importance of tourism in context to Pakistan. 	06 Periods (T) 08 Periods(P)	Computer, Multimedia, High speed internet,	Classroom
Types of Tourists	The student will be able to: <ul style="list-style-type: none"> • Understand & conceptualize the following types of tourists: <ul style="list-style-type: none"> ○ Special needs tourists ○ Very Important Persons (VIPs) Tourist ○ Senior Tourists ○ Family ○ Groups • Describe types of tourist flow in local/region. 	<ul style="list-style-type: none"> • Submit an assignment on tourist's types in context to your region. 	06 Periods (T) 08 Periods(P)	Computer, Multimedia, High speed internet.	Classroom, Field, Lab

Chapter # 6 Tourism & Affiliated Sectors (Hospitality)			Total 24 Period. T=15, P=9		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Hospitality	The student will be able to: <ul style="list-style-type: none"> • Define the basics of hospitality • Comprehend the meanings of hospitality industry. • Enlist the different products and services offered in hospitality industry. 	<ul style="list-style-type: none"> • Give a presentation on hospitality sector. 	05 Periods (T) 03 Periods(P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field
History and Background of	The student will be able to: <ul style="list-style-type: none"> • Briefly define history of hospitality. 	<ul style="list-style-type: none"> • Prepare a timeline on the evolution of 	05 Periods (T)	Computer, Multimedia, High speed	Classroom, Field, Lab

Hospitality Industry	<ul style="list-style-type: none"> Understand various phases of evolution of hospitality industry; <ul style="list-style-type: none"> 19th century 20th century Modern 	hospitality industry.	03 Periods(P)	internet,	
Scope of Hospitality Industry	<p>The student will be able to:</p> <ul style="list-style-type: none"> Know the scope of hospitality industry: <ul style="list-style-type: none"> hotels accommodation food services transportation MICE Enlist the local hospitality services providers 	<ul style="list-style-type: none"> Visit of any nearby hotel. 	05 Periods (T) 3 Periods(P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field, Lab

Chapter # 7 Tourism & Affiliated Sectors (Travel & Transportation)			Total 34 Period. T=19, P=15		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Travel and Transportation	<p>The student will be able to:</p> <ul style="list-style-type: none"> Define various modes of transportation. Understand the importance of transportation with reference to Tourism. 	<ul style="list-style-type: none"> Give a presentation on the importance of transportation in Tourism industry. 	06 Periods (T) 04 Periods(P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
Modes of Travel and Transportation	<p>The student will be able to:</p> <ul style="list-style-type: none"> Know about the three basic types of travel & transportation <ul style="list-style-type: none"> land based water based air based Know about the modes of travel & transportation <ul style="list-style-type: none"> airlines railways roads cruise ships Describe the pros and cons of different means of transportation. 	<ul style="list-style-type: none"> Carry out group discussions on the importance of different means of transportation. Visits of any nearby Airport / Railway station/Bus Terminal. 	13 Periods (T) 11 Periods(P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab

Chapter # 8 Tourism and Environment			Total 30 Period. T= 14, P= 16.		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Impacts of Tourism on Environment	<p>The student will be able to:</p> <ul style="list-style-type: none"> Understand the meaning of environment. Understand the following impacts of Tourism on the environment: <ul style="list-style-type: none"> Congestion 	<ul style="list-style-type: none"> Prepare a strategy to avoid bad impact of tourism on environment 	11 Periods (T) 11Periods (P)	Computer, Multimedia, High speed internet.	Classroom, Field, Lab

	<ul style="list-style-type: none"> ○ Pollution ○ Air Pollution ○ Hygienic Conditions ○ Greenhouse effect ● Describe negative and positive impacts of tourism on environment. 				
Responsible Tourism	The student will be able to: <ul style="list-style-type: none"> ● Define responsibilities of tourists. ● Describe the techniques to minimize the bad impact of tourism on environment. 	<ul style="list-style-type: none"> ● Visit a nearby tourist spot and perform cleaning activity. 	03 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet	Classroom, Field, Lab

Chapter # 9 Communication & IT Skills			Total 40 Period. T= 20, P=20		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Path Of Success	The student will be able to: <ul style="list-style-type: none"> ● Understand basic Communication Skills ● Define Self Confidence ● Define Value of time ● Define decision Power ● Define Discipline 	<ul style="list-style-type: none"> ● Role plays as an effective communicator . 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom
Team work	The student will be able to: <ul style="list-style-type: none"> ● Understand Team formation ● Comprehend the components of Teamwork ● Adopt communication skills required for effective teamwork ● Learn how to Disseminate Information within organization 	<ul style="list-style-type: none"> ● Form teams in supervision of your teacher and work together to achieve a common goal. 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
Effective Communication for Customer Services	The student will be able to: <ul style="list-style-type: none"> ● Define Customer ● Know the value of customer ● Describe types and principles of effective & Interactive communication ● Describe the importance of communication skills for negotiations ● Know telephone etiquettes. 	<ul style="list-style-type: none"> ● Role play for providing customer services on reception. 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet, Reception Desk Telephone.	Classroom, Field, Lab
Demonstrate Basic IT Skills	The student will be able to: <ul style="list-style-type: none"> ● Define the Computer ● Know about input/Output Devices ● Know folders and files. ● Learn major commands of operating system / Windows ● Learn MS Office and Commands ● Know the use of internet 	<ul style="list-style-type: none"> ● Student will be given Lab exposure for the basic use of computer ● Student will be given assignment to be completed on MS Word. 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet, Computer LAB	Classroom, Field, Lab

Middle Tech (ALP) Introduction to Tourism (Package-E)

Chapter # 1 Occupational Safety and Health (OSH)					
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Hazards at Workplace	The student will be able to: <ul style="list-style-type: none"> • Define personal protective equipment (PPE) • Define risks & hazards at workplace • Define potential hazards • Define safety precautions • Understand safety signs and symbols 	<ul style="list-style-type: none"> • Presentation • Group discussion • Create your own PPE kit for biohazards 	04 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field
Occupational Safety and Health (OSH)	The student will be able to: <ul style="list-style-type: none"> • Define importance of OSH • Describe health and safety precautions and guidelines • Understand importance of keeping work area clean & Hygienic • Know how to deal with Health & Safety Problems • Describe First Aid treatment methods and methods of Resuscitation 	<ul style="list-style-type: none"> • Conduct a visit of their own school or any nearby place to observe the OSH practices 	04 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field, Lab
Fire hazards	The student will be able to: <ul style="list-style-type: none"> • Know Types of Fire Hazards • Classification of Fire • Types of Fire extinguishers • Learn to report a Fire Incidents • Know the SOP's During fire incident 	<ul style="list-style-type: none"> • Conduct a visit of office of 1122 to observe the fire safety drill 	04 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field, Lab

Chapter # 2 Introduction to Geography of Pakistan			Total 21 Period. T=12, P=9		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Geography	The student will be able to: <ul style="list-style-type: none"> • Know what geography is. • Describe the importance of geography • Know the location of Pakistan on the atlas 	<ul style="list-style-type: none"> • Interpret national tourism map 	04 Periods (T) 03 Periods (P)	Computer, Multimedia, High speed internet, Map Tracing table, World map and regional maps	Classroom / Lab
Physical Features of Pakistan	The student will be able to: <ul style="list-style-type: none"> • Describe physical features of Pakistan (Brief Description) • Know the different types of maps • (Physical, Political, Tourist maps) 	<ul style="list-style-type: none"> • Draw a rough sketch of local tourist destination map 	04 Periods (T) 03 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
Importance of	The student will be able to: <ul style="list-style-type: none"> • Know how to read tourist map 	<ul style="list-style-type: none"> • Draw national 	04 Periods (T)	Computer, Multimedia,	Classroom, Field, Lab

Geography in Tourism	<ul style="list-style-type: none"> Understand different symbols on a map Understand symbols on map as a tour guide tool 	tourism map focusing on famous tourist attraction <ul style="list-style-type: none"> Sketch the map of Pakistan with detail 	03 Periods (P) Total = 21	High speed internet,	
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Chapter # 3 Travel Motivators & Tourist Flows			Total 14 Period. T=8, P=6		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Travel Motivators	The student will be able to: <ul style="list-style-type: none"> Define motivators Understand purpose of traveling: Classify the following motivators: <ul style="list-style-type: none"> Leisure/Holiday Business Cultural Exploration Study Religious Pilgrimage Health Sports Visiting Family/Friend 	<ul style="list-style-type: none"> Presentations Discuss personal travel experiences 	04 Periods (T) 03 Periods (P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field
Concept of Tourist Flow	The student will be able to: <ul style="list-style-type: none"> Understand the Tourist flow Define major factors influencing patterns of tourist flow: <ul style="list-style-type: none"> natural attractions man-made attractions cost climate political, Cultural & Business Ties perception of Destination Image Know travel motivators in their area. 	<ul style="list-style-type: none"> Visits to famous nearby places to know about the type of place which attract what type of tourism List down the travel motivators of your area. 	04 Periods (T) 03 Periods (P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field, Lab

Chapter # 4 Tourism Destinations of Pakistan			Total 18 Period. T=9, P=9		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Types of destinations	The student will be able to: <ul style="list-style-type: none"> Define the different Types of destinations Understand importance of destinations Describe the importance of destination management organizations (DMO's) 	<ul style="list-style-type: none"> Group work Presentations Demonstrations Group presentation about nearest tourist destination 	04 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet	Classroom
Important tourist	The student will be able to: <ul style="list-style-type: none"> Know about the following 	<ul style="list-style-type: none"> Group presentation 	05 Periods (T)	Computer, Multimedia,	Classroom, Field, Lab

Destinations of Pakistan	<p>important destinations of Pakistan:</p> <ul style="list-style-type: none"> ○ Mountain Peaks ○ Highest trade route in the world ○ Gandhara Civilization ○ Mountain ranges and Caves in Baluchistan ○ Mohenjo-Daro ○ Harappa ○ Northern Areas (GB) ○ Kagan and Swat Valley ○ Indus Valley Civilization 	about the significant Tourism destinations of Pakistan	05 Periods (P) Total = 18	High speed internet	
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Chapter # 5 Tourism Organizations / Boards in Pakistan			Total 28 Period. T=16, P=12.		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
National Bodies for promoting tourism	<p>The student will be able to:</p> <ul style="list-style-type: none"> • Know about the following national bodies: <ul style="list-style-type: none"> ○ National Tourism Coordination Board (NTCB) ○ Pakistan Tourism Development Corporation (PTDC) ○ Department of Tourist Services (DTS) 	<ul style="list-style-type: none"> • Presentations • Group work • role plays 	06 Periods (T) 04 Periods(P)	Computer, Multimedia, High speed internet,	Classroom
Provincial Tourism Departments	<p>The student will be able to:</p> <ul style="list-style-type: none"> • Understand the objectives of the following departments: <ul style="list-style-type: none"> ○ Tourism development corporation of Punjab (TDCP) ○ Khyber Pakhtunkhwa Culture & Tourism Authority (KPTCA) ○ Tourism Department Gilgit Baltistan (TDGB) ○ Tourism and Archeology department of Azad Jammu & Kashmir ○ Department of culture archives and tourism Baluchistan ○ Sindh Tourism Development Corporation (SDTC) • Understand the objectives and functions of these bodies 	<ul style="list-style-type: none"> • Individual presentation about the functionality of any of the selected provincial tourism department. 	06 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
Tourism Associations and Foundations	<p>The student will be able to:</p> <ul style="list-style-type: none"> • Describe the following tourism associations: <ul style="list-style-type: none"> ○ Pakistan Hotels 	<ul style="list-style-type: none"> • Visit to the nearest office of any of the associations 	04 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab

	Association <ul style="list-style-type: none"> ○ Travel agent association of Pakistan (TAAP) ○ Sustainable tourism foundation Pakistan (STFP) ○ Alpine Club of Pakistan (ACP) ○ Adventure Foundation Pakistan (AFP) <ul style="list-style-type: none"> ● Understand the objectives and functions of these bodies` 	near your school			
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Chapter # 6 Impact of Tourism			Total 25 Period. T=13, P=12		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Social & Cultural Impact	The student will be able to: <ul style="list-style-type: none"> ● Understand social aspects (Improve the way of Life) ● Understand cultural aspects (encourage cultural exchange) ● Explain Cultural conservation 	<ul style="list-style-type: none"> ● Presentations ● Group work ● role plays 	05 Periods (T) 04 Periods (P)	Computer, Multimedia, High speed internet, Logistics for exposure visit	Classroom, Field, Lab
Economic Impact	The student will be able to: <ul style="list-style-type: none"> ● Understand the following: <ul style="list-style-type: none"> ○ Job Creation (direct/indirect employment) ○ importance of tax revenue by tourism activity ○ how tourism raise the living standard of the community 	<ul style="list-style-type: none"> ● Individual presentation about the economic impact of tourism activity in any selected region of Pakistan 	05 Periods (T) 03 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
Environmental Impact	The student will be able to: <ul style="list-style-type: none"> ● Know Preservation and conservation of environment ● Understand enhancement of environment 	<ul style="list-style-type: none"> ● Visit the nearest park or tourist spot to conduct a cleaning campaign 	03 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab

Chapter # 7 Ethics of Tourism			Total 24 Period. T=14, P=10.		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Ethics & Tourism industry	The student will be able to: <ul style="list-style-type: none"> ● Briefly define ethics ● Describe the importance of ethics in Tourism ● Know tourism related ethics 	<ul style="list-style-type: none"> ● Presentations ● Group work ● Role plays ● Demonstrate ethics in arranging a tour at school level 	08 Periods (T) 06 Periods (P)	Computer, Multimedia, High speed internet, Transportation	Classroom
Global Context	The student will be able to: <ul style="list-style-type: none"> ● Describe the importance of human rights in tourism 	<ul style="list-style-type: none"> ● Presentations 	06 Periods (T)	Computer, Multimedia, High speed	Classroom, Field, Lab

	industry • Know about main features of tourist's code of behavior based on Global Code of Ethics by UNWTO		04 Periods (P)	internet,	
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Chapter # 8 Careers in Tourism Industry			Total 26 Period. T=13, P=13		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Human Resource	The student will be able to: • Define Human Resource • Understand importance of Human resources • Know career prospects in tourism Industry	<ul style="list-style-type: none"> • Presentations • Group work • Role plays • Invitation of successful persons of the tourism industry as guest speakers for the school 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom
Importance of Industrial Training	The student will be able to: • Define Training • Understand importance of Training and • Differentiate between trained and under trained professionals	<ul style="list-style-type: none"> • Group Presentations to highlight the importance of training in tourism 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab
Careers & Scope	The student will be able to: • Define career benefits of tourism industry • Understand employability prospects in tourism industry	<ul style="list-style-type: none"> • Presentation of successful case studies of tourism industry professionals 	03 Periods (T) 03 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab

Chapter 9 Tour Guide			Total 20 Period. T=10, P=10		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Roles & Responsibilities of a Tour Guide	The student will be able to: • Define briefly about tour guide • Differentiate between Area and Tour Guide • Describe roles and responsibilities of tour and area guide	<ul style="list-style-type: none"> • Presentations • Group work • Home assignments 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom
Required skills for a successful tour Guide	The student will be able to: • Know the required skills for a professional tour guide: ○ Communication skills ○ Content knowledge ○ Physical appearance ○ Personal grooming ○ Customer services skills ○ Troubleshooting skills	<ul style="list-style-type: none"> • Role plays as tours and area guide. 	05 Periods (T) 05 Periods (P)	Computer, Multimedia, High speed internet,	Classroom, Field, Lab

Basic Requirements for Lab (Tools / Equipment)

No	Item (Tools / Equipment)	Specification if Any	Quantity
1	Multimedia Projector with white screen	Sony or Equivalent	1
2	Computer with Accessories with internet device		
3	Tracing table,		
4	Tourist Map		
5	National and Regional Maps		
6	World map, Asia Map, South-east Asia Map (political maps)		
7	Tourism brochures		

Curriculum Development, Review and Validation Committee

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Graphic Design

Aims and Objectives:

The specific objectives of developing qualifications are as under:

- Provide students with a smooth transition to work.
- Develops job- readiness & enhance students' trade-specific skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I-II technical training certification or equivalent in a given trade.
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this, the students will be able to:

- Familiarize with basic principles and fundamentals in visuals art and design.
- Understand core elements in graphic designing.
- Apply basic skills in graphic designing.
- Able to create basic level designs to convey desired idea.
- Develop basics skills of using tools and theory used in design process.
- Enhance their creative and critical thinking skills.
- Understand creative process, techniques and method of creative problem solving.

Middle Tech (ALP) Graphic Design (Package-D)

Ch # 01: Information Communication Technology (ICT)		Total 26 Periods. 10 =(T), 16 = (P)			
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to ICT	Students will be able to: <ul style="list-style-type: none"> • Know about ICT • Know various devices of ICT 	<ul style="list-style-type: none"> • Group Presentation / Discussion on application of ICT in daily life. 	02 Period (T) 04 Period (P)	Multimedia, Computer with accessories	Lab / Classroom
Role of ICT	Students will be able to: <ul style="list-style-type: none"> • Understand role of ICT in: <ul style="list-style-type: none"> ○ Education ○ Health ○ Security ○ Business 	<ul style="list-style-type: none"> • Group Presentation / Discussion on role of computer in different fields of life. 	03 Period (T) 05 Period (P)	Multimedia, Computer with accessories	Lab / Classroom
Health related issues of using ICT Devices	Students will be able to: <ul style="list-style-type: none"> • Understand health risks and its mitigations associated to ICT Devices. • Describe the health-related issues of using technology. 	<ul style="list-style-type: none"> • Group discussion / Presentation on health issues using ICT devices. • Demonstration of adoption of personal health safety in ICT. • Discussion / presentation on; <ul style="list-style-type: none"> ○ Posture related injuries (Back and Neck ache, Muscle and joint problems. ○ Syndrome and Repetitive Strain Injury). ○ Eyestrain (Computer Vision Syndrome and Photosensitive. ○ Sleeping Disorders. 	05 Period (T) 07 Period (P)	Multimedia, Computer with accessories	Lab / Classroom

Ch # 02 Introduction to Computer		Total 27 Periods. 12 =(T), 15 = (P)			
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Computer	Students will be able to: <ul style="list-style-type: none"> • Know about computer. • Know Brief History of computer. • Understand the Role of computer in daily life 	<ul style="list-style-type: none"> • Group Presentation /Discussion on importance of computer in daily life. 	04 Period (T) 04 Period (P)	Multimedia, Computer with accessories.	Lab / Classroom
Components	Students will be able to:	<ul style="list-style-type: none"> • identify input 	08 Period	Computer	Lab /

of Computer	<ul style="list-style-type: none"> • Know about components of Computer. • Differentiate between hardware and software • Illustrate input devices <ul style="list-style-type: none"> ○ Keyboard ○ Mouse ○ Scanner ○ Microphone • Illustrate Output Devices <ul style="list-style-type: none"> ○ Monitor ○ Printer ○ Speaker ○ Webcam 	<ul style="list-style-type: none"> and output devices. • Prepare a chart for Input Devices. • Prepare a chart for Output Devices. • Demonstration of peripherals connection with system unit. 	(T) 11 Period (P)	and its accessories	Classroom
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Ch.3 Operating System Software		Total 30 Period. 15= (T) 15= (P)			
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Software	Students will be able to: <ul style="list-style-type: none"> • Know about software. • Describe types of Software. • Define System Software. • Define Application Software. • Define Operating System. • Define Windows • Explain elements of window start up screen • Know about the Desktop Environment 	<ul style="list-style-type: none"> • Make a Flowchart on Types of software. • Explore the Windows Desktop environment. 	08 Periods (T) 05 Periods (P)	Computer and its accessories Microsoft Windows Software	Lab / Classroom
Managing Files and Folders	Students will be able to: <ul style="list-style-type: none"> • Define File, a Folder, shortcut, and a drive (with examples). • Explain the steps require to: <ul style="list-style-type: none"> ○ Create a new file, folder, and shortcut. ○ cut, copy, and paste a file / folder to another folder / location ○ drag and drop a File / Folder to another Folder / Location ○ deletion of a File / Folder. 	<ul style="list-style-type: none"> • Create, Cut, copy paste, rename, and delete the file folder and shortcut. • Create folders, rename them with your classmates and create files inside these folders and rename them, copy/paste in other folders/ locations. 	07 Periods (T) 10 Periods (P)	Computer and its accessories Microsoft Windows Software	Lab / Classroom

Ch.4 Application Software			Total 22 Period. 10=(T)12=(P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Application Software	Students will be able to: <ul style="list-style-type: none"> • Know application software. 	<ul style="list-style-type: none"> • Group Presentation/ Discussion on the 	04 Periods (T)	Computer and its accessories	Lab / Classroom

	<ul style="list-style-type: none"> Describe the use of application software in entertainment software, educational software, productivity software. 	<ul style="list-style-type: none"> uses of application Software. Enlist the usage of Application Software. 	06 Periods (P)	Multimedia	
Productivity Software	<p>Students will be able to:</p> <ul style="list-style-type: none"> Understand the use of; <ul style="list-style-type: none"> Productivity software Word Processing Presentation Software Spreadsheet software Graphic and Multimedia software Know about; <ul style="list-style-type: none"> Computer Aided Design Paint Software Photo editing software Drawing Software Video and Audio editing software 	<ul style="list-style-type: none"> Group Presentation/ Discussion on the uses of Different software. Enlist the usage of Productivity Software. 	06 Periods (T) 06 Periods (P)	Computer and its accessories Multimedia	Lab / Classroom

Ch.5 Graphic Designing			Total 45 Period. 20= (T) 25=(P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Graphic designing	<p>Students will be able to:</p> <ul style="list-style-type: none"> Understand the basic concept of graphic Designing. Enumerate the applications of Graphic Designing 	<ul style="list-style-type: none"> Group Presentation / Discussion on application of graphic Designing. 	04 Periods (T) 03 Periods (P)	Computer and its accessories Multimedia	Lab / Classroom
Elements of Graphic Designing	<p>Students will be able to:</p> <ul style="list-style-type: none"> Understand the basic elements of graphic designing: <ul style="list-style-type: none"> Line Shape Color Texture Type Space Image 	<ul style="list-style-type: none"> Group Presentation / Discussion on elements of graphic Designing. 	04 Periods (T) 03 Periods (P)	Computer and its accessories Multimedia	Lab / Classroom
Introduction of Color Theory	<p>Students will be able to:</p> <ul style="list-style-type: none"> Define the different types of color perception Explain Color Theory Describe Color wheel Understand the importance of color theory in designing 	<ul style="list-style-type: none"> Create a color wheel. 	06 Periods (T) 04 Period (P)	Computer and its accessories	Lab / Classroom
Working with Paint 3D	<p>Students will be able to:</p> <ul style="list-style-type: none"> Explain the purpose of Paint 3D as a design tool Know about free hand drawings with different brush types. 	<ul style="list-style-type: none"> Draw basic shapes and color it. Write text of shapes. 	06 Periods (T) 15 Period (P)	Computer and its accessories	Lab / Classroom

	<ul style="list-style-type: none"> • Produce an image using 2D shapes like lines, circles, polygons, etc. • Produce an image using 3D shapes • Add text to a drawing • Save a file and open saved files. • Apply the drawing tools to draw an image. 	<ul style="list-style-type: none"> • Create 2D images and objects using different shapes. • Prepare 3D images and objects using different tools and shapes. 			
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Ch.6 Typing Practice			Total 40 Period. 10= (T) 30= (P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Use typing Master	Students will be able to: <ul style="list-style-type: none"> • Know about Alpha/Numeric Characters. • Know about special keys of keyboard. • Apply fingers on correct positions on keyboard 	<ul style="list-style-type: none"> • Improve the typing speed with accuracy by practicing various lessons. • Participate in Competition between students on typing speed. 	04 Periods (T) 10 Periods (P)	Computer and its accessories	Lab / Classroom
Use Microsoft Word	Students will be able to: <ul style="list-style-type: none"> • Know how to Create, save and open documents. • Know how to apply Cut, copy and paste text. • Know how to apply font formatting. • Know how to apply paragraph formatting. • Know how to inserting bullets and numbering list. • Know how to insert and managing tables. • Know how to insert pictures and shapes. • Know Print a document. 	<ul style="list-style-type: none"> • Compose letters and reports in Microsoft Word. • Create a list using bullets and numbering. • Insert a table and make Time Table. • Insert a picture and shapes. 	06 Periods (T) 20 Periods (P)	Computer and its accessories	Lab / Classroom

Ch.7 Fundamental of Internet			Total 12 Period. 05 = (T) 07= (P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Internet	Students will be able to: <ul style="list-style-type: none"> • Know about the Internet. • Understand the Importance of Internet. • Describe advantages and disadvantages of Internet. • Describe the application of Internet in <ul style="list-style-type: none"> ○ Education ○ Business 	<ul style="list-style-type: none"> • Search and enlist the internet usage e.g., education, information, entertainment. • Search and enlist the usage of internet in online business, 	05 Period (T) 07 Period (P)	Computer and its accessories Internet Connection	Lab / Classroom

	<ul style="list-style-type: none"> ○ Job searching ● Know how to use internet browser to explore internet web sites. 	shopping, Job searching etc.			
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Chapter 08 Soft Skills			Total 33 Period, T = 12, P =21		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Soft Skills	The students will be able to: <ul style="list-style-type: none"> ● Know the basic Soft Skills. ● Understand the importance of soft skills in daily life <ul style="list-style-type: none"> ○ Self-confidence, ○ Self-discipline, ○ Decision making, ○ Critical thinking, ○ Problem solving 	<ul style="list-style-type: none"> ● Group discussion and model presentation on soft skills 	03 Periods (T) 04 Periods (P)	Computer and its accessories, Internet Connection	Lab / Classroom
Personal and professional grooming	The students will be able to: <ul style="list-style-type: none"> ● Explain the personal and professional aspects of life. ● Understand the importance of self-image. 	<ul style="list-style-type: none"> ● Perform role play to enhance self-awareness, self-confidence and self-image. ● Demonstrate a pictorial presentation on personal and professional grooming. 	03 Periods (T) 05 Periods (P)	Computer and its accessories Internet Connection	Lab / Classroom
Time Management	The students will be able to: <ul style="list-style-type: none"> ● Know the concept of better time management. ● Understand the importance of time management ● Understand the concept of professional and personal time management. ● Know how to observe time management in daily life. 	<ul style="list-style-type: none"> ● Arrange a small competition task following time management. 	03 Periods (T) 06 Periods (P)	Computer and its accessories	Lab / Classroom
Attitude, Behavior, and Customer Care	The students will be able to: <ul style="list-style-type: none"> ● Define the concepts of attitude and behavior ● Understand the impact of positive and negative attitude in professional life 	<ul style="list-style-type: none"> ● Through different scenarios practically apply the principles of customer care and positive attitude. ● Exercise and deal with problematic and angry persons by conducting role plays 	03 Periods (T) 06 Periods (P)	Computer and its accessories	Lab / Classroom

Middle Tech (ALP) Graphic Design (Package-E)

Ch1. Application Services of Internet			Total 32 Period. 17=(T) 15=(P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Internet services	Students will be able to: <ul style="list-style-type: none"> • Know the use Internet in daily life • Know how to use: <ul style="list-style-type: none"> ○ World Wide Web ○ Instant Messaging ○ Social Media ○ Create Email Address ○ Compose new Email ○ Send and Receive Email ○ Email Attachment 	<ul style="list-style-type: none"> • Group Presentation / discussion on Internet Services • Create Email Address send mail using attachment 	08 Period (T) 07 Period (P)	Computer and its accessories, Internet Connection Internet Browser	Lab / Classroom
Communication on the Internet	Students will be able to: <ul style="list-style-type: none"> • Know how to use different social media services: <ul style="list-style-type: none"> ○ Chat room ○ Instagram ○ YouTube ○ Blogs ○ Facebook ○ Twitter 	<ul style="list-style-type: none"> • Group Presentation/ discussion on social media services. • Take lesson from Telly school and from Sabaq.com • Create Facebook Account. 	09 Period (T) 08 Period (P)	Computer and its accessories, Internet Connection Multimedia Internet Browser	Lab / Classroom

Ch.2 PhotoScape X / Photoshop			Total 47 Period. 17= (T) 30=(P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to PhotoScape X / Photoshop.	Students will be able to: <ul style="list-style-type: none"> • Know the PhotoScape X / Photoshop. • Understand the Interface of PhotoScape X / Photoshop. • Enumerate the feature of PhotoScape X / Photoshop. • Understand the Usage of PhotoScape / Photoshop. 	<ul style="list-style-type: none"> • Group Presentation/ discussion on the Interface of PhotoScape / Photoshop. • Recognize the elements of interface. • Enlist the Feature of PhotoScape / Photoshop. 	04 Periods (T) 05 Periods (P)	Computer and its accessories, Internet Connection Multimedia	Lab / Classroom
Working on PhotoScape X / Photoshop.	Students will be able to: <ul style="list-style-type: none"> • Know how to; <ul style="list-style-type: none"> ○ Create new image ○ Save / Save as ○ Create new Blank image ○ Redo+ 	<ul style="list-style-type: none"> • Create an image and save in Folder. 	02 Period (T) 03 Period (P)	Computer and its accessories	Lab / Classroom
Editing Tools	Students will be able to: <ul style="list-style-type: none"> • Know how to Apply Bright & Color: <ul style="list-style-type: none"> ○ Deepen ○ Brighten 	<ul style="list-style-type: none"> • Create different images and apply Editing Tools. • Create an image and Resize Apply 	03 Period (T) 07 Period (P)	Computer and its accessories	Lab / Classroom

	<ul style="list-style-type: none"> ○ Gamma Bright ○ Contrast ○ Saturation ○ Backlight ○ Bloom ● Know how to apply Crop ● Know how to apply Resize ● Know how to apply: <ul style="list-style-type: none"> ○ Cut Out ○ Cut Out Mask 	Cut Out and Cut Out Mask.			
Effects And Filters	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know how to apply Effects: <ul style="list-style-type: none"> ○ Film Effect ○ Black & White ○ Sepia ○ Bandicoot ○ Greyscale ○ Invert ● Know how to apply filters: <ul style="list-style-type: none"> ○ Antique Photo ○ Noise ○ Vignetting 	<ul style="list-style-type: none"> ● Create different images and apply all Effects and Filters 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Frames & Text	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know how to apply: <ul style="list-style-type: none"> ○ Frames/ Border ○ Text/ Wrap Text ○ Text Mask 	<ul style="list-style-type: none"> ● Apply different frames on image and add text 	02 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Batch, GIF, Collage, Combine	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know how to: <ul style="list-style-type: none"> ○ Create Batch ○ Batch Change Format ○ Batch Resize ○ Batch Rename ● Student will be able to Create Animated GIF: <ul style="list-style-type: none"> ○ Collage ○ Combine ○ Split and Combine 	<ul style="list-style-type: none"> ● Create a collage with different images. ● Create Animated GIF. 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom

Ch. 3 Photo Pad / Photoshop.			Total 33 Period. 10=(T) 23=(P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction of Photo Pad / photoshop	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know concept of Photo Pad ● Understand the interface of Photo Pad ● Understand the Importance of Photo Pad ● Explain Features of Photo Pad 	<ul style="list-style-type: none"> ● Explore the Photo pad / Photoshop features. ● Group Discussion / Presentation the Interface of Photo Pad / Photoshop. ● Recognition the elements of Photo Pad/ Photoshop. 	04 Period (T) 03 Period (P)	Computer and its accessories Multimedia	Lab / Classroom
Working on Photo Pad /	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know how to: <ul style="list-style-type: none"> ○ Create a new image. 	<ul style="list-style-type: none"> ● Create a collage and set as a wallpaper 	02 Period (T) 05 Period	Computer and its accessories	Lab / Classroom

Photoshop	<ul style="list-style-type: none"> ○ Create a collage ○ Get image from webcam. ○ Set as wallpaper ● Know about how to: <ul style="list-style-type: none"> ○ Undo/redo/ Delete ○ Cut/Copy/ Paste ○ Open an existing file/ save / save as 		(P)		
Color Adjustment Layers	<p>Student will be able to:</p> <ul style="list-style-type: none"> ● Know how to add: <ul style="list-style-type: none"> ○ color adjustment in image ○ Brightness ○ Contrast ○ Exposure ○ Color Curves ○ Color Balance ○ Auto Levels ○ Levels ○ Saturation ○ Gradient Map ○ Hue Rotation ○ Tint ○ Temperature 	<ul style="list-style-type: none"> ● Create an image and apply color adjustment 	02 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Filters	<p>Student will be able to:</p> <ul style="list-style-type: none"> ● Know how to apply filters: <ul style="list-style-type: none"> ○ Sepia Tone ○ Grayscale ○ Color Boost ○ Electric ○ Vintage ○ Aqua ○ Redwood ○ Sun glow ○ Amber ○ Orchid Light 	<ul style="list-style-type: none"> ● Get an image and apply all filters 	01 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Retouch	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know how to use: <ul style="list-style-type: none"> ○ Auto Fix ○ Focus Fix ○ Noise Reduction ○ Red eye reduction ○ Touch up ○ Clone Tool ○ Colorize ○ Color Burn ○ Color Dodge 	<ul style="list-style-type: none"> ● Get an image and transform it. 	01 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom

Ch # 4 In Page			Total 20 Period. T= 04, P= 16,		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to In page	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know about In page ● Know the Interface of In page 	<ul style="list-style-type: none"> ● Explore and practice In page features. 	02 Periods (T) 06	Multimedia	Lab / Classroom

	<ul style="list-style-type: none"> • Know how to compose New File, save file and Open file. • Know how to change the layout of keyboard 		Periods(P)		
Basic Formatting	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Know how to: <ul style="list-style-type: none"> ○ Type using phonetic keyboard. ○ Apply basic font formatting in In page. ○ Apply paragraph formatting in In page. ○ Insert pictures ○ Insert frames ○ Insert tables. 	<ul style="list-style-type: none"> • Compose letters in In page. 	02 Period (T) 10 Period (P)	Computer and its accessories	Lab / Classroom

Ch.5 Typography			Total 07 Period. 01=(T) 6=(P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Typography	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Know about Typography • Know the importance of Typography. • Understand the design process. • Enlist various steps in the design process • Show the alphabet and letter form design • Know different style of typography 	<ul style="list-style-type: none"> • Create a logo using typography. • Create simple advertisement using different style of typography. 	01 Periods (T) 06 Periods(P)	Computer and its accessories	Lab / Classroom

Ch.6 Adobe Flash / Adobe Animate			Total 20 Period. 08= (T) 12= (P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction of Adobe Flash / Adobe Animate	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Know about the introduction of Adobe Flash / Adobe Animate. • Know the interface of Adobe Flash / Adobe Animate. • Understand the importance of Adobe Flash / Adobe Animate. 	<ul style="list-style-type: none"> • Group Presentation/ discussion on Interface of Adobe Flash / Adobe Animate. 	02 Period (T) 02 Period (P)	Computer and its accessories	Lab / Classroom
Tool bar	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Know the tool bar. • Know the use of selection and sub selection tool like; <ul style="list-style-type: none"> ○ Lasso Selection ○ Line tool ○ Pen tool ○ Text tool ○ Oval Tool ○ Shape tool ○ Pencil tool ○ Brush tool ○ Stroke tool 	<ul style="list-style-type: none"> • Draw the different shapes with pen tool. • Fill the color in different shapes 	03 Period (T) 05 Period (P)	Computer and its accessories Computer and its accessories	Lab / Classroom

	<ul style="list-style-type: none"> ○ Fill tool ○ Eye dropper ○ Eraser ○ Hand tool ○ Zoom tool 				
Transforming Objects	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know the transform object ● Understand How to transform an object by: <ul style="list-style-type: none"> ○ Use Free transform tool ○ Moving an Object ○ Rotating an object ● Know how to apply Gradient Transform: <ul style="list-style-type: none"> ○ Linear ○ Radial 	<ul style="list-style-type: none"> ● Import an image and transform it 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom

Ch.7 Health Safety and environment			Total 24 Period. 09 = (T) 15= (P)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction to Health Safety and Environment	<p>Student will be able to:</p> <ul style="list-style-type: none"> ● Define health Safety and environment ● Know basic principles of safety. ● Know basic rules of health and safety in work place environment 	<ul style="list-style-type: none"> ● Discuss the Standard Operating Procedures regarding basic safety and environmental hygiene etc. ● Observe the basic rules of health and safety in work place environment 	02 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Lab Safety	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know about Lab safety rules. ● Report any broken plugs or exposed electrical wires to lecturer / laboratory technician. ● Understand the use the fire extinguisher. ● Know the use of first aid box in case of an emergency. ● Behave gently in the computer laboratory. 	<ul style="list-style-type: none"> ● Presentation/ Discussion on lab safety ● Follow lab safety rules while working in Lab ● Report fires or accidents to lecturer / laboratory technician. 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Personal Safety	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Know about the personal Hygiene. ● Understand the importance of personal protective equipment (PPE). ● Know how to use personal protective equipment at workplace. 	<ul style="list-style-type: none"> ● Presentation/ Discussion on personal safety ● Follow lab safety rules while working in Lab 	04 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom

Chapter 8: Communication Skills			Total=19 Period. T=09, P=10,		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Introduction To Communication Skill	The students will be able to: <ul style="list-style-type: none"> • Know the basic concept of Communication. • Know the basic Communication Skills. • Understand the importance of communication skills in daily life. 	<ul style="list-style-type: none"> • Group discussion and model presentation on communication skills. • Enlist the importance of Communication Skills in daily life. 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Model of Communication	The students will be able to: <ul style="list-style-type: none"> • Know model of communication. • Understand the importance of active listening and responding. • Understand effective communication. • Describe obstacles in communication. 	<ul style="list-style-type: none"> • Perform role play and group exercises through listening audio or video documentaries. 	03 Period (T) 02 Period (P)	Computer and its accessories	Lab / Classroom
Types of Communication	The students will be able to: <ul style="list-style-type: none"> • Know about types of communication: <ul style="list-style-type: none"> ○ Verbal Communication ○ Non-Verbal Communication 	<ul style="list-style-type: none"> • Carry out practice amongst students to reflect verbal and non-verbal communication. 	03 Period (T) 03 Period (P)	Computer and its accessories	Lab / Classroom

Chapter 9: Entrepreneurship			Total=08 Period. T=05, P=3		
Content	Students Learning Outcome	Activities/ Practical	Duration	Tools	Workplace
Introduction To Entrepreneurship	The student will be able to: <ul style="list-style-type: none"> • Know The Entrepreneurship. • Know the Basic concept of Entrepreneurship. • Know the components of Entrepreneurship. • Understand the importance of Entrepreneurship. 	<ul style="list-style-type: none"> • Group discussion and presentation on Entrepreneurship 	05 Period (T) 03 Period (P)	Computer and its accessories	Lab / Classroom

Basic Requirements for Lab (Tools / Equipment)

No.	Items
1.	Computer System
2	Multimedia
3.	Printer (Laser Jet)
4.	Internet Connection
5.	Web Browser
6.	Search Engines
7.	Internet or Intranet Connectivity
8.	UPS
9.	Operating System (Windows)
10.	Software (Typing Master, 3D paints, Microsoft Word, In page, Photo Pad, PhotoScape X, Adobe Flash CS3)

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Media Production

Aims and Objectives:

The specific objectives of developing qualifications are as under:

- Provide students with a smooth transition to work.
- Develops job- readiness & enhance students' trade-specific skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I-II technical training certification or equivalent in a given trade.
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this, the students will be able to:

- Possess basic knowledge in the field of Media Production.
- Understand the importance of Media Production.
- Have basic knowledge of Multimedia Production and Printing.
- Have basic understanding of communication skills.
- Understand the basic elements of Media Production.
- Apply Soft Skills at work place.

Middle Tech (ALP) Media Production (Package-D)

Chapter # 1: Information Communication Technology (ICT)			Total 21 Period. T=5, P=16		
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to ICT	Students will be able to: <ul style="list-style-type: none"> • Know about ICT. • Know various devices of ICT. 	<ul style="list-style-type: none"> • Group Presentation /Discussion on importance of computer in daily life. 	01 Period (T) 04 Period (P)	Multimedia, Computer with accessories	Lab / Classroom
Role of ICT	Students will be able to: <ul style="list-style-type: none"> • Understand role of ICT in: <ul style="list-style-type: none"> ○ Education ○ Health ○ Security ○ Business 	<ul style="list-style-type: none"> • Group Presentation /Discussion on role of computer in different fields of life. 	02Period (T) 05 Period (P)	Multimedia, Computer with accessories	Lab / Classroom
Health related issues of using ICT Devices	Students will be able to: <ul style="list-style-type: none"> • Identify health risks and its mitigations from ICT Devices. • Describe the health-related issues of using technology. 	<ul style="list-style-type: none"> • Group discussion/ Presentation on health issues using ICT devices. • Demonstration of adoption of personal health safety in ICT. • Discussion on • Posture related injuries (Back and Neck ache, Muscle and joint problems. • Syndrome and Repetitive Strain Injury). • Eyestrain (Computer Vision Syndrome and Photosensitive. • Sleeping Disorders. 	02Period (T) 07 Period (P)	Multimedia, Computer with accessories	Lab / Classroom

Chapter # 2 Introduction to Communication			Total 32 Period. T= 12, P= 20,		
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to Communication	Students will be able to: <ul style="list-style-type: none"> • Know communication. • Know effective communication. • Know importance of communication in daily life. 	<ul style="list-style-type: none"> • Students will demonstrate on effective communication. • Performing role play and group exercises. 	04 Periods(T) 04 Periods(P)	Computer, internet / multimedia	Lab / Classroom
Types of Communication	Students will be able to: <ul style="list-style-type: none"> • Know different types of communication 	<ul style="list-style-type: none"> • Students will demonstrate their verbal and 	04 Periods(T)	Computer, internet / multimedia	Lab / Classroom

	<ul style="list-style-type: none"> • Know Verbal communication. • Know nonverbal communication • Understand role of communication in everyday conversation. • Give example of verbal and non-verbal communication in daily life 	<p>nonverbal communication skills through different activities.</p> <ul style="list-style-type: none"> • Carry out practice amongst students to reflect verbal and non-verbal communication 	08 Periods(P)		
Enhancing Communication Skills	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Describe basic communication skills <ul style="list-style-type: none"> ○ Listening ○ Speaking ○ Reading ○ Writing • Apply communication skill in daily conversation. 	<ul style="list-style-type: none"> • Students will demonstrate communication skills in groups • Perform role play and group exercises through listening audio or video documentaries. 	04 Periods(T) 08 Periods(P)	Computer, internet / multimedia	Lab / Classroom

Chapter # 3 Introduction to Media			Total 35 Period. T= 15, P= 20,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Introduction to Media	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know media. • Know mass media. • Know the history of mass media. • Know about transformation of print media and electronic media. • Understand the importance of mass media. 	<ul style="list-style-type: none"> • Students will discuss evolution of media in different periods. • Make a chart of various types Of Mass Media. • Invite a guest speaker to talk about evolution of media. 	05 Periods(T) 06 Periods(P)	Computer, internet / multimedia	Lab / Classroom
Different types of Media	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Recognize different types of mass media <ul style="list-style-type: none"> ○ Traditional Media ○ Print Media ○ Broadcast Media ○ Digital media • Understand the role of different types of media in daily life 	<ul style="list-style-type: none"> • Presentation / Group Discussion on types of mass media 	05 Periods(T) 07 Periods(P)	Computer, internet / multimedia	Lab / Classroom
Functions of Media	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Identify important functions of media • Information. • Education. 	<ul style="list-style-type: none"> • Arrange a talk on functions of media. • Group Discussion/ 	05 Periods(T) 07 Periods(P)	Computer, internet / multimedia	Lab / Classroom

	<ul style="list-style-type: none"> • Entertainment. • Persuasion • Socialization. • Understand the role of different types of media in various fields. 	Presentation			
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Chapter 04 Story Telling and writing			Total 30 Period. T=10, P= 20,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Storytelling	The students will be able to; <ul style="list-style-type: none"> • Know about story telling • Understand different techniques in story telling <ul style="list-style-type: none"> ○ Language ○ Volume and Tone ○ Body language ○ Observation • tell a short story keeping in view techniques of storytelling. 	<ul style="list-style-type: none"> • Perform a story telling activity keeping in view techniques of Storytelling. 	04 Periods(T) 08 Periods(P)	Computer and its accessories	Lab / Classroom
Story Writing	The students will be able to; <ul style="list-style-type: none"> • know different parts of story <ul style="list-style-type: none"> ○ characters, ○ setting, ○ plot, ○ conflict, ○ resolution • Develop short stories keeping in view techniques on topics of their interest 	<ul style="list-style-type: none"> • Discuss basic structure of story writing. • Write stories on different topics. 	06 Periods(T) 12 Periods(P)	Computer, internet / multimedia	Lab / Classroom

Chapter # 5 Media Production Elements			Total 46 Period. T=16, P=30,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Production Elements	The students will be able to; <ul style="list-style-type: none"> • Know basic elements of media production • Know Basic Camera Techniques. • Shot size <ul style="list-style-type: none"> ○ Extreme long short ○ Long Short ○ Full Shot ○ Mid shot ○ Close up ○ Extreme Close up • Use Camera angles <ul style="list-style-type: none"> ○ High angle ○ Eye level ○ Low angle 	<ul style="list-style-type: none"> • Enlist main elements of media production • Capture various types of picture by using camera. 	04 Periods(T) 07 Periods(P)	Computer and its accessories	Lab / classroom
Camera	The students will be able to;	• Demonstration	04 Periods(T)	Computer	Lab /

Handling Techniques	<ul style="list-style-type: none"> Know various components of: <ul style="list-style-type: none"> camera (lens, light, chassis, battery, tripod, memory card, shutter, LCD screen, image sensor, quadcopter drone) Know about handheld shooting process Learn about tripod shots 	<ul style="list-style-type: none"> on components of camera. Picture capturing with handheld and tripod 	07 Periods(P)	and its accessories, Camera	classroom
Lightning Techniques	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know different types of lightning system Know warm and cool lights equipment Comprehend the importance of location selection for recording. Know about studio lights (foreground, mid, background, lightening grid, dimmers, reflectors and special effects. Understand intensity of light 	<ul style="list-style-type: none"> Set light for a single object by using natural environment. Set light for multiple objects. Use light beam to create / eliminate a shadow. Set studio lights by using dimmers and reflectors 	04 Periods(T) 08 Periods(P)	Computer and its accessories, lighting equipment, light beams, dimmers, reflectors	Lab / classroom
Camera operations for photography	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know about adjustment of focus Learn about exposure of camera Understand density of camera Know shutter speed of camera Apply indoor and outdoor video shooting 	<ul style="list-style-type: none"> Capture indoor by using different setting of camera. Capture outdoor by using different setting of camera 	04 Periods(T) 08 Periods(P)	Computer and its accessories, camera	Lab / classroom, outdoor

Chapter # 6 Photo Pad / Photoshop			Total 60 Period. T=20, P=40,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Introduction of Photo Pad / Photoshop	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know Photo Pad / Photoshop. Know concept of Photo Pad / Photoshop. Understand the interface of Photo Pad / Photoshop. Understand the Importance of Photo Pad / Photoshop. Enumerate Features of 	<ul style="list-style-type: none"> Group Discussion / Presentation the Interface of Photo Pad / Photoshop. Recognition the elements of Photo Pad / Photoshop. 	04 Periods(T) 06 Periods(P)	Computer and its accessories	Lab / classroom

	Photo Pad / Photoshop. • Know the Use of Photo Pad / Photoshop.				
Working on Photo Pad / Photoshop	The students will be able to; • know how to; ○ Create a new image ○ Open an existing file / save / save as ○ Undo / redo / Delete ○ Cut / Copy / Paste • Know how to; ○ Create a collage ○ Get image from webcam ○ Set as wallpaper	• Import a Picture and set as a Wallpaper. • Create a collage and set as a wallpaper. • Import an image from webcam and save it.	04 Periods(T) 06 Periods(P)	Computer and its accessories	Lab / classroom
Selection and Editing	The students will be able to; • Know how to; ○ Crop ○ Fill ○ Select tools ○ Expand and contract Selection ○ Resize ○ Liquid resizes ○ Flip	• Import an image and crop it. • Resize the image. • Manipulate the image using editing tools	03 Periods(T) 06 Periods(P)	Computer and its accessories	Lab / Classroom
Color Adjustment Layers	The students will be able to; • Know how to Add ○ Color adjustment in image ○ Brightness ○ Contrast ○ Exposure ○ Color Curves ○ Color Balance ○ Auto Levels ○ Levels ○ Saturation ○ Gradient Map ○ Hue Rotation ○ Tint ○ Temperature	• Import an image and change its Brightness. • Change the color level of an image. • Create an image and apply color adjustment.	03 Periods(T) 07 Periods(P)	Computer and its accessories	Classroom / Lab
Filters	The students will be able to; • Know how to Apply filters; ○ Sepia Tone ○ Grayscale ○ Color Boost ○ Electric ○ Vintage ○ Aqua ○ Redwood ○ Sun glow ○ Amber ○ Orchid Light	• Get an image and apply all filters.	03 Periods(T) 07 Periods(P)	Computer and its accessories	Classroom / Lab
Retouch	The students will be able to; • How to apply; ○ Auto Fix	• Get an image and transform it.	03 Periods(T) 08	Computer and its accessories	Lab / Classroom

	<ul style="list-style-type: none"> ○ Focus Fix ○ Noise Reduction ○ Red eye reduction ○ Touch up ○ Clone Tool ○ Colorize ○ Color Burn ○ Color Dodge 		Periods(P)		
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Chapter # 7 Health Safety and environment			Total 25 Period. T=10, P=15		
Content	Students Learning Outcome	Activities / Practical	Duration	Tools	Work place
Introduction to Health Safety and Environment.	The students will be able to; <ul style="list-style-type: none"> ● Define health Safety and environment ● Know basic principles of safety. ● Observe the basic rules of health and safety in workplace environment. 	<ul style="list-style-type: none"> ● Discuss the Standard Operating Procedures (SOP) regarding basic safety and environmental hygiene etc. 	02 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Lab Safety	The students will be able to; <ul style="list-style-type: none"> ● Know about Lab safety rules. ● Report any broken plugs or exposed electrical wires to lecturer / laboratory technician. ● Understand the uses of fire extinguisher. ● Know the use of first aid box in case of an emergency. ● Report fires or accidents to lecturer / laboratory technician. ● Behave gently in the computer laboratory. 	<ul style="list-style-type: none"> ● Presentation/ Discussion on lab safety ● Follow lab safety rules while working in Lab ● Operate fire extinguisher. 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom
Personal Safety.	The students will be able to; <ul style="list-style-type: none"> ● Know about the personal Hygiene. ● Know about the personal protective equipment. ● Understand the importance of personal protective equipment. ● Use personal protective equipment at workplace. 	<ul style="list-style-type: none"> ● Presentation/ Discussion on personal safety ● Follow lab safety rules while working in Lab 	05 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom

Middle Tech (ALP) Media Production (Package-E)

Chapter # 1 Media Production			Total 17 Period. T=11, P=06,		
Content	Students Learning Outcome	Activities / Practical	Duration	Tools	Work place
Introduction to Media Production	The students will be able to; <ul style="list-style-type: none"> • Define Media • Understand The Concept of Media Production • Understand their Role & Importance of Media production in daily life 	<ul style="list-style-type: none"> • Group Discussion/ Presentation the role and importance of Media production. 	04 Periods(T) 02 Periods(P)	Computer and its accessories, Multimedia	Classroom / Lab
Types of Media Production	The students will be able to; <ul style="list-style-type: none"> • Enumerate different types of Widespread Communication media: <ul style="list-style-type: none"> ○ Television ○ Radio ○ Cinema ○ Newspaper ○ Magazines ○ Internet based website ○ Understand the use of different media tools 	<ul style="list-style-type: none"> • Group Discussion/ Presentation the types of Media Production and their uses • Make a chart of various media tools with Picture and display in Classroom 	04 Periods(T) 02 Periods(P)	Computer and its accessories	Classroom / Lab
Stages of Media Production	The students will be able to; <ul style="list-style-type: none"> • Briefly describe three main stages of production: <ul style="list-style-type: none"> ○ Pre-production ○ Planning ○ Scripting & Storyboarding 	<ul style="list-style-type: none"> • Group Discussion / Presentation about stages of media production 	03 Periods(T) 02 Periods(P)	Computer and its accessories	Classroom / Lab

Chapter # 2 Photography			Total 18 Period. T=12, P=6		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Introduction to Photography	The students will be able to; <ul style="list-style-type: none"> • Know the concept of Photography • Describe the elements of Photography; <ul style="list-style-type: none"> ○ Line ○ Shape ○ Form ○ Texture ○ Pattern ○ Color • Know about; <ul style="list-style-type: none"> ○ Space ○ Composition ○ Light 	<ul style="list-style-type: none"> • Arrange an Exhibition on elements of Photography. 	06 Periods(T) 03 Periods(P)	Computer and its accessories	Classroom / Lab

	<ul style="list-style-type: none"> ○ Depth of field ○ Perspective 				
Principles of Photography	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Explain the main principles of Photography <ul style="list-style-type: none"> ○ Unity or Harmony ○ Balance ○ Emphasis ● Know about: <ul style="list-style-type: none"> ○ Proportion ○ Contrast ○ Rhythm or repetition ○ Movement 	<ul style="list-style-type: none"> ● Group Presentation/ Discussion on principles of Photography. 	06 Periods(T) 03 Periods(P)	Computer and its accessories, Multimedia	Classroom/ Lab

Chapter # 3 Script Writing			Total 20 Period. T=8, P=12,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Introduction to Script Writing	<p>The student will be able to;</p> <ul style="list-style-type: none"> ● Define what is script writing ● Understand the basic Steps of Script <ul style="list-style-type: none"> ○ Writing ○ Log line ○ Outline ○ Build treatment ● Know about; <ul style="list-style-type: none"> ○ Write screenplay ○ Format screen play ○ Edit Screen play 	<ul style="list-style-type: none"> ● Divide the class in groups and ask them to write a script for a short play. 	4Periods(T) 6Periods(P)	Computer and its accessories	Classroom / Lab
Types of Script	<p>The student will be able to;</p> <ul style="list-style-type: none"> ● Know the different types of scripts and their uses. ● Feature film ● Live action series ● Short form film ● Animated series <ul style="list-style-type: none"> ○ Miniseries 	<ul style="list-style-type: none"> ● Divide the class in groups and ask them to write a script for a short film. 	04 Periods(T) 06 Periods(P)	Computer and its accessories	Classroom / Lab

Chapter # 4 Videography			Total 14 Period. T=6, P=8,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Work place
Introduction to Videography	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Know about videography ● Understand basic Techniques of Videography 	<ul style="list-style-type: none"> ● Group Presentation/ Discussion on techniques of Videography 	2 Periods(T) 2 Periods(P)	Computer with accessories, Multimedia	Classroom / Lab
Equipment for Videography	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Know different equipment used in videography ● Understand the uses of different Equipment for 	<ul style="list-style-type: none"> ● Demonstration of Videography equipment. 	04 Periods (T) 06 Periods (P)	Computer with accessories, Multimedia, videography	Classroom / Lab

	Videography: <ul style="list-style-type: none"> ○ Camera ○ Lenses ○ Stabilization ○ Computers ○ Storage ○ Memory cards ○ Sound ○ Lighting 			equipment	
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Chapter # 5 Windows Movie Maker / Adobe Premier			Total 47 Period. T=19, P=28,		
Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Introduction to Windows Movie Maker / Adobe Premier	The students will be able to; <ul style="list-style-type: none"> ● Know about Window Movie Maker / Adobe Premier. ● Understand the interface of Window Movie Maker / Adobe Premier. ● Understand Importance of Window Movie Maker / Adobe Premier. ● Understand the basic Features of Window Movie Maker / Adobe Premier. 	<ul style="list-style-type: none"> ● Demonstration on Interface of Windows movie maker / Adobe Premier. 	04 Periods(T) 04 Periods(P)	Computer with accessories	Classroom / Lab
Layout of Windows Movie Maker / Adobe Premier	The students will be able to; <ul style="list-style-type: none"> ● Know about the Layout of Windows movie maker / Adobe Premier: <ul style="list-style-type: none"> ○ Task pane ○ Collection ○ Preview Monitor ○ Story Board / Timeline ● Understand the different functions movie Tasks. 	<ul style="list-style-type: none"> ● Demonstrate the pane of Windows movie maker / Adobe Premier. 	02 Periods(T) 04 Periods(P)	Computer with accessories	Classroom / Lab
Movie Tasks	The students will be able to; <ul style="list-style-type: none"> ● Know about <ul style="list-style-type: none"> ○ movie tasks ○ Capture Video ○ Capture from video device ○ Import video ○ Import pictures ○ Import audio or music ● Understand different functions of movie Tasks. 	<ul style="list-style-type: none"> ● Compose Video. ● Import different Pictures and Videos. ● Import different Audio/ music. 	06 Periods(T) 06 Periods(P)	Computer with accessories, movie camera	Classroom / Lab
Edit Movie	The students will be able to; <ul style="list-style-type: none"> ● Know about <ul style="list-style-type: none"> ○ Edit Movie ○ Show Collection ○ View Video Effects ○ View Video ○ Transition ○ Make Titles 	<ul style="list-style-type: none"> ● Import / capture video, apply different effects and give interesting titles 	04 Periods(T) 08 Periods(P)	Computer with accessories, movie camera	Classroom / Lab

	<ul style="list-style-type: none"> • Apply edit movie functions. 				
Finish Movie	<p>The students will be able to;</p> <ul style="list-style-type: none"> • know about; <ul style="list-style-type: none"> ○ Finish movie ○ Save to my computer ○ Save to CD ○ Send in Email ○ Send to the web ○ Send to DV camera • Apply Finish movie functions. 	Create a short video clip and save it on different location	03 Periods(T) 06 Periods(P)	Computer with accessories	Classroom / Lab

Chapter # 6 Video Pad			Total 48 Period. T=18, P=30,		
Content	Students Learning Outcome	Activities / Practical	Duration	Tools	Workplace
Introduction to Video Pad	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know the concept of Video Pad • Understand the interface of Video Pad • Understand Features of Video Pad • Use Video Pad 	<ul style="list-style-type: none"> • Demonstration on Uses and Features of Video Pad. • Recognize the elements of Video Pad. 	04 Periods (T) 06 Periods (P)	Computer with accessories, multimedia	Classroom / Lab
Layout of Video Pad	<p>The students will be able to;</p> <p>Know about</p> <ul style="list-style-type: none"> • the Layout of Video Pad. <ul style="list-style-type: none"> ○ File list area. ○ Clip Preview area. ○ Main Sequence. • Use different functions of Video Pad 	<ul style="list-style-type: none"> • Demonstrate the Interface of Video Pad. • Enlist the features of Video Pad. 	02 Periods (T) 06 Periods (P)	Computer with accessories, multimedia	Classroom / Lab
Working with Video Pad	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know working with Video Pad; <ul style="list-style-type: none"> ○ Add media ○ Record video ○ Add Audio ○ Add text ○ Add Subtitle 	<ul style="list-style-type: none"> • Import a video and Audio. • Record Video/ Audio. • Compose it in short video clip 	04 Periods (T) 06 Periods (P)	Computer with accessories, multimedia, audio video recorder.	Classroom / Lab
Editing	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know about how to; <ul style="list-style-type: none"> ○ Edit video ○ Trim video ○ Crop Video ○ Split Video ○ Change Clip Speed ○ Flip a video • Use Video Editing function 	<ul style="list-style-type: none"> • Compose a Video and apply all Editing Tools 	04 Periods (T) 06 Periods (P)	Computer with accessories,	Classroom / Lab
Effects	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know how to add effects; <ul style="list-style-type: none"> ○ Zoom ○ Burn ○ Adding Transition ○ Animations 	<ul style="list-style-type: none"> • Create Video Clip and apply animation • Create a Video Clip and apply all effects. 	04 Periods (T) 06 Periods (P)	Computer with accessories.	Classroom / Lab

	<ul style="list-style-type: none"> ○ Blur ● Use various video effects 				
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Chapter 7 Soft Skills			Total 26 Period. T=06, P=20,		
Content	Students Learning Outcome	Activities / Practical	Duration	Tools	Work place
Introduction to soft skills	The students will be able to; <ul style="list-style-type: none"> ● know the basic Soft Skills ● understand the importance of soft skills in daily life ● apply soft skills for academic and professional success 	<ul style="list-style-type: none"> ● Group discussion and model presentation on soft skills. 	01 Periods (T) 04 Periods (P)	Computer with accessories, Multimedia.	Classroom / Lab
Personal and professional Grooming	The students will be able to; <ul style="list-style-type: none"> ● Learn the personal and professional aspects of life. ● Understand the importance of self-image. ● Develop self-confidence 	<ul style="list-style-type: none"> ● Perform role play to enhance self-awareness, self-confidence, and self-image. ● Demonstrate a pictorial presentation on personal and professional grooming. 	01 Periods (T) 04 Periods (P)	Computer with accessories, Multimedia.	Classroom / Lab
Communication Skills	The students will be able to; <ul style="list-style-type: none"> ● Know model of communication. ● Understand the importance of active listening and responding. ● Understand effective communication. ● Identify obstacles in communication. 	<ul style="list-style-type: none"> ● Perform role play and group exercises through listening audio or video documentaries. ● Carry out practice amongst students to reflect verbal and non-verbal communication. 	01 Periods (T) 04 Period (P)	Computer with accessories, Multimedia.	Classroom / Lab
Time Management	The students will be able to; <ul style="list-style-type: none"> ● Know the concept of better time management. ● Understand the importance of time management ● Understand the concept of professional and personal time management. ● Observe time management in daily life. 	<ul style="list-style-type: none"> ● Arrange a small competition task following time management. ● Schedule the tasks. 	01 Periods (T) 04 Period (P)	Computer with accessories, Multimedia.	Classroom / Lab

Attitude, Behavior, and Customer Care	The students will be able to; <ul style="list-style-type: none"> • learn the concepts of attitude and behavior • understand the impact of positive and negative attitude in professional life 	<ul style="list-style-type: none"> • Through different scenarios practically apply the principles of customer care and positive attitude. • Exercise and deal with problematic and angry persons by conducting role plays. 	2Periods (T) 04 Periods (P)	Computer with accessories, Multimedia.	Classroom / Lab
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Chapter 8 Entrepreneurship				Total 08 Period. T=05, P=03,	
Content	Students Learning Outcome	Activities / Practical	Duration	Tools	Work place
Introduction to Entrepreneurship	The students will be able to; <ul style="list-style-type: none"> • Define Entrepreneurship and Entrepreneur. • Define characteristics / qualities of an entrepreneur. • Know the components of Entrepreneurship • Understand the benefits of entrepreneurship. • Understand the importance of Entrepreneurship. 	<ul style="list-style-type: none"> • Group discussion and presentation on Entrepreneurship 	05 Periods (T) 03 Periods (P)	Multimedia, projector, or LED TV with good sound system.	Classroom / Lab

Basic Requirements for Lab (Tools / Equipment)

No.	Items
1.	Computer System
2.	Internet Connection
3.	Web Browser
4.	Search Engines
5.	Internet or Intranet Connectivity
6.	UPS
7.	Operating System (Windows, Linux)
8	Cameras DSLR
9	Lighting
10	Tripod
11	Microphone
12	Editing/Production software
13	High quality memory Cards
14	Dummy Batteries

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Fundamentals of Cooking

Aims:

The specific objectives of developing these qualifications are as under:

- Provide students with a smooth transition to work.
- Develops job-readiness & enhance students' trade-specific employable skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I -II technical training certification or equivalent in a given trade.
- To set high profile standard professions for the industry to generate standard outputs.
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this, the students will be able to:

- Develop values and attitudes about the dynamic nature of the culinary arts and the importance of being a self-motivated problem solver and life-long learner.
- Understand workplace structure and function to utilize this knowledge in hotel industry.
- Apply the acquired knowledge, values, and skills in the field of culinary art.
- Start small size entrepreneurship.
- Progress to higher levels of studies in the field of culinary arts.
- Develop a range of technical, personal, interpersonal, organizational, and generic skills that can be applied in various contexts, both within and beyond the workplaces.

Middle Tech (ALP) Fundamentals of Cooking (Package-D-1)

Ch. # 01 Introduction to Culinary Arts			Total 13 Periods. (T=13)		
Themes	Students' Learning outcomes	Activities	Duration	Tools	Work place
Culinary Arts	The students will be able to; <ul style="list-style-type: none"> • Define what is food. • Define what is cooking. • Describe what is culinary arts. • Explain physical applications of culinary arts. 	<ul style="list-style-type: none"> • Group discussion on emerging trends of culinary arts • Play video about culinary application and describe its branches 	05 Period (T)	Multimedia, White Board, Marker, Computer, Internet. Charts, stationary	Classroom
Role of Food in human nourishment	The students will be able to; <ul style="list-style-type: none"> • Discuss the role of food and water for performing daily tasks/activities. • Briefly explain about food nutrients and their food sources; <ul style="list-style-type: none"> ○ Vitamins ○ Minerals ○ Proteins ○ Fiber ○ Carbohydrate ○ Fats 	<ul style="list-style-type: none"> • Prepare food pyramid and identify the food requirements for healthy diet • Play video about minerals and demonstrate it to students 	05 Period (T)	Multimedia, White Board, Marker, Computer, Internet. Charts, stationary	Classroom
Effect of cooking on Food	The students will be able to; <ul style="list-style-type: none"> • Understand why food needs to be cooked. • Recognize the physical changes that occur during cooking. • Explain how good presentation of food can add up to its appeal and value. 	<ul style="list-style-type: none"> • Presentation on how to apply different cooking methods • perform food presentation raw material inspection. 	03 Period (T)	Multimedia, White Board, Marker, Computer, Internet. Charts, stationary	Classroom

• Ch. # 02 Categories of food			Total 17 Periods. (T=10 P=7)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Categories of Food	The students will be able to; <ul style="list-style-type: none"> • Name different food groups. • Define how food is categorized according to food groups. 	<ul style="list-style-type: none"> • Prepare and discuss list of food groups • Play video about different categories of food and describe them. 	03 Period (T)	Charts, stationary, LED	Classroom
Fruits and Vegetables	The students will be able to; <ul style="list-style-type: none"> • Differentiate between fruits and vegetables. • Understand and identify the different categories of 	<ul style="list-style-type: none"> • Gather pictures of available fruits and identify them according to their category 	2 period (T) 3 period (P)	Multimedia, computer, internet, Fruits & Vegetables	Classroom / cooking lab

	<ul style="list-style-type: none"> vegetables like <ul style="list-style-type: none"> ○ Root Vegetables (bulb & tuber) ○ Flower vegetables ○ Peas and Leafy vegetables ● Understand and identify the different categories of Fruits like <ul style="list-style-type: none"> ○ Tropical Fruits ○ Citrus Fruits ○ Berries 	<ul style="list-style-type: none"> ● Use hand to hand practice of fruits and vegetables to identify their type/categories 			
Dairy Products	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Describe the basic cycle of milk processing ● Define how different products are made from milk like; <ul style="list-style-type: none"> ○ Cream ○ Yoghurt ○ Butter ○ Cheese ● Explain process to make yoghurt 	<ul style="list-style-type: none"> ● Perform boiling of milk ● Perform cream separation from boiled milk ● Prepare yoghurt using boiled milk 	<p>2 Period (T)</p> <p>2 Period (P)</p>	<p>Pots, Stove, Milk, Multimedia, Internet</p>	<p>Classroom / cooking lab</p>
Processed Foods	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Define the processed foods ● Classify what is pre-cooked, par-cooked and frozen foods ● Explain about packaging of food. 	<ul style="list-style-type: none"> ● enlist and discuss various processed goods according to their categories ● Video Presentation ● Demonstrate how to freeze and pack frozen food 	<p>3 Period (T)</p> <p>2 Period (P)</p>	<p>Multimedia, White Board, Marker, Computer, Internet. Charts, stationary</p>	<p>Classroom / cooking lab</p>

Ch.3 Hygiene			Total 13 Periods. (T=10 P=3)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Hygiene	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn what is hygiene ● Define the types of hygiene compulsory in kitchen; <ul style="list-style-type: none"> ○ Personal Hygiene ○ Food and Fruit washing ○ Dish cleaning ○ Workplace Hygiene ● Differentiate between good and bad hygiene practices 	<ul style="list-style-type: none"> ● Group discussion on importance of hygiene in kitchen ● Prepare a chart on different forms of hygiene and label important details 	<p>05 Period (T)</p>	<p>Pots, Hygiene Kit, Dish Washer, White Board, Marker, Fruit, Vegetables</p>	<p>Classroom / cooking lab</p>
Personal Hygiene	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Identify the relationship between personal hygiene and health ● Apply basic rules of personal hygiene to be followed in kitchen 	<ul style="list-style-type: none"> ● Perform hand washing using proper hand washing facility ● Play video and demonstrate about 	<p>3 Period (T)</p> <p>3 Period (P)</p>	<p>Hand Washing Facility, MMP</p>	<p>Classroom / cooking lab</p>

	<ul style="list-style-type: none"> ○ Oral Hygiene ○ Skin and Hair ○ Nails ○ Uniform ● Explain the requirements for proper hand washing ● Use the correct method of hand washing ● Explain basic practices of personal hygiene 	<ul style="list-style-type: none"> importance of hygiene ● Perform role play of performing self-check kit 			
Uniform	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Define the dress code/uniform of chef ● Explain the parts of chef's uniform ● Define the purpose of chef's uniform ● Define importance of shoes. 	<ul style="list-style-type: none"> ● Presentation on Chef's uniform (parts and roles) 	02 Period (T)	Multimedia, Chef Uniform	Classroom/ Outdoor Facility

Ch. 4 Kitchen tools			Total 14 Periods. (T=7 P=7)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Tools used in Kitchen	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Explain the needs of tools for preparing food ● Define about the role of tools in kitchen ● identify different materials used for making kitchen tools 	<ul style="list-style-type: none"> ● Presentation on Kitchen tools ● Play video about kitchen tools and explain their uses. 	2 period (T) 2 Period (P)	Kitchen Tools, Multimedia	Classroom / cooking lab
Categories of Tools	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn about large equipment used in kitchen <ul style="list-style-type: none"> ○ Stoves ○ Oven ○ Chillers ○ Mixing machines ○ Microwave oven etc. ● Learn the use of basic utensils used in kitchen <ul style="list-style-type: none"> ○ Pots ○ Pans ○ Baking trays etc. ● Explain about hand implements (tools) used in kitchen <ul style="list-style-type: none"> ○ Mixing bowls ○ Cutting tools & board ○ Sifters ○ Cooking spoons etc. ● select and name different 	<ul style="list-style-type: none"> ● Gather and label various tools present in kitchen. ● Perform an activity on how to handle/use kitchen equipment and electronics. 	3 Period (T) 3 Period (P)	Kitchen tools	Classroom/cooking lab

	tools for cooking				
Basic Knife Skills	The students will be able to; <ul style="list-style-type: none"> • Explain about types of knives. • Know how to hold knife • Define the process of food cutting using knife • Explain safe handling of knife and risks involved • Describe knife handling following safety 	<ul style="list-style-type: none"> • Label different parts of knife. • Demonstrate how to hold/handle knives. • Perform safe handling of knives. 	2 Period (T) 2 Period (P)	Kitchen knives	Classroom Cooking lab

Ch.5 Basic food handling for cooking				Total 13 Periods. (T=5 P=8)	
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Food Handling	The students will be able to; <ul style="list-style-type: none"> • Define how to distinguish between good and bad raw food. • Understand the safe storage of raw food using HACCP. • Explain the process of food and fruit washing (WPRW) 	<ul style="list-style-type: none"> • Prepare a chart to identify different cleaning procedures • Perform an activity on how to handle raw food 	2 Period (T) 2 Period (P)	Variety of foods, washing & storing facility	Classroom / Cooking Lab
Miseen Place	The students will be able to; <ul style="list-style-type: none"> • Define miseen place • Understand the techniques of arranging food for cooking • Know about the measurement of food by mass • Perform mise-en-place by arranging raw ingredients 	<ul style="list-style-type: none"> • Prepare a flowchart to identify different steps of miseen place • perform lab activity and set up miseen place 	2 Period (T) 2 Period (P)	Food ingredients, pots,	Classroom / cooking lab
Washing, Peeling and Cutting	The students will be able to; <ul style="list-style-type: none"> • Identify which fruits and vegetables needs to be peeled • Learn about the washing process of fruits and vegetables • Perform washing and peeling of fruits and vegetables • Know basic vegetable cutting styles e.g., chopping, dice, slice, julienne 	<ul style="list-style-type: none"> • Present cutting styles of vegetables • Perform washing and peeling of fruits and vegetables 	1 Period (T) 4 Period (P)	Vegetables, peelers, cutting boards, washing facility	Classroom / cooking Lab

Ch.6 Cooking methods				Total 12 Periods. (T=4 P=8)	
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Processing methods.	The students will be able to; <ul style="list-style-type: none"> • Describe food processing prior to cooking • Learn about different preparation processes used in cooking <ul style="list-style-type: none"> ○ Mixing ○ Whisking ○ Sifting 	<ul style="list-style-type: none"> • Perform basic processing methods e.g., sifting flour, mixing 2 liquids, whisking butter or cream 	1 Period (T) 2 Period (P)	Kitchen equipment,	Classroom / cooking lab

	<ul style="list-style-type: none"> ○ Draining ○ Staining etc. 				
Cooking Methods	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn about the process of cooking using heat ● Define the two methods of cooking <ul style="list-style-type: none"> ○ Dry Heat ○ Moist Heat ● Define different cooking procedures <ul style="list-style-type: none"> ○ Boiling ○ Steaming ○ Frying ○ Grilling 	<ul style="list-style-type: none"> ● Presentation on cooking methods, perform boiling, steaming, frying, grilling ● Play video about dry heat and moist heat 	2 Period (T) 3 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab
Finishing Methods	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn about the role of plating food (visually appealing) ● Explain about simple garnishes made from fruits and vegetables 	<ul style="list-style-type: none"> ● Prepare simple garnishes using vegetables ● Play video about plating techniques and garnishes 	1 Period (T) 3 Period (P)	Vegetables for garnishing, plates, cooked food	Classroom / cooking Lab

Ch.7 Kitchen Ethics			Total 07 Periods (T=5 P=2)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Kitchen ethics	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn about the working environment in a professional kitchen ● Explain the role of soft skills in kitchen 	<ul style="list-style-type: none"> ● Presentation on kitchen ethics, Group Discussion 	03 Period (T)	Multimedia, computer, internet	Classroom
Teamwork	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn how to work in a team ● Understand how to communicate with other team members ● Define about communication mistakes to be avoided 	<ul style="list-style-type: none"> ● Presentation, group work / Assignment ● Perform a role play act for communication improvement 	2 Period (T) 2 Period (P)	Multimedia, computer, internet	Classroom

Ch. 8 Safe Practices in Kitchen			Total 11 Periods. (T=4 P=7)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Handling Sharp Tools	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Learn about the dangers posed by sharp tools and objects. ● Understand how to prevent injuries involving sharp tools 	<ul style="list-style-type: none"> ● Perform and practice handling of sharp tools ● perform activity acts on how dangers can be posed 	1 Period (T) 3 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab

Handling Hot Equipment	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Learn about the harm posed by hot objects and liquids • Understand how to handle hot pans and trays • Know how to save others from burn injuries 	<ul style="list-style-type: none"> • Prepare warning charts for heavy objects and hot equipment Mention the safe handling procedures • Multimedia presentation about handling equipment 	<p>1 Period (T) 2 Period (P)</p>	<p>Kitchen equipment, knives, cutting boards, pots, etc. MMP</p>	<p>Classroom / cooking lab</p>
First Aid	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Understand the injuries that require first aid • Learn how to apply bandages and ointments • Learn how to clear the work area after an incident 	<ul style="list-style-type: none"> • Practice first aid practices. • Perform and practice how to band aid on injury. 	<p>2 Period (T) 2 Period (P)</p>	<p>First Aid Box.</p>	<p>Classroom</p>

Middle Tech (ALP) Fundamentals of Cooking (Package-D-2)

Ch. # 01 Introduction to Kitchen			Total 16 Periods. (T=12 P=4)		
Themes	Students' Learning outcomes	Activities	Duration	Tools	Work place
Introduction to kitchen	The students will be able to; <ul style="list-style-type: none"> • Learn what is kitchen • Learn about division of kitchen areas 	<ul style="list-style-type: none"> • Group discussion on proper working procedures in a professional kitchen 	2 Period (T) 2 Period (P)	Multimedia	Classroom / cooking lab
Dishwashing area	The students will be able to; <ul style="list-style-type: none"> • Know about the basic requirements of dishwashing facilities 	<ul style="list-style-type: none"> • Prepare a chart to identify the dish washing area and enlist the SOPs • Play video about dishwashing techniques. 	2 Period (T) 1 Period (P)	Multimedia	Classroom
Storage area	The students will be able to; <ul style="list-style-type: none"> • Define cold storage area facilities • Learn about ambient storage area facilities 	<ul style="list-style-type: none"> • Prepare a chart to identify the storage area and enlist the SOPs • Presentation 	03 Period (T)	Stationary, multimedia	Class room- / field visit.
Preparation area	The students will be able to; <ul style="list-style-type: none"> • Define preparation area facilities • Understand the proper working procedures in a preparation area 	<ul style="list-style-type: none"> • Visit to nearest commercial kitchen, discuss and enlist the facilities in that kitchen 	04 Period (T)	Stationary, multimedia	Classroom
Cooking and production unit	The students will be able to; <ul style="list-style-type: none"> • Define equipment in cooking area • understand the working process in kitchen 	<ul style="list-style-type: none"> • Prepare a chart on different kitchen layouts • Field visit 	1 Period (T) 1 Period (P)	Stationary, multimedia	Classroom / field visit

Ch. 02 Kitchen safety			Total 13 Periods. (T=10 P=3)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Safe working kitchen	The students will be able to; <ul style="list-style-type: none"> • Learn the importance of safe work environment • Understand the factors affecting kitchen safety 	<ul style="list-style-type: none"> • Prepare a list of factors effecting kitchen safety. 	04 Period (T)	Charts, stationary	Classroom Cooking lab
Risks and dangers	The students will be able to; <ul style="list-style-type: none"> • Know what is risk • Learn the risks posed by equipment • Learn the risks posed by design of area • Describe the risks and dangers due to carelessness 	<ul style="list-style-type: none"> • Prepare a PowerPoint presentation on the risk and dangers in a kitchen • Play video about hazards and dangers that can happen. 	04Period (T)	Multimedia	Classroom

Safety Measures	The students will be able to; <ul style="list-style-type: none"> Define basic safety measures in kitchen Know how to safely handle electronic and gas equipment Describe how to eliminate/minimize risks in kitchen 	<ul style="list-style-type: none"> Prepare a list on how to prevent hazards in a kitchen. Explain Practice activity on measuring any recipe 	2 Period (T) 3 Period (P)	Charts, stationary	Classroom/ cooking lab
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Ch.3 Basics of cleaning			Total 17 Periods. (T=09 P=08)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Basic cleaning practices	The students will be able to; <ul style="list-style-type: none"> Know about the material used for kitchen equipment (work stations, oven) Explain the cleaning regimes in kitchen Learn the 6-stage cleaning process Understand how systematic cleaning can increase effectiveness 	<ul style="list-style-type: none"> List the proper steps of cleaning different kitchen equipment on PowerPoint and explain Perform practical on cleaning manually. 	2 Period (T) 3 Period (P)	Multimedia, Dusters, Cleaning agents.	Classroom / cooking Lab
Equipment Cleaning	The students will be able to; <ul style="list-style-type: none"> Describe about kitchen equipment that require manual cleaning Know the precautions for cleaning electric and gas equipment 	<ul style="list-style-type: none"> List the proper steps of cleaning various electronic and gas kitchen equipment on PowerPoint and explain. Activity on handling and cleaning gas and electric equipment. 	3 Period (T) 2 Period (P)	Multimedia	Classroom / cooking Lab
Cleaning chemical handling	The students will be able to; <ul style="list-style-type: none"> Explain about chemicals used in kitchen Define how to handle basic cleaning chemicals Learn the risks involved with chemical handling Describe do's and don'ts while handling chemicals 	<ul style="list-style-type: none"> List the proper steps of using chemicals to clean kitchen equipment on PowerPoint and explain Demonstrate through video about all chemicals. 	02 Period (T) 01 Period (P)	Multimedia	Classroom / cooking Lab
Garbage handling and disposal	The students will be able to; <ul style="list-style-type: none"> Explain basic characteristics of garbage bins used in kitchen Define the safety and hygiene linked with adequate garbage handling Learn how to clean garbage bins Describe the proper disposal of garbage and leftovers 	<ul style="list-style-type: none"> Design a step-by-step guide on how to handle garbage disposal in the kitchen Make them practice to wash bins Perform any cutting activity and apply leftover disposal method. 	2 Period (T) 2 Period (P)	Charts, stationary	Classroom / cooking Lab

Ch. 4 Cooking Commodities			Total 18 Periods (T=15 P=3)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Importance of Commodities	The students will be able to; <ul style="list-style-type: none"> • Learn what is commodity • Describe about ingredients used in cooking • Learn about the role of ingredients in cooking • Understand the importance of measuring ingredients in cooking • Know the Life of ingredients. 	<ul style="list-style-type: none"> • Make a PowerPoint presentation on commodities and their relevance 	3 Period (T) 1 Period (P)	Multimedia	Classroom / cooking Lab
flour	The students will be able to; <ul style="list-style-type: none"> • learn about different cereal grains • Know about different types of flour • Describe the use of wheat flour and gram flour 	<ul style="list-style-type: none"> • Use plastic bags to store small quantity of 3-4 types of flour and write down their properties 	02 Period (T)	Registers, stationary, Plastic Bags, Flour	Classroom / cooking lab
sugar	The students will be able to; <ul style="list-style-type: none"> • Learn the role of sugar in cooking • Describe about different types of sugar • Learn about sweeteners other than sugar 	<ul style="list-style-type: none"> • Store small quantity of 2-3 types of sugar in plastic bags. 	02 Period (T)	Registers, stationary, Plastic Bags, Sugar	Classroom /Lab
salt	The students will be able to; <ul style="list-style-type: none"> • Explain the use of salt in cooking • Describe the role of salt for seasoning • Understand the effect of salt in food 	<ul style="list-style-type: none"> • Store small quantity of salt in plastic bags. 	02 Period (T)	Registers, stationary	Classroom / cooking lab
eggs	The students will be able to; <ul style="list-style-type: none"> • Know about parts of egg • Describe various uses of eggs in cooking and baking 	<ul style="list-style-type: none"> • Paste pictures of parts of eggs and write down its uses • Perform activity of Boiling egg 	1 Period (T) 1 Period (P)	Registers, stationary, Eggs, Pots,	Classroom/ cooking lab
Oils and fats	The students will be able to; <ul style="list-style-type: none"> • Define oil and fat • Define about different types of oil • Understand the difference between oil and fat • Describe use of oils and fat in cooking 	<ul style="list-style-type: none"> • Enlist oil brands available in market. 	02 Period (T)	Registers, stationary	Classroom /cooking lab
Water	The students will be able to; <ul style="list-style-type: none"> • Define soft water • Describe use of water as a cooking medium 	<ul style="list-style-type: none"> • Group discussion about the properties of water and its uses in 	1 Period (T) 1 Period (P)	Registers, stationary	Classroom /cooking lab

	<ul style="list-style-type: none"> Define the use of water in cooking 	cooking.			
Packed goods	The students will be able to; <ul style="list-style-type: none"> Know <ul style="list-style-type: none"> Pasta Sauces Instant foods 	<ul style="list-style-type: none"> Group discussion about the process behind packing different instant foods 	02 Period (T)	Registers, stationary	Classroom

Ch. 5 Setting up Pantry and Food Storage			Total 07 Periods. (T=5 P=2)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Pantry	The students will be able to; <ul style="list-style-type: none"> Define kitchen pantry Learn about the role of pantry in kitchen Learn about perishable and non-perishable foods Learn the procedures for setting up pantry 	<ul style="list-style-type: none"> Enlist steps of organizing a pantry in the kitchen Perform an activity of arranging stock in pantry. 	1 Period (T) 2 Period (P)	MMP	Classroom / cooking lab
Cold storage	The students will be able to; <ul style="list-style-type: none"> Define what is cold storage room Learn about chillers and walk in chillers/freezers Describe procedures for storing different foods in a cold storage room 	<ul style="list-style-type: none"> List the type of foods that is stored in cold storage Make a cold storage visit. Play video about cold storage. 	02 Period (T)	Multimedia	Classroom Cold storage
Dry storage	The students will be able to; <ul style="list-style-type: none"> Learn about features of dry storage area Describe which foods can be stored in dry storage area 	<ul style="list-style-type: none"> List the type of foods that is stored in dry storage. 	02 Period (T)	Multimedia	Classroom Dry storage

Ch.6 Cooking Trends in Pakistan			Total 12 Periods. (T=4 P=8)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Cuisine and regional foods	The students will be able to; <ul style="list-style-type: none"> Define cuisine Learn what is Pakistani cuisine Understand the diversity of food in Pakistan 	<ul style="list-style-type: none"> Discussion on Pakistani cuisine, history and emerging food trends in Pakistan Discuss every cuisine or region from where students are from 	1 Period (T) 3 Period (P)	MMP	Classroom
Food trends in Pakistan	The students will be able to; <ul style="list-style-type: none"> Learn about major regional food trends in Pakistan Define about modern food trends Describe major food chains in Pakistan 	<ul style="list-style-type: none"> Prepare and present street food infused with modern presentation techniques 	1 Period (T) 3 Period (P)	MMP	Classroom
Street	The students will be able to;	<ul style="list-style-type: none"> Make a visit to 	2 Period	Power	Classroom/

Food Stalls	<ul style="list-style-type: none"> • Understand about food stalls • Know role of food stalls in culinary arts • Understand the food feasible for food stalls and trucks • Describe public/consumer needs/demands for food stalls. 	nearest stall/market. <ul style="list-style-type: none"> • Prepare a menu and present the desired dishes. 	(T) 2 Period (P)	point	Food market
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Ch.7 Regional Pakistani Food			Total 47 Periods. (T=11 P=36)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Introduction to Pakistani cuisines	The students will be able to; <ul style="list-style-type: none"> • Learn about Pakistani cuisine. • Define the cooking trends in Pakistan • Understand the methods for cooking Pakistani food 	<ul style="list-style-type: none"> • Prepare four basic types of stocks from given ingredients 	1 Period (T) 6 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab
Punjab	The students will be able to; <ul style="list-style-type: none"> • Explain the famous dishes of Punjab • Discuss the food trends in Punjab • Understand the making of Basic Punjabi Food 	<ul style="list-style-type: none"> • Prepare and present any of these; <ul style="list-style-type: none"> ○ Punjabi Pulao, ○ Mutton hareesa 	02 Period (T) 6 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab
Sindh	The students will be able to; <ul style="list-style-type: none"> • Explain the famous dishes of Sindh • Learn the food trends in Sindh • Understand the making of Basic Sindhi Food 	<ul style="list-style-type: none"> • Prepare any one dish from Sindh region. • Prepare Sindhi karahi and boiled rice or Sindhi khatti daal and phulka from Sindh region. 	02 Period (T) 6 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab
Baluchistan	The students will be able to; <ul style="list-style-type: none"> • Explain the famous dishes of Baluchistan • Define how to make Balochi Roast dishes 	<ul style="list-style-type: none"> • Prepare lamb dish from Baluchi regional food or Prepare a Balochi Sajji from regional food. 	02 Period (T) 6 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab
KPK	The students will be able to; <ul style="list-style-type: none"> • Explain the famous dishes of KPK • Discuss the making of namkeen gosht 	<ul style="list-style-type: none"> • Prepare namkeen gosht or • Kabuli pulao and chapli kebab 	02 Period (T) 6 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab
Gilgit& Baltistan	The students will be able to; <ul style="list-style-type: none"> • Explain the major famous dishes of Gilgit Baltistan • Define the food trends in Gilgit Baltistan • Discuss the making of Dumplings and Chapshuro 	<ul style="list-style-type: none"> • Prepare bread made in making of chapshuro or Prepare steamed dumplings and famous daudo from Gilgit region. 	02 Period (T) 5 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom/ cooking lab

Middle Tech (ALP) Fundamentals of Cooking (Package-E)

Ch. 01 Hospitality and cooking			Total 13 Periods (T=13)		
Themes	Students' Learning outcomes	Activities	Duration	Tools	Work place
Introduction to hospitality	The students will be able to; <ul style="list-style-type: none"> • define what is hospitality • know about scope of hospitality • Explain about different sectors of hospitality • understand the importance of food service and production in hospitality 	<ul style="list-style-type: none"> • Discussion on trends and growth of hospitality industry in Pakistan 	06 Period (T)	Multimedia	Classroom
Food Service Sectors	The students will be able to; <ul style="list-style-type: none"> • Enlist various food production sectors in hospitality <ul style="list-style-type: none"> ○ Restaurants ○ Hotels ○ Cafés ○ Bistro ○ Food stalls etc. 	<ul style="list-style-type: none"> • Prepare a presentation on any single sector(property) of hospitality 	03 Period (T)	Multimedia	Classroom
Kitchen Department	The students will be able to; <ul style="list-style-type: none"> • Discuss what is kitchen brigade • Enlist the ranks in a kitchen brigade • Explain the role and responsibilities of kitchen staff 	<ul style="list-style-type: none"> • Prepare a flow chart of kitchen brigade with correct ranking 	04 Period (T)	Multimedia	Classroom

Ch. 02 Modern Cooking			Total 27 Periods (T=16 P=11)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Recipe and menu	The students will be able to; <ul style="list-style-type: none"> • Define recipe • Define menu • Explain the recipe writing procedure 	<ul style="list-style-type: none"> • Gather the pictures of menu cards from local restaurants and discuss its features with the teacher • Presentation on menu making • Make an activity on simple recipe making 	04 Period (T), 03 Period (P)	Charts, stationary	Classroom
Cooking terminologies	The students will be able to; <ul style="list-style-type: none"> • Describe the relationship between modern cooking and French language 	<ul style="list-style-type: none"> • Prepare a list of simple terminologies related to cooking process used in kitchen • Perform an activity 	03 Period (T) 02 Period (P)	Multimedia Kitchen equipment, knives, cutting boards,	Classroom / cooking labs

	<ul style="list-style-type: none"> Define various cooking terminologies used in food preparation 	of blanching.		pots, etc.	
cooking methods	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define dry heat cooking methods Define moist heat cooking methods Define the use of combination cookery 	<ul style="list-style-type: none"> Prepare a chart of different types of cooking methods Perform an activity of different cooking methods. 	02 Period (T) 04 Period (P)	Multimedia, Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Modern technology	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define the modernization in food production Describe modern cooking gadgets Define the applications of modern kitchen gadgets. 	<ul style="list-style-type: none"> Group activity to identify the modern tools present in kitchen lab. Discuss use of modern gadgets. 	04 Period (T) 02 Period (P)	Multimedia.	Classroom
Food packaging	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define food packaging. Explain about materials used for food packaging Know different procedures of food packaging in a service kitchen 	<ul style="list-style-type: none"> Discussion on how food is packed and features of different packaging types. Enlist different procedures of food packaging in a service kitchen. 	03 Periods (T)	Multimedia	Classroom

Ch.3 3 Course Meal			Total 36 Periods (T=15 P=21)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
3 course meals	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define course meals Define 3 course meal Explain the components of 3 course meal 	<ul style="list-style-type: none"> Design a simple 3 course meal Prepare a 3-course meal from given ingredients 	03 Period (T) 03 Period (P)	Multimedia, Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / Lab
Appetizers	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define appetizer Learn the role of appetizer in a meal Know how to prepare simple appetizers Understand the production points of appetizer 	<ul style="list-style-type: none"> Prepare and present any type appetizers from given options: <ul style="list-style-type: none"> Soup. Garlic bread. Stuffed chicken strips. Drumsticks. Potato cheese balls. Sauces (garlic mayo/ salsa sauce) 	04 Period (T) 06 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / lab

Main course	The students will be able to; <ul style="list-style-type: none"> • Define main course • Describe variants of main course • Understand various dishes categorized as main course • Learn how to prepare basic main course dishes 	<ul style="list-style-type: none"> • Prepare simple dishes that are served as main course foods • Prepare any of these: <ul style="list-style-type: none"> ○ Chicken chili dry with egg fried rice. ○ Crumb coat chicken with mushroom sauce. ○ Oyster fish with garlic rice. 	04 Period (T) 06 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Desserts	The students will be able to; <ul style="list-style-type: none"> • Define dessert. • Describe various types (categories) of desserts • Describe the role of dessert in a meal 	<ul style="list-style-type: none"> • Prepare any of following dessert using dairy products: <ul style="list-style-type: none"> ○ Yogurt gateau ○ Egg pudding ○ kheer • Prepare any of following dessert without using eggs: <ul style="list-style-type: none"> ○ Trifle ○ Sooji halwa ○ Pannacotta 	04 Period (T) 06 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab

Ch. 4 Breakfast and Hi-Tea			Total 27 Periods (T=12 P=15)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Meals of the day	The students will be able to; <ul style="list-style-type: none"> • Explain about different meals of the day according to their time of serving. 	<ul style="list-style-type: none"> • Discussion on all meals of the day and their unique features to keep in mind before designing menu • Prepare a proper meal course according to chef special. 	03 Period (T) 04 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Breakfast	The students will be able to; <ul style="list-style-type: none"> • Define breakfast. • Describe various breakfast items from different origins • Know the components of a healthy breakfast. • Know how to prepare breakfast: <ul style="list-style-type: none"> ○ Pakistani style ○ English style 	<ul style="list-style-type: none"> • Prepare any of following breakfast menu in Pakistani style: <ul style="list-style-type: none"> ○ Khageena egg. ○ Aloo bhujia with paratha. ○ Channay poori. • Prepare any of following breakfast menu in English style: <ul style="list-style-type: none"> ○ Egg n cheese omelet. ○ Spanish omelet. ○ Hash browns. ○ Pancakes. 	03 Period (T) 04 Period (P)	Cutting boards (color coded), knives, PPE	Classroom / cooking lab
Hi-tea	The students will be able	• Prepare assorted hi	03 Period	Cutting	Classroom/

	to; <ul style="list-style-type: none"> • Describe Hi-tea • Explain how to set-up a hi tea • Enlist the components of a modern hi-tea • Prepare basic hi-tea menu items <ul style="list-style-type: none"> ○ Bite sized sandwiches ○ Samosas ○ Spring rolls ○ Hi-tea beverages ○ Assorted baked goods 	tea menu items <ul style="list-style-type: none"> • Prepare a combined setup that includes any of assorted hi-tea items prepared by the students from following items: <ul style="list-style-type: none"> ○ Bite sized sandwiches ○ Samosas ○ Spring rolls ○ Hi-tea beverages 	(T) 04 Period (P)	boards (color coded), knives, PPE	cooking lab
Platter and trollies	The students will be able to; <ul style="list-style-type: none"> • Describe food presentation for platter service • Define components for setting up trollies 	<ul style="list-style-type: none"> • Set-up a tea trolley including all the components • Prepare tea • green tea • Present and serve tea to the guest 	03 Period (T) 03 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab

Ch.5 Salads, Snacks and Soups			Total 25 Periods (T=08, P=17)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Bite food	The students will be able to; <ul style="list-style-type: none"> • Define bite food • Describe foods consumed for munching 	<ul style="list-style-type: none"> • Group discussion on snacks and their healthy and unhealthy characteristics • Prepare any of these bite size food items: <ul style="list-style-type: none"> ○ Sandwiches ○ Cookies ○ Cupcakes ○ Slider burgers ○ Chicken bites 	2 Period (T) 3 Period (P)	MMP, Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Snacks	The students will be able to; <ul style="list-style-type: none"> • Define snacks • Describe simple cooked snacks • Know how to cook simple healthy snacks 	<ul style="list-style-type: none"> • Prepare baked potato skins. • Prepare any of these: <ul style="list-style-type: none"> • Crackers, loaded fries, fried chicken, nuggets, tender pops, potato cutlets 	02 Period (T) 04 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Soups	The students will be able to; <ul style="list-style-type: none"> • Define stock • Define soups • Describe techniques to prepare soup from stocks 	<ul style="list-style-type: none"> • Prepare and present any two from following: chicken corn soup, soup, noodles soup, hot n sour soup, tomato soup. 	02 Period (T) 05 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Salads	The students will be able to;	<ul style="list-style-type: none"> • Prepare salad dressings 	02 Period (T)	Kitchen equipment,	Classroom / cooking lab

	<ul style="list-style-type: none"> Define salad Explain different types of salads: <ul style="list-style-type: none"> Greens Bound salads Fruit salads Dessert salads 	<ul style="list-style-type: none"> Prepare vinaigrette Prepare and present any green salad 	05 Period (P)	knives, cutting boards, pots, etc.	
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Ch.6 Sandwiches and Burgers			Total 24 Periods (T=9, P=15)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Convenience foods	The students will be able to; <ul style="list-style-type: none"> Know about convenience foods Learn about different types of convenience foods as fast food 	<ul style="list-style-type: none"> Presentation on snacks and fast food 	03 Period (T) 02 Period (P)	MMP	Classroom / cooking lab
Sandwich	The students will be able to; <ul style="list-style-type: none"> Define sandwich Describe types of sandwiches Know how to prepare sandwiches 	<ul style="list-style-type: none"> Prepare and present club sandwich Prepare panini sandwich 	03 Period (T) 06 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Burgers	The students will be able to; <ul style="list-style-type: none"> Describe components of burger <ul style="list-style-type: none"> Bun Meat Greens Sauce (mustard, tomato, mayonnaise) Know the types of burgers Know how to prepare burgers. 	<ul style="list-style-type: none"> Prepare any of burger from following option with any meat and present with accompaniments Beef burger, zinger burger, patty burger, egg shami burger, grilled fillet. 	03 Period (T) 07 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / Lab

Ch.7 Main Courses (Main Fares)			Total 24 periods (T=8 P=16)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
introduction	The students will be able to; <ul style="list-style-type: none"> Define main fare/ main course Describe Categories of main course 	<ul style="list-style-type: none"> Discussion on what is main course and main characteristic of main course in a 3 course meal Prepare and present any of fine dine recipe Perform an activity of being a customer and server 	02 Period (T) 04 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Pasta and noodles	The students will be able to; <ul style="list-style-type: none"> Explain pasta and noodle. 	<ul style="list-style-type: none"> Prepare handmade pasta with flour and eggs Prepare any of following pasta dish and present it 	02 Period (T) 04 Period (P)	Kitchen equipment, knives, cutting boards,	Classroom / cooking lab

	<ul style="list-style-type: none"> Learn how pasta is prepared Learn how to boil pasta and noodles. 	<ul style="list-style-type: none"> pre-plated alfredo penne arrabiata grilled chicken smoked chicken penne pasta 		pots, etc.	
Meat Dishes	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define different types of meat <ul style="list-style-type: none"> Beef Mutton/lamb Enlist different cuts of meat. 	<ul style="list-style-type: none"> Perform meat cutting as per instructions and dish requirement Prepare any dish from following options that includes beef as a main food item: <ul style="list-style-type: none"> Mutton shank nihari, beef steak with pepper sauce 	02 Period (T) 04 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab
Rice	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe types of rice. Learn how to boil rice. Learn how to prepare rice dish using chicken stock. Learn how to prepare fried rice using Chinese method. 	<ul style="list-style-type: none"> Prepare simple boiled rice following the instructions of the teacher Prepare chicken biryani and present it with accompaniments. Prepare Egg fried rice. 	02 Period (T) 04 Period (P)	Kitchen equipment, knives, cutting boards, pots, etc.	Classroom / cooking lab

Ch. 8 Breads and Cakes			Total 22 Periods (T=07 P=15)		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Baking	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define baking Learn the baking methods using oven/kiln Know how to use convection oven for baking. 	<ul style="list-style-type: none"> Group discussion on baking as a branch of cooking Small group activity to prepare a list of baked products available at nearest bakery and discuss their ingredients with teacher 	02Periods (T)	Stationary, chart papers	Classroom
Basic Principles of Baking	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe baking as a branch of cooking Describe major ingredients of baking <ul style="list-style-type: none"> Flour Sugar Butter Eggs 	<ul style="list-style-type: none"> Presentation on different types of ovens used for baking food Go through all the ingredients used in baking Enlist specialized tools and equipment required for baking 	02 Period (T) 03 Period (P)	Stationary, chart papers	Classroom

	<ul style="list-style-type: none"> ○ Leavening agents ○ Dairy products ● Know specialized tools and equipment required for baking ● Know basic procedures involved in baking 	<ul style="list-style-type: none"> ● Group discussion on basic procedures involved in baking 			
Bread Making	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Define bread ● Describe categories of bread <ul style="list-style-type: none"> ○ Leavened ○ Unleavened ● Define yeast ● Describe the process of dough making and dough proofing ● Explain the suitable temperature for bread making ● Know how to prepare sandwich bread and buns 	<ul style="list-style-type: none"> ● Prepare bread dough ● Perform dough scoring ● Bake a bread according to recipe, following the correct procedures 	02 Period (T) 06 Period (P)	Oven, kitchen utensils and equipment	Classroom / cooking lab
Cakes and biscuits	<p>The students will be able to;</p> <ul style="list-style-type: none"> ● Define cakes and biscuits. ● Describe basic categories of cakes <ul style="list-style-type: none"> ○ Sponge ○ Butter cake ○ Define the mixing / preparation methods for baking ○ Airation method ○ Creaming method 	<ul style="list-style-type: none"> ● Prepare short bread biscuits in different varieties ● Prepare a sponge and decorate with frosting ● Follow recipe card to prepare cakes and biscuits 	01 Period (T) 06 Period (P)	Oven, kitchen utensils and equipment	Classroom / cooking lab

Basic Requirements for Lab (Tools / Equipment):

Sr # 1	Equipment / Tools	Description	Quantity
1	Multimedia Projector with white screen	Sony or Equivalent	1
2	Computer Core i7 with 21" LCD	Acer	1
3	Printer LaserJet with Wi-Fi	HP	1
4	Exhaust Hood (Stainless Steel) with Filters, Shape and size: as per the site of the lab individually		1 (24 feet)
5	Griddle/ Hot Plate Grilled Board Dimension: 1216*612*20 mm Power: 35.2KW/120000BTU Burners: 4	Dimension: 1220*840*360+60 mm	1
6	Exhaust Ducting and Blower (50 ft.) Material: MS Ducting and Blower Size: As per site of individual lab Dimensions: As per individual lab.		1 (50 foot)
7	Storage Rack/ Shelves Stainless Steel (4 shelves) Dimension: 36"x18"x72" Legs: 4		2
8	Barbeque Counter 4ft x 22" x 40" With 50 Standard Kebab Bars and 50 Seek Bars of Iron		1
9	Tandoor (Gas Operated), Height x Top Length x Mouth Dia. X Belly Dia. 32"x28"x12"x24" Stone clay body 2", Hard Coated Stainless-Steel Body Reinforcement Metal Rings, Triple layer, insulation, Disposal Tray, Cast Iron Gas Plate, include 12 Skewers, 6" wheels, 13" Butler Plate to detect Flame, Warranty required		1
10	Stainless Steel Food Pan		6
11	Stainless Steel Bowls Small: 30, Medium: 20, Large: 20, Extra Large: 10		
12	Stainless Steel Bowls. Capacity 1500 mL		6
13	Dough Mixer Electric, with Stainless Steel 9 Liter Bowl capacity		1
14	Rolling Pin with Board set. Wooden		2
15	Egg Slicer		4
16	Wire Whisk, Stainless Steel Material Small (10 inches), Medium (14 inches) Large (18 inches)		4 4 4
17	Piping Bag (Canvas Material) with different shaped 6 nozzles		4
18	Soup Bowls/ Suitable for all hob types. Black Bakelite handles with glass lid. 23cm Diameter. 7 Liters capacity		4
19	Bread Toaster		1
20	Deep dish (Stainless Steel) Small: - Stainless Steel Deep Square Balti Dish Size: 200x200x95mm, Capacity: 2.5L Medium: - Stainless Steel Square Balti Dish Size: 255x255x65mm, Capacity: 3.2L Large: - Stainless Steel Deep Tray, Size: 410x310x55mm, Capacity: 4.8L		10 10 10
21	Jug (Hotel and Restaurant Glass water Jug / cold water jug / high polishing finishing, Capacity: 1.7 Liters, Size: Dia8.8*22.2cm		4
22	Dust Bin/Waste Bin (foot Operated), Material: Plastic, HDPE		4

	(High Density Polyethylene), Structure: Standing, Type: with wheels & pedal and lid cover, Capacity: 60 Liters, Top(mm): 360 x 360, Bottom(mm): 300 x 300, Height(mm): 620, Color: Yellow or Red		
23	Steel Brush (Wire Brush) Wooden Handle		4
24	Egg Beater	Commercial Type	2
25	Steak Hammer	Material: Aluminum Alloy	2
26	Mandolin, Type: Adjustable Operations	Material: Stainless Steel	4
27	Electric Fly Killer, Blue light for insect attraction	Material: Metal Chinese	2
28	Hot Air Hand Dryer		1
29	Water Filter System, Size: Medium		1
30	Scrubbing Pads (Metal, Plastics, etc.)		20
31	Rubber Spatulas		6
32	Rice Strainers		6
33	S.S Cooking Spoon set		3
34	Silicone Molds and shapes		
35	Food Containers, Plastic. 500 ml, 1000ml, 2000ml, 5000ml		5 each
36	Measuring Scale Digital, 0.1g to 25kg		2
37	Food Brush		6
38	Liquid Bottles, Plastic, 1 liter, 1.5 liter		5 each

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Agriculture

Aims:

The specific aims of developing this curriculum are as under:

- Provide students with a smooth transition to work.
- Develop agricultural skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain training certification in given trade.
- To set middle standard professions for the agriculture to generate standard outputs.
- To validate an individual skill, knowledge and understanding regarding agriculture.
- Provide flexible pathways in training and assessment field.

Objectives:

After completing this, the students will be able to;

- Understand the concept of Agriculture.
- Demonstrate salient feature of Agriculture.
- Aware about various parameter of Agriculture.
- Demonstrate different types of Agriculture cropping method.
- Identify soil types and texture.
- Know suitable time and method of cropping.
- Identify various types of Weeds of particular crops.
- Identify various types of Pests and their characteristics.
- Know suitable fertilizers for improved output.
- Understand irrigation and its different types for crops.
- Understand Harvesting Methodology of different crops.
- Understand Packaging and Storage of agricultural produce.
- To communicate effectively orally.
- To recognize the effects of inputs on outputs in agricultural field.

Middle Tech (ALP) Agriculture (Package-D)

Chapter # 01 Introduction to Agriculture			Total Period=13 Theory=7, Practical=6		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Introduction to Agriculture	The students will be able to: <ul style="list-style-type: none"> • Define Agriculture. • Describe the components of agriculture (crops, livestock, fisheries and forestry). • Know the importance of agriculture for mankind and role of agriculture in Pakistan's economy. • Understand the land and water resources. • Explain the agriculture as a source of food supply. • Understand agriculture as a business. 	<ul style="list-style-type: none"> • Demonstration of methods of land measuring. • Videos playing on agriculture, • Group assignment on importance of agriculture and presentation, Role Paly. 	T=7, P=6.	Multimedia or LED, Computer, Internet Connection, Stationery, measuring tape, rope, Wooden pegs.	Classroom , Field

Chapter # 2 Health and Safety			Total Period=24 Theory=8, Practical=16		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Hazards at Workplace	The student will be able to: <ul style="list-style-type: none"> • Explain risks and Hazards at Agricultural farms. • Define what might be harmed (pesticides and weedicides) at agricultural farms. • Define safety precautions regarding safe use of pesticides and farm tools / machinery. • Explain PPE's. • Understand safety symbols. 	<ul style="list-style-type: none"> • visit Agricultural farm, • Identify potential hazards in use of farm machinery. • Use of PPE kit required for pesticide use. • Recognize the required tools, equipment, personal protective equipment (PPE) and consumable material used at agricultural farms. 	T= 5 P= 07 Total 12	ICT Resources, farm PPE kit, Safety Charts, Agricultural tools and machinery, etc.	Classroom / field.
Observing Occupational Safety and Health (OSH)	The students will be able to: <ul style="list-style-type: none"> • Define importance of OSH. 	<ul style="list-style-type: none"> • Perform cleaning and storing of tools used in pesticide application 	T= 2 P= 5 Total= 07	ICT Resources, farm PPE kit, Safety Charts,	Classroom / Lab

	<ul style="list-style-type: none"> Describe health and safety precautions and other relevant guide lines & symbols at agricultural farms. Understand the importance of keeping the area of agricultural farms clean and clear. Understand proper cleaning & storing of tools or equipment used at farms. Understand the disposal of pesticide empty boxes. 	<ul style="list-style-type: none"> equipment. Demonstrate the use of PPE kit used at agricultural farms. keep work area clean and clear of obstructions. know how to deal with problems and ensure in time reporting of the problems to the farm supervisor. 			
First Aid, Fire Extinguisher	<p>The students will be able to:</p> <ul style="list-style-type: none"> Explain requirement and necessary steps of first aid. Define fire extinguisher. Explain the types of fire extinguishers and their uses. 	<ul style="list-style-type: none"> Demonstrate how to provide first aid (general / agriculture accident scenarios) check the expiry date. Operate fire extinguisher. 	T= 1 P= 4 Total= 05	Fire Extinguisher	Classroom / Lab

Chapter # 3 Basic Communication Skills			Total Period=18 Theory=6, Practical=12		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Soft Skills	<p>The students will be able to;</p> <ul style="list-style-type: none"> Understand the importance of soft skills in daily life like; <ul style="list-style-type: none"> Self-confidence, Self-discipline, Value of time Decision making, Critical thinking, Problem solving 	<ul style="list-style-type: none"> Every student Prepare a speech of three minutes perform one by one in the front of the class. The students will be involved in developing and critically analyzing different messages on different issues of agriculture. Students will practice different forms of agriculture communication in the class different roles (e.g., farmer, dealer, extension worker etc.) alternatively. 	T=2, P=3	Multimedia, computer with accessories	Classroom / Lab
Work in Team	<p>The students will be able to:</p>	<ul style="list-style-type: none"> Make a team of a few students and 	T=1, P=2	ICT resources, Stationary	Classroom / Lab

	<ul style="list-style-type: none"> • Treat team members with respect and maintain positive relationships. • Listen the instructions carefully & comply with those instructions. • Provide agriculture related information to team members and identify interrelated work activities to avoid confusion. • Adopt communication skills appropriate to agriculture related activities. 	<ul style="list-style-type: none"> • discuss the issues of farmers related to agriculture, • their causes and possible solutions. • Perform dialogue of a farmer with pesticide / fertilizer dealer 		Round table with chairs	
Communication Skills	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know model of communication. • Understand effective communication. • Understand importance of active listening and responding. • Understand the types of communication (verbal, nonverbal). • Define barriers in communication. 	<ul style="list-style-type: none"> • Perform role play. • Group exercise through listening audio and seeing video. • Carryout practice / role play among students to reflect verbal and nonverbal communication. 	T=2, P=5	Multimedia, computer with accessories	Classroom / Lab
Deal with Clients	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define farmer's client (e.g., pesticide, seed and fertilizer sellers, middle men and dealers). • Know value of agricultural clients. • Provide clear information to client about work requirement (Cost & Time). • Negotiate with client effectively (wages, time, labor requirements). 	<ul style="list-style-type: none"> • Make a team of five members, two of them are fertilizer, seed, pesticide sellers and rests three are farmers. • Discuss about the types of different agricultural inputs (fertilizer, seed, pesticide), their cost and quality. • Dealer and farmer should negotiate on the cost. 	T=1, P=2	ICT resources, Stationary	Classroom / Lab

Chapter # 4 Operate Computer Functions			Total Period=23 Theory=6, Practical=17		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Introduction to Computer	The students will be able to: <ul style="list-style-type: none"> • Define computer • Define components of computer. • Understand uses of computers. • Describe peripheral devices. 	<ul style="list-style-type: none"> • Identify different places where computers are being used in daily life. • Identify different components of computer. 	T=1 P=2	Multimedia, computer with accessories	Classroom / Lab
Demonstrate Basic IT Skills	The students will be able to: <ul style="list-style-type: none"> • Know input / output devices. • Define folders. • Save a file. • Learn major commands of operating system / windows. • Demonstrate basic commands of MS Word & MS Excel. • Define the use of android app. • Know the use of internet. 	<ul style="list-style-type: none"> • Identify input and output devices. • Create folders and save files. • Practice of applying use of computer in agriculture. • Use ICT for weather and agriculture related apps. • Practice web browsing (Agriculture related). • Prepare data sheets in excel and word for agriculture farm record keeping purposes. 	T=5, P=15	ICT resources, Stationary Android phones	Computer Lab

Ch. 05. Digital Communication and social media			Total 10 Period. T=2, P=8		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Effective email writing	The student will be able to; <ul style="list-style-type: none"> • Create, access and manage email account • Learn how to write and respond email. 	<ul style="list-style-type: none"> • Create email account. • Write an email to school principal on subject of any importance. 	T=1, P=4	Multi media System, Internet connection	Classroom / Labs
Introduction to Social Media Platforms	The student will be able to; <ul style="list-style-type: none"> • Understand the role of social media in marketing and business development • Merits and demerits of social media • Use Facebook, Instagram, twitter, YouTube. 	<ul style="list-style-type: none"> • Create social media page for yourself by using: <ul style="list-style-type: none"> ○ Facebook ○ Instagram ○ Twitter ○ YouTube 	T=1, P=4	Multi media System, Internet connection	Classroom / Labs

Chapter 6 Introduction to Soil & Soil Types			Total Period=30 Theory=12, Practical=18		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Soil and its types	The student will be able to: <ul style="list-style-type: none"> • Define soil and its types. • (Sandy soils, Clayey / heavy soils, Loam / Productive soils, less productive / Poor soils). • Define soil science. • Define lithosphere, Hydrosphere and biosphere. • Define pH. • Define organic matter. • Describe water holding capacity. • Describe Macro and Micro nutrients. • Discuss physical properties and soil classification. • Define soil, water and air pollution types and sources. 	<ul style="list-style-type: none"> • Methods of soil sampling and handling. • Prepare saturated soil paste. • Determination of soil water contents. • Measure soil pH. • Calculate soil pH. • Videos playing. 	T=12, P=18	Multimedia or LED, Computer, Internet Connection, Stationery. Soil samples, Masks, Gloves, first aid box, Soil mixer, Calculator, Bins, Containers, Soil tank, measuring tape, kit for pH measurement.	Classroom / Field

Chapter # 7 Introduction to Fertilizers			Total Period=25 Theory=10, Practical=15		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Fertilizers	The students will be able to: <ul style="list-style-type: none"> • Define soil organic matter. • Define fertilizer. • Define types of fertilizer. • Describe the importance and role of soil organic matter in crop production. • Define soil productivity. • Define micro nutrients and organic manures. 	<ul style="list-style-type: none"> • Identify fertilizers and organic matter. • Perform soil sampling and preparation of soil for laboratory test. • Visit of fertilizer company/Lab. • Demonstration of fertilizer application • Videos playing. 	T=10, P=15	Multimedia or LED, Computer, Internet Connection, Stationery, Fertilizer samples. Masks, Gloves, first aid box, Soil mixer, soil sampler, Calculator, Bins, Containers, Soil tank, measuring tape, Cardboard box, Tags, Polyethylene bags, Permanent markers, glass jars, PPEs kit	Classroom fertilizer company/ Lab.

Chapter # 8 Field Crop Production			Total Period=45 Theory=14, Practical=31		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Crop Production	The students will be able to: <ul style="list-style-type: none"> • Define crop production. 	<ul style="list-style-type: none"> • Identification of crops and their 	T=14, P=31.	Multimedia or LED, Computer,	Classroom, Field

<ul style="list-style-type: none"> • Differentiate rabi and kharif season crops. • Describe different cropping systems and cropping intensity in Pakistan. • Describe various kinds of major field crops and their production technology; Cotton, rice, Maize, Sugarcane, Legumes and oil seed crops. • Describe crops suitability according to kinds of soil & area. • Define intercropping. • Define the effect of early / late planting on crop yield. • Define medicinal plants. 	<ul style="list-style-type: none"> • seeds. • Demonstration of improved sowing methods and de-linting. • Raise crop nurseries and transplanting. • Intercultural practices. • Seed treatment with fungicides. • Demonstration of harvesting and threshing operations. • Videos playing. 		<ul style="list-style-type: none"> • Internet Connection, Stationery. • Tractor, Cultivar, Ridges, Rotavator, Spray Machines, Suhaga, Spade, Ramba, Kasola, Harvester, seed of different crops and other tillage implements 	
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Chapter # 9 Principles of High Yield			Total Period=30 Theory=12, Practical=18		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Crop production	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define tillage. • Describe tillage techniques. • Describe Benefits of machines. • Enlist the machinery for sowing & harvesting of various crops. • Define Puddling for rice sowing. • Define seed dressing. • Define the importance of selecting quality seed; (high yielding, disease resistant healthy seed). • Define seed cleaning to avoid germination of weeds, etc. • Describe the process of seed preparation before sowing. • Describe sowing techniques of different crops / seeds. 	<ul style="list-style-type: none"> • Visit field area: <ul style="list-style-type: none"> ○ Identification of tools and tillage implements. ○ Seed preparation for sowing. ○ Demonstration of seed dressing and sowing methods. ○ Videos playing. 	T=12, P=18.	<ul style="list-style-type: none"> • Multimedia or LED, Computer, Internet Connection, Stationery. • Sprayers, Rake, shovel, Ax, Sprinkler, Tractor, Cultivator, Harvester, Set of harrows, Fertilizer/Seeder, Agricultural roller, Baler 	Classroom Field

Chapter # 10 Water Management			Total Period=25 Theory=10, Practical=15		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Use of water in agriculture	The students will be able to: <ul style="list-style-type: none"> • Define irrigation. • Define different types of irrigation. • Discuss importance of water in agriculture. • Identify role of water in; Nutrient's uptake, Photosynthesis, General plant growth. • Describe water requirements for various crops. • Describe cleaning of water courses. • Know precise land leveling. • Define land division into standard/ small pieces. 	<ul style="list-style-type: none"> • Identify irrigation equipment. • Estimate total water availability per year. • Demonstrate water saving techniques. • Videos playing, 	T=10, P=15.	Multimedia or LED, Computer, Internet Connection, Stationery, different irrigation equipment.	Classroom Field

Middle Tech (ALP) Agriculture (Package-E)

Chapter # 1 Methods of weeds and pest Control			Total Period=35 Theory=14, Practical=21		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Weedicides and pesticides	The students will be able to: <ul style="list-style-type: none"> • Define biotic and abiotic factors. • Distinguish weed and type of weeds. • Describe pesticide and type of pesticides. • Define common insect pest and weeds of crops. • Perform pre and post application care of weedicides and pesticides. • Describe suitable time of application for pesticides and weedicides. • Describe management techniques for weeds and pesticides. 	<ul style="list-style-type: none"> • Visit field <ul style="list-style-type: none"> ○ Identify weeds. ○ Identify pest. ○ Identify beneficial insects. ○ Collect different weeds. ○ Demonstrate / observe the application of weedicide and pesticides. ○ Make pesticide solutions / concentration. ○ Videos playing. 	T=14, P=21.	Multimedia or LED, Computer, Internet Connection, Stationery, Sprayer, Tank, insect net, Sprinkler, Duster, Fogger, Bait guns, Pest control granulator, Steamers, Cultivar, Weeders, Weedicides and pesticides	Classroom Field

Chapter # 2 Irrigation Practices			Total Period=23 Theory=8, Practical=15		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Irrigation Practices	The students will be able to: <ul style="list-style-type: none"> • Describe various irrigation types / systems; Furrows / basin, flood, raised bed, sprinkler and drip irrigation. • Define water requirement for various crops including Cereals, Rice, Sugarcane, Fodder and Vegetables. • Define growing type and number of crops according to water availability. • Describe cultivation across slop to catch surface runoff. • Define ploughing of fallow land to absorb rain water. • Define storage (in ponds) / harvesting of water in sloped hilly areas and rode-kohi system. • Know solar pumps. • Describe water course management & other water saving techniques. 	<ul style="list-style-type: none"> • Demonstrate the irrigation systems. • Prepare a chart to design the irrigation system on recommended area. • Make a list of crops where we use proper irrigation methods. • Videos playing. 	T=8, P=15.	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom Field

Chapter # 3, Cultivation / Harvesting, Packing and Transportation			Total Period=39 Theory=14, Practical=25		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Importance of Cultivation / Transportation	Students will be able to: <ul style="list-style-type: none"> Define good practices of harvesting / collection / picking, grading, packing and transportation of; mangoes, dates, citrus fruits, other fruits, vegetables and field crops. Define proper and timely harvesting / threshing procedure / implements. Define measures to minimize post-harvest losses of; field crops cereal, legumes, cotton, sugarcane, forages, vegetable crops, fruits. Know the concept of value addition. 	<ul style="list-style-type: none"> Prepare a plan for transportation. Select appropriate time for harvesting of produce and its maturity as per recommendation. Identify and arrange machinery as per requirement. Identify pre harvest factors. Demonstration of harvesting machinery. Videos playing on harvesting packing, picking, grading and transportation techniques. 	T=14, P=25.	Multimedia or LED, Computer, Internet Connection, Stationery. Packing, grading, transportation materials. Measuring scale, Vehicles, Cartons, Jute Bags, Jute Rope, Harvester, Cultivator, Rake, Shovel, Ax, Wheel barrow, Slicer, Digger, Raker, Picker, Box cutter, Safety Knife, Heat sealing, Shrink Wrapping, Packing Tapes, Staple gun, Steel banding.	Class room Field

Chapter # 4 Storage of Produce			Total Period=23 Theory=8, Practical=15		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Importance of storage in agriculture	The students will be able to: <ul style="list-style-type: none"> Describe concept of proper storage of produce. Define sorting and grading. Manage produce to avoid post-harvest losses. Define advantages of storage and storage types. Define biotic and abiotic losses during storage. 	<ul style="list-style-type: none"> Perform activity to manage and store harvested produce at storage site. Arrange material for sorting and grading. Perform sorting and grading for storage commodity. Videos playing. 	T=8, P=15.	Multimedia or LED, Computer, Internet Connection, Stationery, Racks, Shelves, Wooden boxes, Cartons, Wires, Ropes, Staple gun, Tape, jute bags, jute rope and different storage materials.	Classroom Field visit of warehouse

Chapter # 5 Record Keeping			Total Period=16 Theory=6, Practical=10		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Importance of record keeping in agriculture	The students will be able to: <ul style="list-style-type: none"> • Maintain records of inputs including labor their costs and output / production. • Define profit. • Describe production record of crops. • Define bank account and stock register. • Describe record of selling, buying and stock. • Define land record keeping. • Know Land revenue calculation, water charges (Aabiana) calculation. • know about land purchasing and transfer • procedures. 	<ul style="list-style-type: none"> • Prepare stock and cash register. • Calculate land revenue and water charges. • Acquire the “fard” for a piece of land. • Videos playing, • Presentations. 	T=6, P=10.	Multimedia or LED, Computer, Internet Connection, Stationery, bank vouchers, stock and cash register, abiana form, cash memo.	Classroom, Field

Chapter # 6 Entrepreneurship			Total Period=20 Theory=12, Practical=8		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Understand basic concept of Entrepreneurship	The trainee will be able to: <ul style="list-style-type: none"> • Describe the meaning of entrepreneurship & entrepreneur. • Define the characteristics / qualities of an entrepreneur related to agriculture. • Describe the benefits / importance of agricultural entrepreneurship. 	<ul style="list-style-type: none"> • Group discussion and presentation on Entrepreneurship. • Videos playing, • Group Work. • Role Paly. • Agricultural field Assignments. • Agri. business related presentations. 	T=6, P=4	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom Field
Generating a Business Idea.	The trainee will be able to: <ul style="list-style-type: none"> • Define Business Idea. • Explain their region assets that foster entrepreneurship. • Describe business ideas that can be carried out by a group or an 	<ul style="list-style-type: none"> • Assign the students a task to observe the • respective locality • and enlist potential • business ideas and • present them in 	T=6, P=4	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom Field

	individual in an agriculture setting.	class. • Videos playing. • Group Work,			
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Chapter # 7 Introduction to Innovative techniques / technologies in agriculture.			Total Period=44 Theory=16, Practical=28		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Introduction to Tunnel Farming	The students will be able to: <ul style="list-style-type: none"> • Define tunnel farming. • Describe importance of tunnel technology as a need of time. • Define types of tunnels; (low, high, walk-in tunnel). • Describe vegetables grown under tunnels. • Define the installation of different types of tunnels. • Enlist materials equipment for tunnel installation. • Describe types of irrigation in tunnels as per variety of vegetable. 	<ul style="list-style-type: none"> • Make a sketch of tunnel • Identify vegetables which are grown in tunnels. • Videos playing. 	T=4, P=7	Multimedia or LED, Computer, Internet Connection, Stationery, Tractor, ridger, Tillage implements, Weeders, Sprayers, Power tools, Land preparation implements, polytene sheets, bamboo sticks, Management and maintenance	Classroom Field
Introduction to Apiculture	The students will be able to: <ul style="list-style-type: none"> • Define apiculture. • Define different species of bees. • Define weather behavior. • Understand bee keeping. 	<ul style="list-style-type: none"> • Demonstrate apiary. • Identify apiculture equipment's. • Differentiate between species and caste of honey bee. • Demonstrate honey extraction • Videos playing, • Field Assignments 	T=4, P=7	Multimedia or LED, Computer, Internet Connection, Stationery, Bee hives, hive tool, Wax sheets, Extractor, Smoker, Royal jelly collector, Queen cages, Storage tanks, Feeder, Pollen traps	Classroom Field
Introduction to Hydroponic Farming	The students will be able to: <ul style="list-style-type: none"> • Define hydroponic system and its types. • Enlist hydroponic crops. • Define products from hydroponic. • Define types of growing media, fertilizer and materials. 	<ul style="list-style-type: none"> • visit to hydroponic farm • Identify hydroponic equipment. • Videos playing. 	T=4, P=7	Multimedia or LED, Computer, Internet Connection, Stationery, Flood chamber/Reservoir , nutrient solution, electronic meter, pump, lighting, grow room	Classroom Field
Introduction to	The student will be able to: <ul style="list-style-type: none"> • Define mushroom. 	<ul style="list-style-type: none"> • Play Videos of 	T=4, P=7	Multimedia or LED, Computer, Internet	Classroom Field

Mushroom Growing	<ul style="list-style-type: none"> • Describe species of mushroom. • Describe economic importance of mushroom growing. • Enlist products from mushroom species. • Define growing media. • Define mushroom growing methods (caves, bags, houses, outdoor, troughs etc.) 	mushroom growing.		Connection, Stationery, Mushroom growing chamber, sterilizer, water tubs, polythene bags, humidifier.	
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Basic Requirements of Lab (Tools / Equipment):

Sr. #	Name	Quantity
1	Multimedia/ LED and internet	1
2	Tractor (can be hired for cultivation)	1
3	Cultivator	1
4	Ridger	1
5	Rotavator	1
6	Spray Machines (knap sack, power and ULV sprayer)	1 each
7	Suhaga	1
8	Harvester	1
9	Spade, Ramba, Kasola and other tillage implements	As per requirement
10	Sprinkler	1
11	Set of harrows	1
12	Fertilizer/Seeder	As per requirement
13	Agricultural roller/Baler	1
14	Soil mixer	1
15	Soil sampler	1
16	Calculator	10
17	Soil tank	1
18	Harvester	1
19	Wheel barrow	1
20	Digger	1
21	Raker	1
22	Picker	1
23	Hand trolley, Tanker	1 each
24	Bee hives, hive tool, Wax sheets, Extractor, Smoker, Royal jelly collector, Queen cages, Storage tanks, Feeder, Pollen traps	1 each
25	Mushroom growing chamber, sterilizer, water tubs, polythene bags, humidifier	1 each

Safety Equipment:

Sr. #	Name	Quantity
1	PPE Kit	30
2	First Aid Box	1
3	Fire Extinguisher	1

Training Consumable:

Sr. #	Name	Quantity
1	Seed of different crops	As per requirement
2	Fertilizer samples	As per requirement
3	Containers, Bins, measuring tape	As per requirement
4	Masks, Gloves, first aid box	As per requirement
5	Weedicides, pesticides and nutrient solution	As per requirement
6	Cardboard boxes Cartons, Box cutter,	As per requirement
7	Safety Knife	1
8	Heat sealing machine	1
9	Tags, Polyethylene bags, Permanent markers, White Chalk	As per requirement
10	Compass	1
11	Kit for pH measurement	1
12	Jute Bags, Jute Rope	As per requirement
13	Bank vouchers, stock and cash register, abiana form, cash memo	1 each
14	Stationary	As per requirement

Curriculum Development, review and Validation Committee:

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Livestock

Aims:

The specific aims of developing this curriculum are as under:

- Provide students with a smooth transition to work.
- Develop livestock rearing skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain training certification in given trade.
- To set middle standard professionals for the livestock to generate standard outputs.
- To validate an individual skill, knowledge and understanding regarding livestock.
- Provide flexible pathways in training and assessment field.

Objectives:

After completing this, the students will be able to;

- Understand the concept of Livestock.
- Demonstrate salient feature of Livestock / poultry / fish farming.
- Aware about various parameter of Livestock / poultry / fish farming.
- Understand livestock management techniques including health, facilities, animal handling, nutrition, and reproduction.
- Understand application of animal handling and management techniques for Buffalo, Cow, goat, sheep, and camel.
- Know about safe and quality livestock product producing practices.
- Understand packaging and storage of livestock produce.
- To communicate effectively orally.

Middle Tech (ALP) Livestock (Package-D)

Chapter # 01 Introduction to Livestock			Total Period=13 Theory=5, Practical=8		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Importance of Livestock	The students will be able to: <ul style="list-style-type: none"> • Define Livestock. • Define the importance and uses of livestock. <ul style="list-style-type: none"> ○ Milk ○ Meat ○ Leather ○ Wool ○ labor • Describe the issues and challenges faced by a livestock farmer. • Define livestock as a business. 	<ul style="list-style-type: none"> • Visit of local livestock farm / unit and elaborate its importance in preview of livestock products used in daily life. • Students will enlist issues and present in class. • Videos of livestock farms can also be played for concept clarity. 	T=5 P=8 Total = 13	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, livestock farm.

Chapter # 2 Health and Safety			Total Period=24 Theory=8, Practical=16		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Health & Safety	The student will be able to: <ul style="list-style-type: none"> • Know about the personal hygiene. • Define personal safety. • Describe pictorial guidelines and instructions on personal safety. • Define proper clothing for safe working. • Describe the proper cleaning and storing of relevant protective clothing and equipment. 	<ul style="list-style-type: none"> • Practical demonstration at farm of: <ul style="list-style-type: none"> ○ Personal hygiene ○ Wearing of PPEs ○ Use of different equipment's • Relevant Videos can be played. 	T= 3 P= 4 Total = 7	Multimedia or LED, Computer, Internet Connection, Stationery, First Aid Kit, Fire Extinguisher	Classroom Field
Personnel Protection	The student will be able to: <ul style="list-style-type: none"> • Use safety kit during livestock farm operation. • Define potential injuries and hazards / threats (biological, chemical and physical) during livestock farm operations. • Know about protection from zoonotic diseases. • Explain anti-theft measures 	<ul style="list-style-type: none"> • Practical demonstration at farm of using different safety kits during different farm operations. • Group discussion among students upon relevant topics. 	T= 2 P= 3 Total= 5	Multimedia or LED, Computer, Internet Connection, Stationery, First Aid Kit, Fire Extinguisher	Classroom livestock farm.

	and secure farm valuables.				
Observing Occupational Safety and Health (OSH)	The students will be able to: <ul style="list-style-type: none"> • Define importance of OSH. • Describe health and safety precautions and other relevant guide lines & symbols at livestock farms. • Know the importance of Keeping the area of livestock farms clean and clear, and proper cleaning & storing of tools or equipment used at farms. • Understand the disposal of farm waste. 	<ul style="list-style-type: none"> • Perform cleaning and storing of tools & equipment used in livestock farming. • Demonstrate the use of PPE kit used at Livestock farms. • Practical on keeping work area clean and clear of obstructions. • Observe waste disposal and discuss in class. 	T= 2 P= 5 Total= 07	ICT Resources, farm PPE kit, Safety Charts,	Classroom / Lab
First Aid, Fire Extinguisher	The students will be able to: <ul style="list-style-type: none"> • Define requirement and necessary steps of first aid. • Define fire extinguisher. • Describe the types of fire extinguishers and their uses. 	<ul style="list-style-type: none"> • Demonstrate how to provide first aid (general / livestock accident scenarios). • Check the expiry date and operate fire extinguisher. 	T= 1 P= 4 Total= 05	Fire Extinguisher	Classroom / Lab

Chapter # 3 Basic Communication Skills			Total Period=18 Theory=8, Practical=10		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Soft Skills	The students will be able to; <ul style="list-style-type: none"> • Understand the importance of soft skills in daily life like; <ul style="list-style-type: none"> ○ Self-confidence, ○ Self-discipline, ○ Value of time ○ Decision making, ○ Critical thinking, ○ Problem solving 	<ul style="list-style-type: none"> • Every student Prepare a speech of three minutes perform one by one in the front of the class. • The students will be involved in developing and critically analyzing different messages on different issues of livestock. • Instructor will assign different situations for performing role play in groups by assigning the students different roles like farmer, milk dealer, health worker etc. 	T=2, P=3	Multimedia, computer with accessories	Classroom / Lab
Introduction to Communication	The students will be able to: <ul style="list-style-type: none"> • Know the basic concept of 	<ul style="list-style-type: none"> • Group discussion and model presentation on communication skills. • Carry out practice amongst 	03 Period (T) 05 Period (P)	Computer and its accessories	Lab / Classroom

and its types.	<p>Communication.</p> <ul style="list-style-type: none"> • Understand the importance of communication skills in daily life. • Know about types of communication. <ul style="list-style-type: none"> ○ Verbal Communication ○ Non-Verbal Communication 	students to reflect verbal and non-verbal communication.			
Model of Communication.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know model of communication. • Understand effective communication. • Understand the importance of active listening and responding. 	<ul style="list-style-type: none"> • The students will listen or watch an audio or video documentaries on livestock and reproduce the received messages by presenting in class. • Instructor will provide a message to one student that will be whispered to others ear one by one and the last student will repeat it loudly. The instructor can explain the change in given message. • Identify barriers in communication. 	03 Period (T) 02 Period (P)	Computer and its accessories	Lab / Classroom

Chapter # 4 Operate Computer Functions			Total Period=37		
			Theory=11, Practical=26		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Set up the computer for use	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define physical components of computer. • Describe peripheral devices of the computer. • Connect all peripheral devices of computer. • Follow procedures to turn on and off the computer system. 	<ul style="list-style-type: none"> • Visit of Computer lab to illustrate and practice; <ul style="list-style-type: none"> ○ Components of computer ○ Working of devices ○ How to turn on and off a computer 	2 Theory 2 Practical	Computer, Internet Connection, Stationery.	Class room IT Lab
Organize files in folder	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know folders / subfolders with suitable names. • Know how to save files • Know how to rename 	<ul style="list-style-type: none"> • The instructor will practically demonstrate all commands and students will practice it. <ul style="list-style-type: none"> ○ Create folders / 	2 Theory 4 Practical	Computer, Internet Connection, Stationery	Class room IT Lab

	<p>and move folders in different drives.</p> <ul style="list-style-type: none"> • Know how to move folders and files using drag and drop techniques. • Know how to save folders and files on different media. • Know how to search for Folders / subfolders and files using appropriate tool bars. 	<p>subfolders with suitable names.</p> <ul style="list-style-type: none"> ○ Save files in relevant folders. ○ Rename and move folders in different drives. ○ Move folders and files using drag and drop techniques. ○ Save folders and files on different media. ○ Search for Folders / subfolders and files using appropriate tool bars. 			
Microsoft Office	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know & operate the basic functions / operations of Microsoft Excel & Word. 	<ul style="list-style-type: none"> • Visit of computer lab and practical demonstration by instructor. • Real time practice of learned commands by students. 	3 Theory 10 Practical	Computer, Internet Connection, Stationery	Class room IT Lab
Use internet for Browsing	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Create, access and manage email account • Search work related information on different topics using internet • Save the searched information on computer in relevant folder using prescribed name. 	<ul style="list-style-type: none"> • The students will Practice; <ul style="list-style-type: none"> ○ Internet surfing of different new techniques ○ Use of email 	2 Theory 5 Practical	Computer, Internet Connection, Stationery	Class room IT Lab
Digital Marketing	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Use different digital medias for marketing of livestock products or services (Facebook, WhatsApp, Web Page etc.) 	<ul style="list-style-type: none"> • The students will practice the use of <ul style="list-style-type: none"> ○ Facebook. ○ WhatsApp. ○ Twitter ○ YouTube 	2 Theory 5 Practical	Computer, Internet Connection, Stationery	Class room IT Lab

Chapter # 4 Operate Computer Functions			Total Period=37 Theory=11, Practical=26		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Set up the computer for use	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define physical components of computer. 	<ul style="list-style-type: none"> • Visit of Computer lab to illustrate and practice; 	2 Theory 2 Practical	Computer, Internet Connection,	Class room IT Lab

	<ul style="list-style-type: none"> Describe peripheral devices of the computer. Connect all peripheral devices of computer. Follow procedures to turn on and off the computer system. 	<ul style="list-style-type: none"> Components of computer Working of devices How to turn on and off a computer 		Stationery.	
Organize files in folder	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know folders / subfolders with suitable names. Know how to save files Know how to rename and move folders in different drives. Know how to move folders and files using drag and drop techniques. Know how to save folders and files on different media. Know how to search for Folders / subfolders and files using appropriate tool bars. 	<ul style="list-style-type: none"> The instructor will practically demonstrate all commands and students will practice it. <ul style="list-style-type: none"> Create folders / subfolders with suitable names. Save files in relevant folders. Rename and move folders in different drives. Move folders and files using drag and drop techniques. Save folders and files on different media. Search for Folders / subfolders and files using appropriate tool bars. 	2 Theory 4 Practical	Computer, Internet Connection, Stationery	Class room IT Lab
Microsoft Office	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know & operate the basic functions / operations of Microsoft Excel & Word. 	<ul style="list-style-type: none"> Visit of computer lab and practical demonstration by instructor. Real time practice of learned commands by students. 	3 Theory 10 Practical	Computer, Internet Connection, Stationery	Class room IT Lab
Use internet for Browsing	<p>The students will be able to:</p> <ul style="list-style-type: none"> Create, access and manage email account Search work related information on different topics using internet Save the searched information on computer in relevant folder using prescribed name. 	<ul style="list-style-type: none"> The students will Practice; <ul style="list-style-type: none"> Internet surfing of different new techniques Use of email 	2 Theory 5 Practical	Computer, Internet Connection, Stationery	Class room IT Lab

Digital Marketing	The students will be able to; <ul style="list-style-type: none"> • Use different digital medias for marketing of livestock products or services (Facebook, WhatsApp, Web Page etc.) 	The students will practice the use of <ul style="list-style-type: none"> ○ Facebook. ○ WhatsApp. ○ Twitter ○ YouTube 	2 Theory 5 Practical	Computer, Internet Connection, Stationery	Class room IT Lab
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Chapter 5 Introduction to Dairy Animals & Breeds			Total Period=30 Theory=12, Practical=18		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Farm Animals	The students will be able to: <ul style="list-style-type: none"> • Define Livestock. <ul style="list-style-type: none"> ○ Buffalo ○ Cow ○ Goat ○ Sheep ○ Camel ○ Poultry ○ Fish 	<ul style="list-style-type: none"> • Enlist the livestock of your area and write few sentences on their importance in daily life. 	2 Theory 4 Practical	Multimedia or LED, Computer, Internet Connection, Stationery. Breed samples	Classroom, Animal farm.
Dairy breeds	The students will be able to: <ul style="list-style-type: none"> • Explain types and breeds of dairy animals; <ul style="list-style-type: none"> ○ Buffalo ○ Cow ○ Goat ○ Sheep ○ Camel 	<ul style="list-style-type: none"> • Visit of livestock farm for demonstration of each breed. or • Play videos depicting the main features of each breed of dairy animals. • Group presentations on features of dairy animals and their breeds. 	4 Theory 8 Practical	Multimedia or LED, Computer, Internet Connection, Stationery. Breed samples	Animal farm.
Comparison of Breeds	The students will be able to: <ul style="list-style-type: none"> • Explain comparison of dairy breeds on the basis of; <ul style="list-style-type: none"> ○ Size. ○ Appearance. ○ Milk / meat production. ○ Climatic conditions. ○ Market requirement 	<ul style="list-style-type: none"> • Visit of livestock farm for demonstration / observation of each breed as per their various characteristics. • Give assignment to students to enlist most appropriate breed for their area and present. 	6 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery. Soil samples	Classroom, Field

Chapter # 6 Introduction to Livestock Products			Total Period=30 Theory=12, Practical=18		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Livestock products and by products	The students will be able to: <ul style="list-style-type: none"> Define various livestock products and by products like; <ul style="list-style-type: none"> Milk Meat Hides Wool Cheese Butter Yogurt eggs 	<ul style="list-style-type: none"> Brainstorming among students to enlist livestock products & byproducts against each animal. Farm visit to view each product. Play relevant videos. 	3 Theory 5 Practical	Multimedia or LED, Computer, Internet Connection, Stationery, Lactometer Samples of product and by-product	Livestock farm.
Use of Livestock Products	The students will be able to: <ul style="list-style-type: none"> Define use of livestock products and by products Define the importance of dairy products. 	<ul style="list-style-type: none"> Visit of market to assess the <ul style="list-style-type: none"> Use of livestock products Importance of each product Group presentations on use and importance of livestock products. 	4 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery, Lactometer	Livestock farm.
Composition of milk and adulteration	The students will be able to: <ul style="list-style-type: none"> Define the composition of milk. <ul style="list-style-type: none"> Protein Fat Lactose Ash Vitamin Know the milk adulteration. Explain the factors affecting milk quality; <ul style="list-style-type: none"> Rancidity Oxidized agent. Feed composition. Explain reasons of poor milk quality. 	<ul style="list-style-type: none"> Perform milk quality checking. Visit of farm and milk processing plant for practical demonstration of products and its composition. 	5 Theory 7 Practical	Multimedia or LED, Computer, Internet Connection, Stationery, Lactometer	Classroom, Field

Chapter # 7 Health and Prevention			Total Period=35 Theory=14, Practical=21		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Health	The students will be able to: <ul style="list-style-type: none"> • Explain signs of good health; <ul style="list-style-type: none"> ○ Buffalo, ○ Cow, ○ Goat, ○ Sheep, ○ Camel. • Define different common health issues (digestive problems, illness and injuries); <ul style="list-style-type: none"> ○ Buffalo, ○ Cow, ○ Goat, ○ Sheep, ○ Camel. 	<ul style="list-style-type: none"> • Farm visits to practically observe / demonstrate the; <ul style="list-style-type: none"> ○ Signs of good health of different cattle. ○ Common health issues of cattle. • Relevant videos will also be shown to students for learning. • Assignments will be given to students to enlist signs and symptoms of healthy and disease effected animals and present in the class. 	5 Theory 8 Practical	Multimedia or LED, Computer, Internet Connection, Stationery. Thermometer	Classroom, Field Veterinary Hospital
Preventive measures	The students will be able to: <ul style="list-style-type: none"> • Know common cattle diseases. • Define signs and symptoms of common cattle diseases; <ul style="list-style-type: none"> ○ Zoonotic diseases ○ Viral diseases. ○ Bacterial & Fungal diseases. ○ Infectious and non-infectious diseases. • Know common animal parasites. • Explain Dehydration. • Define immunization. 	<ul style="list-style-type: none"> • Visit of veterinary hospital to observe sign and symptoms of diseased cattle. • Lecture of livestock extension officer on immunization time and procedure. • Group discussions among students upon Preventive measures. • Perform de worming. 	9 Theory 13 Practical	Multimedia or LED, Computer, Internet Connection, Stationery. Thermometer	Classroom, Field Veterinary Hospital

Chapter # 8 Animal Nutrition			Total Period=40 Theory=20, Practical=20		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Introduction to animal food	The students will be able to; <ul style="list-style-type: none"> • Define animal food. 	<ul style="list-style-type: none"> • Visit of farm to observe <ul style="list-style-type: none"> ○ Different feed ingredients. 	3 Theory 6 Practical	Multimedia or LED, Computer, Internet	Classroom, Field

	<ul style="list-style-type: none"> • Know different food ingredients. • Define balanced food. • Describe: <ul style="list-style-type: none"> ○ Natural feed. ○ Artificial feed. ○ Pros and cons of artificial feed. 	<ul style="list-style-type: none"> ○ Importance of balanced diet ○ Availability of ingredients 		Connection, Stationery.	
Types of Feed	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know role of different feeds like; <ul style="list-style-type: none"> ○ Wheat straw ○ Green fodder ○ Hay ○ Concentrate ○ Minerals 	<ul style="list-style-type: none"> • The students will be assigned to visit nearby livestock farm or household with livestock and interviewed the owner about routine of food provision to his / her cattle and then generate discussion in groups on returning back to class. 	3 Theory 3 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, Field
Feeding Requirements	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know the nutrient requirement of dairy animals; <ul style="list-style-type: none"> ○ Lactation period ○ Dry period. ○ Fattening • Describe feeding strategies for; <ul style="list-style-type: none"> ○ Milk production. ○ Meat production. • Compare different feed stuff regarding <ul style="list-style-type: none"> ○ Nutrition value ○ Cost • Explain formulation of healthy feed. • Define seasonal variation in feed. • Describe; <ul style="list-style-type: none"> ○ Silage ○ Types of silage. ○ Nutritional facts of silage. • Describe types of green fodder. 	<ul style="list-style-type: none"> • The students will make tables of animal wise nutrient requirement on charts and presents. • Group discussions on feeding strategies. • The students will visit nearby market and get prices of different food ingredients and make a comparison on returning back to class. • Practical demonstration of feed formulation and Silage making. • Videos will also be shown on silage making and dry feed preparation. 	10 Theory 7 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/Food or meat market

	<ul style="list-style-type: none"> • Explain fodder management over the year. 				
Feeding Methods	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Describe feeding (food & water) methods according to the types of cattle; <ul style="list-style-type: none"> ○ Grazing ○ Pasture management. • Understand the importance of providing quality feedstuffs. 	<ul style="list-style-type: none"> • The students will observe and make a report on prevailing practices in their respective localities. • Relevant videos on good practices of food water provision will be shown. 	T=4, P=5	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, Field

Chapter # 9 Management of dairy cattle			Total Period=30		
			Theory=12, Practical=18		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Housing	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define housing and space requirement for livestock / dairy cattle; <ul style="list-style-type: none"> ○ Buffalo. ○ Cow. ○ Goat. ○ Sheep. ○ Camal. • Define water requirements of dairy cattle; <ul style="list-style-type: none"> ○ Drinking ○ Bathing • Define basic farm management practices; <ul style="list-style-type: none"> ○ Hoof care, ○ Disbudding, ○ Dehorning, ○ Tattooing, ○ Vaccination, ○ Deworming. • Define Veterinary first aid. • Describe Management of waste effluent. • Describe dairy farm machinery. 	<ul style="list-style-type: none"> • Matrix of housing (space requirement) can be developed and displayed in classroom. • Drawing competition of housing designs with space legend can be arranged. • Quiz competition on daily water requirement of different animals. • Practical demonstration of bathing. • Practical demonstration or videos of: <ul style="list-style-type: none"> ○ Hoof care, ○ Disbudding, ○ Dehorning, ○ Tattooing, ○ Vaccination ○ Deworming ○ First aid ○ Waste management. ○ Farm machinery. 	4 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom / Livestock farm.

Hygiene	The students will be able to: <ul style="list-style-type: none"> • Explain maintenance of hygienic conditions in animal housing. • Define Sterilization of sitting area. 	<ul style="list-style-type: none"> • Practical demonstration. • Videos playing, 	4 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, Field
Breeding Management	The students will be able to: <ul style="list-style-type: none"> • Define Breeding management, <ul style="list-style-type: none"> ○ Problems during breeding, ○ Use of appropriate genetics. • Describe cross breeding. • Heat detection and artificial insemination. 	<ul style="list-style-type: none"> • Visit of veterinary hospital for practical demonstration of breeding practices. • Videos playing. 	4 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, Field

Middle Tech (ALP) Livestock (Package-E)

Chapter # 1 Record Keeping			Total Period=20 Theory=8, Practical=12		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools/Equipment	Work place
Record Keeping	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Understand the need and importance of record keeping at livestock farm. • Know the types of record to be maintained. <ul style="list-style-type: none"> - Animals' ledger, - Vaccine record, - Treatment record, - Breeding record, - Financial record. 	<ul style="list-style-type: none"> • Farm visit and demonstration of record keeping, • Videos playing, • Group Work on record keeping, 	8 Theory 12 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm

Chapter # 2 Meat, Milk, Wool Production			Total Period=23 Theory=11, Practical=12		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Introduction of meat, Milk and wool	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Describe Cattle byproducts; • Milk, Meat, Hide, fuel, fertilizer. • Explain Goat byproducts and their uses; <ul style="list-style-type: none"> - Fiber Production (Mohair, cashmere), - Carcass quality and grading. • Explain Sheep 	<ul style="list-style-type: none"> • Videos playing on making, processing, manufacturing, packing, transportation and selling of products. • The students will be assigned to enlist benefits of products and their impact on human life and prepare presentations. • Practical 	7 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.

	byproducts and their uses; <ul style="list-style-type: none"> - Wool, - Carcass etc. <ul style="list-style-type: none"> • Explain Camel byproducts and their uses. • Describe the importance of milk of different cattle in the light of medication. • Explain concepts of milk products and products' preparation, packing, transportation and shelf Life. • Explain leather / hide management. 	demonstration or role play.			
By Products of livestock / value addition.	The students will be able to; <ul style="list-style-type: none"> • Define product value addition. • Define benefits of value addition. • Know the packing of by products; <ul style="list-style-type: none"> • Yogurt • Cheese • Butter • Butter Milk • Leather products • Wool products • Know potential markets of products 	<ul style="list-style-type: none"> • Videos playing of making products, • Practical demonstration. • Field assignment on enlisting potential buyers of products both domestic and commercial. 	4 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.

Chapter # 3 Introduction to Poultry			Total Period=35 Theory=14, Practical=21		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place

Poultry Terminology	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define poultry. • Know benefits / importance of poultry. • Describe types of hens. • Explain modern and conventional poultry. 	<ul style="list-style-type: none"> • Brainstorming on importance and benefits of poultry. • Visit of Control shed and open shed to describe Rural and commercial poultry. • Videos playing, • Enlistment of available varieties of hen. 	3 Theory 5 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.
Fundamentals of Poultry Farming (Housing)	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know about poultry housing / cages designs; <ul style="list-style-type: none"> ✓ Domestic, ✓ Commercial, ✓ Small scale) • Define features of poultry housing; <ul style="list-style-type: none"> - Location - Structure - Direction - Temperature - Humidity - flooring etc. • Know about poultry feeding and watering equipment. 	<ul style="list-style-type: none"> • Play videos on different kinds and designs of shed for domestic and commercial poultry farming. • Visit of Farm for illustration of <ul style="list-style-type: none"> - Location - Structure - Direction - Temperature - Humidity - flooring etc. - feeding and watering equipment. 	2 theory 4 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.
Poultry Nutrition	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define poultry nutrition. • Define nutritional ingredients. • Define cost effective feeding. • Describe appropriate methods of feeding poultry to meet the nutritional requirements of 	<ul style="list-style-type: none"> • Visit of feed mill to observe process of feed preparation and demonstration of feed ingredients & storage. • Observe feeding practices in a poultry farm and identify differences in theory and practice. • The students can 	3 Theory 4 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.

	the feeder (Domestic & commercial).	be assigned a practical task of rare a poultry flock at household level.			
Types of Poultry Diseases and prevention	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know symptoms of different poultry diseases. • Define biotic and abiotic • Factors. • Describe viral diseases. • Describe bacterial (mycoplasmas) diseases. • Know about fungal and • protozoan disease. • Describe Non-infectious and infectious diseases. • Know the methods for disease prevention and immunization. • Explain sterilization of equipment. • Define fumigation. 	<p>Visit of farm focusing on</p> <ul style="list-style-type: none"> • Disease prevention • Outbreak handling <ul style="list-style-type: none"> • Prepare a chart of diseases and their preventive measures. • Enlist the nearby medication facilities. • Demonstrate sterilization and fumigation. 	4 Theory 6 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.
Collection and Storage of eggs	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define timely collection of eggs. • Know the importance of cleaning the brood frame. • Recognize diseased eggs. • Define safe transportation. 	<ul style="list-style-type: none"> • Visit of hatchery and observe handling of <ol style="list-style-type: none"> 1. Egg collection 2. Egg quality • Perform cleaning of brood frame. • Perform activity of recognizing diseased eggs. 	2 Theory 2 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Livestock farm.

Chapter # 4, Introduction to Fisheries			Total Period=35 Theory=14, Practical=21		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Introduction to Fish Farming Importance of Fish Meat	The students will be able to: <ul style="list-style-type: none"> Define Fish Farming Describe Fish farming systems / types. Explain Products from Aquaculture / Fish Farming. Know importance of fish meat. 	<ul style="list-style-type: none"> Demonstration of fish farms (Videos playing), Assignment on fish products. 	2 Theory 4 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Fish farm.
Classification of fishes in Pakistan Context	The students will be able to; <ul style="list-style-type: none"> Explain the Importance of: <ul style="list-style-type: none"> River Fisheries Canal Fisheries Lake Fisheries Small Dam Fisheries Define carnivorous fishes and their characteristics Define herbivorous fishes and their characteristics. Define culturable fishes and their characteristics. 	Visit of Fish farms and ponds for <ul style="list-style-type: none"> ✓ Identification of Fish Species ✓ Types of Ponds ✓ Feeding types and Practices ✓ Groups of symbiotic fish species 	3 Theory 4 Practical		Classroom/ Fish farm.
Establishment of Fish Farm / Aqua Culture	The students will be able to; <ul style="list-style-type: none"> Explain Aquaculture; <ul style="list-style-type: none"> Advantages Disadvantages Applications Potential. Define importance of; <ul style="list-style-type: none"> Site selection Soil Sampling Water 	<ul style="list-style-type: none"> Visit of Fish farms and ponds to understand the <ol style="list-style-type: none"> Pond design Soil quality Water quality Manuring Feeding The students will be assigned to identify suitable place for fish farm considering the said 	2 Theory 4 Practical		Classroom/ Fish farm.

	<ul style="list-style-type: none"> - Quality Farm Designing - Manuring / Fertilization - Stock Densities 	indicators and present in the class.			
Diseases and prevention	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Describe the problems of fisheries; <ul style="list-style-type: none"> - Diseases in fishes. - Abdominal dropsy. - Fin rot - Lernaeasis - Saprolegniasis - Anoxia • Know about the fish predators. 	<ul style="list-style-type: none"> • Visit of fish ponds for demonstration for disease prevention and handling or play videos. 	2 Theory 4 Practical		Classroom/ Fish farm.
Harvesting, Transportation and Storage	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define suitable time for harvesting. • Know different types of nets; <ul style="list-style-type: none"> - Cast nets. - Drag and seine nets. - Dip nets. - Drift or gill nets. - Fixed nets. - Hand nets. - Rods & lines. - Spears. • Describe selection of suitable net for harvesting. • Define storage, sorting, packing and transportation methods. 	<ul style="list-style-type: none"> • Visit of Fish ponds and Processing Plant for practical demonstration for <ol style="list-style-type: none"> 1. Harvesting 2. Transportation 3. Processing 4. Storage • Demonstration of different kinds of nets. • Demonstration of storing, sorting, packing and transporting techniques. 	4 Theory 4 Practical		Classroom/ Fish farm.
Sales and Marketing	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know fish seed hatcheries. 	<ul style="list-style-type: none"> • Role play to demonstrate the fish harvesting, transportation 	1 Theory 1 Practical		Classroom/ Fish farm.

	<ul style="list-style-type: none"> • Know Marketing Intermediates. • Know Fish markets. 	and cold chain.			
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Chapter # 5 Processing, Packing, Storage & Transportation of Dairy Products			Total Period=20 Theory=10, Practical=10		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Importance of storage of livestock products in livestock business	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Describe concept of proper storage of food ingredients and produces like; <ul style="list-style-type: none"> ✓ milk, ✓ milk products ✓ meat ✓ meat products ✓ Hides ✓ wool • Describe advantages of storage. • Define losses during storage and their control; <ul style="list-style-type: none"> ✓ Fungal ✓ Bacterial • Define preservation and techniques of preservation. • Define shelf life of different livestock products and by products. 	<ul style="list-style-type: none"> • Demonstration of storage and preservation techniques. • Relevant videos can also be played for demonstration • Group discussion can be generated on pros and cons of storage. 	10 Theory 10 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/ Warehouse.

Chapter # 6 Entrepreneurship	Total Period=27 Theory=13, Practical=14
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Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools/Equipment	Work place
Understand basic concept of Entrepreneurship.	The trainee will be able to: <ul style="list-style-type: none"> Explain the meaning of entrepreneurship & entrepreneur. Define the characteristics / qualities of an entrepreneur related to Livestock. Describe the benefits / importance of livestock entrepreneurship. 	<ul style="list-style-type: none"> Group discussion and presentation on Entrepreneurship. Agricultural field Assignments. Agri. business related presentations. 	T=6, P=4	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, Field
Generating a Business Idea.	The trainee will be able to: <ul style="list-style-type: none"> Define Business Idea. Explain their region assets that foster entrepreneurship. Explain a number of business ideas that can be carried out by a group or an individual in an agriculture setting. 	<ul style="list-style-type: none"> Assign the students a task to observe the respective locality and enlist potential business ideas and present them in class Group Work, 	T=4, P=6		Classroom, Field
Introduction to Finance Management	The students will be able to; Define; <ul style="list-style-type: none"> Financial resources, Optimum utilization of financial resources. Costing & Pricing 	<ul style="list-style-type: none"> Enlist Financial Resources. Give a product to students and ask them to perform costing and pricing. 	3 Theory 4 Practical	Multimedia or LED, Computer, Internet Connection, Stationery	Classroom, Field

Chapter # 7 Introduction to Innovative techniques / technologies in agriculture. livestock	Total Period=40 Theory=16, Practical=24
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Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools/Equipment	Work place
Innovations in Livestock Farming	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Explain profitable farming. • Introduction of new feeding sources. • Value addition of livestock products and by products. • Automation in dairy farming. 	<ul style="list-style-type: none"> • Visit of model farms having latest automation • Videos playing, 	8 Theory 14 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom, Field
Innovations in fish farming.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know Shrimp Farming. • Define Trout Farming. • Describe Pen / Cage • Define bio flock. • Culture Fish Farming. Explain Eco Friendly Fish Farming. • Define Recirculating Aquaculture System (RAS) Technology. 	<ul style="list-style-type: none"> • Videos playing. • Field Assignments / Visit of farm. 	4 Theory 5 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/Fish farm
Innovations in Poultry farming	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know innovative home-based poultry farming Cages designs. Value addition of poultry products like frozen meat / meat products. • Automation in poultry farming. 	<ul style="list-style-type: none"> • Videos playing. • Field Assignments / Visit of farm. 	4 Theory 5 Practical	Multimedia or LED, Computer, Internet Connection, Stationery.	Classroom/Poultry farm

Basic Requirements of Lab (Tools / Equipment):

Sr. #	Name	Quantity
1	Drenching Gun	1
2	Electric Dehorner	1
3	Tag Plier	1
4	Mastitis kit	1
5	Hoof Knife	1
6	Tail Docker	1
7	Sterilizer	1
8	Disposable Syringes	1
9	Trocar and Cannula	1
10	Tooth Shearer	1 set
11	Firing Iron	1 set
12	Tooth Rasper	1 set

Safety Equipment:

r. #	Name	Quantity
1	PPE Kit	30
2	First Aid Box	1
3	Fire Extinguisher	1

Curriculum Development, Review and Validation Committee:

Sr. No	Name	Designation	Organization	Email	Contact Number
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Internet of Things (IOT)

Aims and Objectives:

The specific aims of developing IoT qualification are:

- To Promote skills of the youth to maximize employment opportunities at national and international level.
- To provide skillful manpower for IoT based near future life.
- To develop skills related to the use of IoT in daily life.
- To recognize the factors contributing to the emergence and future trends of IoT within broader ICT industry.
- To examine the potential business opportunities that IoT can uncover.
- To capture and generate value from the application and use of IoT technologies.
- To provide students with a smooth transition to work.
- To enable students to construct a personal roadmap to gain strategic advantage from IoT.

Objectives:

After completing this, the students will be able to:

- Explain Internet of Things in different contexts.
- Take account of the key components that make up an IoT system.
- Learn the concept and capabilities of smart thing and physical principles of sensing.
- Explore IoT enabling technologies, architectures, and standards.
- Acquire the basic competence of IoT Hardware and Software development
- Identify infrastructure for IoT developments.
- Apply IoT knowledge to implement small-scale IoT Project.
- Design, build and integrate IoT platforms, incorporating different types of sensors and actuators, micro-controllers, and devices.
- Understand IoT protocol stack and fundamentals of Social IoTs.

Middle Tech (ALP) Internet of Things (IOT) (Package-D)					
Chapter 01 (Introduction to ICT)		T = 10, P = 12, Total = 22			
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to Computer	<p>The students will be able to:</p> <ul style="list-style-type: none"> define computing define types of computing devices understand uses of computers 	<ul style="list-style-type: none"> Identify different places where computers are being used in daily life Identify different computing devices 	1 Periods (T) 1 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system 	Classroom and Lab
Hardware components	<p>The students will be able to:</p> <ul style="list-style-type: none"> define hardware define basic computer components (motherboard, LAN card, sound card etc.) define peripheral devices <ul style="list-style-type: none"> input devices output devices 	<ul style="list-style-type: none"> Identify different physical components of computer 	2 Periods (T) 3 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system Joystick Printer 	Classroom and Lab
Introduction to software	<p>The students will be able to:</p> <ul style="list-style-type: none"> define software describe types of software <ul style="list-style-type: none"> system software application software define operating system know various types of operating systems <ul style="list-style-type: none"> Windows Linux 	<ul style="list-style-type: none"> List down the system and application software. 	2 Periods (T) 1 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system Operating system 	Classroom and Lab
Operating System usage	<p>The students will be able to:</p> <p>Know the method of:</p> <ul style="list-style-type: none"> copying, moving, renaming and creating files and folders search files and folders desktop settings 	<ul style="list-style-type: none"> Create, copy, move, and rename files and folders Create a file and open it using Notepad and save it after adding text personalize 	2 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system Bootable linux image Bootable 	Classroom and Lab

	<ul style="list-style-type: none"> know files extensions 	<ul style="list-style-type: none"> display settings install application software on window 		windows image	
Computer networks	The students will be able to: <ul style="list-style-type: none"> define network define internet know about internet services know about usage of internet describe websites 	<ul style="list-style-type: none"> Check internet connection speed online. 	2 Periods (T) 2 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system 	Classroom and Lab
Basics of IoT	The students will be able to: <ul style="list-style-type: none"> define IoT. understand the importance of IoT. 	<ul style="list-style-type: none"> Discussion on importance of IoT in daily life. 	1 Periods (T) 1 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system 	Classroom and Lab
Chapter 02 (Basics of Programming Language)			T= 3, P= 3 Total=6		
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction	The students will be able to: <ul style="list-style-type: none"> define program describe computer languages 	<ul style="list-style-type: none"> Search different computer languages on internet 	1 Periods (T) 1 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system 	Class and Lab
Programming cycle	The students will be able to: <ul style="list-style-type: none"> define programming cycle understand computer programming cycle <ul style="list-style-type: none"> coding compilation execution Understand programming environment 	<ul style="list-style-type: none"> Write down steps of programming cycle 	2 Periods (T) 2 Periods (P)	<ul style="list-style-type: none"> Notebooks White board Multimedia Internet Computer system 	Classroom and Lab
Chapter 03 (Introduction to C)			T= 25, P= 37, Total= 62		
Content	Students' Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Introduction	The students will be able to: <ul style="list-style-type: none"> describe C understand 	<ul style="list-style-type: none"> Discussion on structure of C program Draw life cycle 	3 Periods (T) 2	<ul style="list-style-type: none"> White board Multimedia Internet Computer 	Classroom and Lab

	<p>structure of C program</p> <ul style="list-style-type: none"> ○ header file ○ main function ● understand life cycle of C program ○ coding ○ compiling ○ linking ○ execution ○ debugging 	of C program	Periods (P)	<ul style="list-style-type: none"> ● system IDE for C language 	
Programming environment setup	<p>The students will be able to:</p> <ul style="list-style-type: none"> ● define integrated development environment (IDE) ● Know how to install IDE in C environment ● Know how to execute a program of printing hello world in Programming language C. 	<ul style="list-style-type: none"> ● Write and execute a “hello world” program in C 	2 Periods (T) 3 Periods (P)	<ul style="list-style-type: none"> ● White board ● Multimedia ● Internet ● Computer system ● IDE for C language 	Classroom and Lab
Input output statements	<p>The students will be able to:</p> <ul style="list-style-type: none"> ● understand input and output statements ● Understand pinmode statement ● Understand printf statement ● Understand analog read and write ● Understand scanf statement 	<ul style="list-style-type: none"> ● Imitate and execute a program that takes analog/digital input from a user and print it 	2 Periods (T) 3 Periods (P)	<ul style="list-style-type: none"> ● White board ● Multimedia ● Internet ● Computer system ● IDE for C language 	Classroom and Lab
Arithmetic statements	<p>The students will be able to:</p> <ul style="list-style-type: none"> ● define data types and variable ● understand mathematical operators available in C ● understand binary operator ● understand logical operator ● understand precedence of operators 	<ul style="list-style-type: none"> ● Imitate the implementation of a program to add and multiply two numbers taken from user and display result ● Imitate the implementation of a program to calculate the area of a circle from given radius 	5 Periods (T) 9 Periods (P)	<ul style="list-style-type: none"> ● White board ● Multimedia ● Internet ● Computer system ● IDE for C language 	Classroom and Lab

	<ul style="list-style-type: none"> Understand arithmetic expression in C 	<ul style="list-style-type: none"> Imitate the implementation of a program the comparator operation of two numbers Imitate the implementation of a program to do true or false decision on the basis of binary operator 			
Decision control statements	<p>The students will be able to:</p> <ul style="list-style-type: none"> define decision control describe conditional statements and its types <ul style="list-style-type: none"> if statement if else statement understand nested decision statements. Imitate the implementation of Decision Control program in C 	<ul style="list-style-type: none"> Imitate the implementation of a program that asks the user for two numbers and the arithmetic operation (+, -, /, *) to perform on them and display result accordingly Imitate the implementation of a program to find the largest and smallest among three entered numbers Imitate the implementation of a program that whether the identified largest/smallest number is even or odd. Imitate the implementation of a program to check whether the input alphabet is a vowel or not using if-else and switch statement. 	5 Periods (T) 9 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system IDE for C language 	Classroom and Lab
Loops	<p>The students will be able to:</p> <ul style="list-style-type: none"> define concept of 	<ul style="list-style-type: none"> Imitate the implementation of a program to 	6 Periods (T)	<ul style="list-style-type: none"> White board Multimedia Internet 	Classroom and Lab

	<ul style="list-style-type: none"> loop describe FOR Loop in C describe WHILE Loop in C understand handling control variables for a loop understand breaking a loop Know how to use FOR loop in C 	<ul style="list-style-type: none"> generate first 10 multiples of any given number Imitate the implementation of program to input two integer numbers and display the sum of even numbers between these two input numbers. 	9 Periods (P)	<ul style="list-style-type: none"> Computer system IDE for C language 	
Built-in libraries	<p>The students will be able to:</p> <ul style="list-style-type: none"> know the built-in libraries understand built in libraries 	<ul style="list-style-type: none"> Imitate the implementation of the code for taking square root of given number using <i>math.in</i> library Imitate the implementation of a code to find the length of a string using <i>string.h</i> library Imitate the implementation of the example programs in <i>String.h</i> library 	2 Periods (T) 2 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system IDE for C language 	Classroom and Lab
Chapter 04 (Basic Electrical Theory)			T = 15, P = 17, Total = 32		
Content	Students' Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Basic principle of electricity	<p>The students will be able to:</p> <ul style="list-style-type: none"> define electricity. understand electrical quantities and their units: <ul style="list-style-type: none"> voltage current resistance know about the conductors and insulators Understand the use of instruments to measure current, voltage, 	<ul style="list-style-type: none"> Carryout Orientation Visit of Electrical Lab/ workshop and record the observation. Recognize Electrical symbols with fixed component and equipment (in workshop/lab) Draw electrical symbols Measure AC & DC voltage, 	4 Periods (T) 3 Periods (P)	<ul style="list-style-type: none"> Jumper wires Resistor LEDs Digital multimeter Power supply Breadboard 	Classroom and Lab

	resistance	current and resistance using digital multimeter (DMM)			
Ohm's law	<p>The students will be able to:</p> <ul style="list-style-type: none"> describe ohm's law Understand the application of ohm's law. 	<ul style="list-style-type: none"> Apply Ohm's law for measuring Current, Voltage and Resistance Verify your theoretical results on the actual setup using multimeter 	3 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> Digital multimeter Resistor Power supply Breadboard 	Classroom and Lab
Cells & Batteries	<p>The students will be able to:</p> <ul style="list-style-type: none"> define cell and batteries describe the importance of cell and batteries define series and parallel connections Know the usage of cell and battery as a series and parallel source know the components/part s of cell and battery explain the working principles of cells and batteries know the precautions for maintaining a battery. understand the rating of battery 	<ul style="list-style-type: none"> Perform testing of cell and battery by DC ammeter. Calculate the rating of different type of batteries for a specific circuit. 	4 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> Digital multimeter Cell Battery Power supply 	Classroom and Lab
Series and Parallel circuit	<p>The students will be able to:</p> <ul style="list-style-type: none"> describe electric circuits and its basic components know the construction of series circuit for calculation of current, voltage and resistance. explain the 	<ul style="list-style-type: none"> Construct a series circuit as explained by the teacher and measure Current, Voltage and Resistance Construct parallel circuit as explained by the teacher and measure 	4 Periods (T) 6 Periods (P)	<ul style="list-style-type: none"> Resistor Digital multimeter LED Power supply Breadboard 	Classroom and Lab

	construction of parallel circuit for calculation of current, voltage and resistance	Current, Voltage and Resistance			
Chapter 05 (Fundamental Electronics for IoT)			T = 11, P = 6, Total = 17		
Content	Students' Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Diode and its application	The students will be able to: <ul style="list-style-type: none"> define diode understand working of diode understand current voltage and power rating of diode. understand forward and reverse biasing 	<ul style="list-style-type: none"> Verify forward and reverse biasing in a given circuit (half wave rectifier) 	5 Periods (T) 3 Periods (P)	<ul style="list-style-type: none"> Diode Power supply Resistance Wires Oscilloscope Digital multimeter Breadboard 12V AC adapter 	Classroom and Lab
Transistor	The students will be able to: <ul style="list-style-type: none"> define transistor understand working of transistor explain application of transistor 	<ul style="list-style-type: none"> Apply transistor as a switch 	6 Periods (T) 3 Periods (P)	<ul style="list-style-type: none"> Transistor Power supply LED Resistance Wires Digital multimeter Breadboard Push Button 	Classroom and Lab
Chapter 06 (Introduction to Microcontrollers)			T = 16, P = 18, Total = 34		
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to Microcontroller	The students will be able to: <ul style="list-style-type: none"> define microcontroller know purpose of microcontroller describe common microcontroller and name some well-known microcontrollers understand Arduino. understand pin configuration of Arduino 	<ul style="list-style-type: none"> Individual presentation on microcontroller and its application. 	6 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> Computer system Multimedia projector Arduino microcontroller 	Classroom and Lab
Arduino IDE	The students will be able to: <ul style="list-style-type: none"> understand Arduino IDE. know about 	<ul style="list-style-type: none"> Download and install Arduino IDE in system. Explore Arduino built-in libraries. 	4 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> Computer system Multimedia projector Arduino 	Classroom and Lab

	<ul style="list-style-type: none"> process of Arduino IDE installation know about Arduino built-in-libraries 		(P)	<ul style="list-style-type: none"> microcontroller Arduino IDE 	
Connecting an Arduino with Computer System	<p>The students will be able to:</p> <ul style="list-style-type: none"> know about USB mini and USB micro know the process of installing and updating USB to serial driver for Windows Know the relevant COM port on Arduino IDE Know relevant board in Arduino IDE 	<ul style="list-style-type: none"> Connect an Arduino board with computer system. Select a connected board in Arduino IDE. Install USB to serial driver 	3 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> Computer system Multimedia projector Arduino microcontroller Arduino IDE 	Classroom and Lab
Programming Arduino board	<p>The students will be able to:</p> <ul style="list-style-type: none"> Know about the basic example Project in Arduino IDE Know about burning the code on Arduino board. Know if the code is uploaded successfully. 	<ul style="list-style-type: none"> Configure the uploader's setting in Arduino IDE. Connect LED with Arduino and test the sample program of blinking a LED on Arduino. Imitate program for LED on/off switching using push button 	3 Periods (T) 6 Periods (P)	<ul style="list-style-type: none"> Computer system Multimedia projector Arduino microcontroller Arduino IDE LED Push button 	Classroom and Lab
Chapter 07 (Interfacing of Sensors & Actuators)			T = 14, P = 17, Total = 31		
Content	Students' Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Sensors & Actuators	<p>The students will be able to:</p> <ul style="list-style-type: none"> understand: <ul style="list-style-type: none"> interfacing process sensors (temperature, moisture, humidity, position) actuators Differentiate between sensors and actuators. Differentiate between analog 	<ul style="list-style-type: none"> Explore different types of sensors & actuators on internet 	5 Periods (T) 2 Periods (P)	<ul style="list-style-type: none"> Transistor Power supply LED Resistance Wires Digital multimeter Breadboard Push Button Internet 	Classroom and Lab

	and digital sensors.				
Interfacing of temperature and humidity sensor with Arduino	<p>The students will be able to:</p> <ul style="list-style-type: none"> understand the working of temperature sensor understand the working of humidity sensor Know how to interface temperature sensor with Arduino. Know how to interface humidity sensor with Arduino Know how to imitate the program on Arduino to read the value of temperature sensors 	<ul style="list-style-type: none"> read datasheet of the provided temperature sensor Imitate the program to read the temperature values display data on serial monitor and turn on the LED if temperature exceeds a certain threshold. Read the humidity value and display its result on serial monitor. 	5 Periods (T) 8 Periods (P)	<ul style="list-style-type: none"> Temperature Sensor Arduino UNO USB mini cable Jumper Wires White board Multimedia Internet Computer system Humidity sensor Breadboard 	Classroom and Lab
Drive Relay with Arduino	<p>The students will be able to:</p> <ul style="list-style-type: none"> understand the relay Know control pins Know normally open (NO) and normally connected (NC) pins. 	<ul style="list-style-type: none"> imitate a relay driver circuit using transistor. execute an Arduino program to drive relay. Turn on/off a light 5V bulb connected with relay. 	4 Periods (T) 7 Periods (P)	<ul style="list-style-type: none"> Relay Arduino UNO USB mini cable Jumper Wires White board Multimedia Internet Computer system 	Classroom and Lab
Chapter 08 (Project)		T = 8, P = 23, Total = 31			
Content	Students' Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Soil Moisture Sensor	<p>The students will be able to:</p> <ul style="list-style-type: none"> understand the working of soil moisture sensor. Explain the circuit diagram of soil moisture sensor with Arduino. Know the formula of conversion. 	<ul style="list-style-type: none"> Display the values of soil moisture sensor on serial monitor Turnoff motor by switching relay if the moisture value increases the threshold value. 	3 Periods (T) 13 Periods (P)	<ul style="list-style-type: none"> Arduino UNO Soil moisture sensor USB mini cable. Header wire. Scales White board Multimedia Internet Computer system 	Classroom and Lab
Making a	The students will be	<ul style="list-style-type: none"> Interface PIR 	5	<ul style="list-style-type: none"> PIR motion 	Classroom

motion detecting system using a PIR sensor	able to: <ul style="list-style-type: none"> Understand the working of PIR Sensor. Understand the working of Buzzer. PIR sensor module pinouts, jumpers and potentiometers. Understand the Interfacing of PIR sensor with Arduino. 	<ul style="list-style-type: none"> sensor with Arduino. Record motion readings on serial monitor. Detect motion using PIR motion sensor. Beep the Buzzer if motion is detected on motion sensor. 	Periods (T) 10 Periods (P)	<ul style="list-style-type: none"> sensor Arduino UNO USB mini cable Header wires Water jar White board Multimedia Internet Computer system 	and Lab
Chapter 09 (Communication Skills)			T = 6, P = 9, Total = 15		
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Communication and its Types	The students will be able to: <ul style="list-style-type: none"> define communication process know about types of communication (verbal/ non-verbal) understand effective communication skills Describe obstacles in communication Describe how to communicate effectively in a team environment 	<ul style="list-style-type: none"> Group Presentation on communication barrier 	2 Periods (T) 2 Period (P)	Multimedia	Classroom
Demonstrate Basic IT Skills	The students will be able to: <ul style="list-style-type: none"> Demonstrate basic commands of MS Word, MS Excel & Power Point Explain the use of internet. 	<ul style="list-style-type: none"> Make a Detail invoice for client and send it to him by email as per following instructions. Invoice should be saved in separate folder in your PC for further work. Prepare invoice in excel and word both formats. 	2 Periods (T) 5 Period (P)	<ul style="list-style-type: none"> Multimedia Computer system, Internet connection 	Computer Lab
Effective email writing	The students will be able to: <ul style="list-style-type: none"> Learn how to 	<ul style="list-style-type: none"> Create email account Write an official 	2 Periods (T)	<ul style="list-style-type: none"> Multimedia Computer system, 	Computer Lab

	<p>create, access and manage email account</p> <ul style="list-style-type: none"> • learn how to write and respond official email 	<p>email to school principal on subject of any importance</p>	<p>2 Periods (P)</p>	<ul style="list-style-type: none"> • Internet connection 	
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Middle Tech (ALP) Internet of Things (IOT) (Package-E)					
Chapter 01 (Computer networks)			T = 24, P = 28, Total = 52		
Content	Students' Learning Outcome	Activities/Practical	Durati on	Tools	Work place
Introduction to Computer Networks	<p>The students will be able to:</p> <ul style="list-style-type: none"> • define computer networks. • know importance of computer network • understand the basic types of computer network (LAN, WAN, MAN) • know about the networking devices (switches, routers, gateways). • know about the types of networking cables • know about wireless protocols (Bluetooth, WiFi) • differentiate wired and wireless network • know about terminologies used in computer network (data rate, Bit, Kbps) 	<ul style="list-style-type: none"> • Group discussion on communication media and their characteristics. • Identify network components. • Recognize the networking cables. • Demonstration of WiFi, Bluetooth and 433 MHz devices 	<p>9 Periods (T) 5 Periods (P)</p>	<ul style="list-style-type: none"> • Network cable CAT5, CAT6 • Computer system • Networking Tools. • Multimedia projector • Switchers • Router • 433 MHz RF module 	Class room and Lab
Network cables	<p>The students will be able to:</p> <ul style="list-style-type: none"> • know straight and cross cable. • know about color coding of network cable • know about different 	<ul style="list-style-type: none"> • Identify the cable used for network type (Straight through, cross cable) • Identify networking tools. • Create a network cable of specified length, type and 	<p>5 Periods (T) 8 Periods (P)</p>	<ul style="list-style-type: none"> • Network cable • Computer system • Networking Tools. • Multimedia projector • Switchers • Router 	Class room and Lab

	<p>connectors: RJ45, RJ-11, SMA.</p> <ul style="list-style-type: none"> imitate the cross wired and straight wire connection creation process. know about use of cable tester to test cable connector. 	connector according to instruction.		<ul style="list-style-type: none"> Cable Tester Cable connectors Cable punching tool 	
Switches, routers and gateways	<p>The students will be able to:</p> <ul style="list-style-type: none"> know about the functions and advantages of networking components (modems, hubs, switches, routers, wireless access point) define switches and router interfaces. know about computer network topologies. know about connecting cables with networking devices. Understand the purpose of gateways 	<ul style="list-style-type: none"> Draw different types of network topologies Imitate the process of connecting NodeMCU with an internet gateway 	<p>5 Periods (T)</p> <p>6 Periods (P)</p>	<ul style="list-style-type: none"> Network cable Computer system Multimedia projector Switchers Router Wireless router Cable Tester Gateway ESP8266/ESP 32 	Class room and Lab
Network configuration	<p>The students will be able to:</p> <ul style="list-style-type: none"> know about IP address define IPv4 vs IPv6, physical addresses (MAC Addresses) of network 	<ul style="list-style-type: none"> Imitate IP Address to computer system, and routers. 	<p>5 Periods (T)</p> <p>9 Periods (P)</p>	<ul style="list-style-type: none"> Network cable Computer system Multimedia projector Switchers Router Cable Tester Gateway 	Class room and Lab

	<ul style="list-style-type: none"> devices. know about Static and dynamic IP. understand dynamic host configuration protocol (DHCP) know how to check IP address settings. 			<ul style="list-style-type: none"> ESP8266/ESP32 	
Chapter 02 (Introduction to IoT)			T = 5, P = 5, Total = 10		
Content/Themes	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction	The students will be able to: <ul style="list-style-type: none"> define IoT. know different components of IoT <ul style="list-style-type: none"> networking messaging hardware know the scope of IoT in domestic, commercial, & industrial applications. Describe the evolution of IoT 	<ul style="list-style-type: none"> Identify different components of IoT by using images Presentation on evolution of IoT Invite guest speaker from IoT to address the students to highlight scope and importance of IoT 	3 Periods (T) 4 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system NodeMCU (ESP8266) Working IoT setup (End Node, IoT gateway, GUI) 	Classroom / Lab
Application	The students will be able to: <ul style="list-style-type: none"> Know different IoT applications understand high level (basic) working of smart home system, remote monitoring system, smart cities 	<ul style="list-style-type: none"> Show real life IoT application videos. 	2 Periods (T) 1 Periods (P)	<ul style="list-style-type: none"> White board Multimedia Internet Computer system Working IoT setup (End Node, IoT gateway, GUI) 	Classroom / Lab
Chapter 03 (IoT Cloud Deployment)			T = 24, P = 30, Total = 54		
Content	Students' Learning	Activities/Practical	Duration	Tools	Work

	Outcome		on		place
Introduction to Cloud Computing	The students will be able to: <ul style="list-style-type: none"> define Cloud Computing know about purpose of Cloud Computing know about public and private Cloud know about advantages and disadvantages of Cloud Computing. know about open-Source Cloud Services Providers. 	<ul style="list-style-type: none"> List down all Proprietary and Open-Source Cloud Platform. Discussion on IoT application in cloud computing Discussion on the types of data that can be communicated between IoT devices 	10 Periods (T) 12 Periods (P)	<ul style="list-style-type: none"> Multi-media projectors Internet & web browser Computer-systems Cloud Provider 	Classroom & Lab
Application	The students will be able to: <ul style="list-style-type: none"> know about Things speak. know about Azure IoT central explain Adafruit IoT Platform. Know about Google Alexa Voice Assistant 	<ul style="list-style-type: none"> Imitate account creation on Adafruit.io Cloud platform. Imitate the process of Push/Get LED status from Adafruit.io. Imitate the process to record Temperature and Humidity on Things speak using DHT11 and NodeMCU. Imitate recording of Water Quality on Things speak. 	14 Periods (T) 18 Periods (P)	<ul style="list-style-type: none"> Multi-media projectors Internet & web browser Computer-systems Cloud Provider 	Classroom & Lab
Chapter 04 (IoT networking & interfacing of communication module)			T = 6, P = 11, Total = 17		
Content	Students' Learning Outcome	Activities/Practical	Durati on	Tools	Work place
Interface ESP8266 with Arduino	The students will be able to: <ul style="list-style-type: none"> define IoT protocols know ESP8266 module differentiate between Wi-Fi station and Wi- 	<ul style="list-style-type: none"> Connect NodeMCU with available Wi-Fi access point using example Check IP address on serial monitor and verify it with IP address 	6 Periods (T) 11 Periods (P)	<ul style="list-style-type: none"> ESP8266 Arduino UNO Usb mini cable Header wires Scales White 	Lab

	<ul style="list-style-type: none"> Fi access point imitate NodeMCU connection process to available Wi-Fi Access Point. 	assigned by router.		<ul style="list-style-type: none"> board Multimedia Internet Computer system 	
Chapter 05 (IoT Project)			T = 12, P = 36, Total = 48		
Content	Students' Learning Outcome	Activities/ Practical	Durati on	Tools	Work place
Smart Greenhouse Remote Monitoring Systems	The students will be able to: <ul style="list-style-type: none"> Define Temperature, Humidity. Describe how to measure temperature, humidity and moisture level using different sensor. 	<ul style="list-style-type: none"> Monitor Temperature, Humidity and Control them. Record all values at real time. measure the moisture level with moisture sensor Record Temperature and Humidity. Turn on and off FAN if Humidity changes. Turn on water tap on the basis of moisture level. 	6 Periods (T) 18 Periods (P)	<ul style="list-style-type: none"> DHT11 Sensor. ESP8266/ Arduino UNO DC Fan 5V Adafruit.io library Moisture sensor Solenoid volve Servo motor Internet. 	Classroom & Lab
Water level indicator and controller using NodeMCU.	The students will be able to: <ul style="list-style-type: none"> Know how to sense the level of water at different points using SR 404 Ultrasound sensor Know how to control the motor accordingly Know how to record the level value on serial monitor of Arduino UNO/ server. 	<ul style="list-style-type: none"> Measure the water level in the tank using Probes at point A, B, C, D & E. Turn off and on motor if the water level increases or decreases at thresholds. Publish these values on LCD /server using NodeMCU. Monitor these values. Monitor the water level using SR 404 ultrasound sensor 	6 Periods (T) 18 Periods (P)	<ul style="list-style-type: none"> Really module L298 module Wire probes DC water pump 12V. ESP8266 Adafruit.io library Internet. SR 404 ultrasound sensor 	
Chapter 06 (Work Health and Safety)			T = 8, P = 10, Total = 18		
Content	Students Learning	Activities/ Practical	Durati	Tools	Work

	Outcome		on		place
Basics of work health and safety	<p>The students will be able to:</p> <ul style="list-style-type: none"> • understand basic rules and principles of WHS • Know common workplace hazards • manage workplace hazards • define safety precautions. • Describe the use of personal protective equipment (PPE). • Understand safety symbols. • Know organizational WHS and other relevant policies, procedures, processes 	<ul style="list-style-type: none"> • Group presentation on WHS • Demonstrate basic principles of WHS • Visit IoT lab of your institute, identify potential hazards. • List PPE available and required to work there. • Recognize the required tools, equipment, PPE's and consumable material. 	<p>4 Periods (T) 5 Periods (P)</p>	<ul style="list-style-type: none"> • Working • Computer /Laptop • Internet • PPE, • Safety Charts, • Screw driver set, • Multimeter etc. 	Class Room work place
Establishing WHS in IoT environments	<p>The students will be able to:</p> <ul style="list-style-type: none"> • know the scope of project • Describe techniques of the risk profile for all stakeholders • Understand Clients Health and safety specifications SOPs 	<ul style="list-style-type: none"> • Identifying the risks involved in project assigned • Presentation on health and safety plan 	<p>4 Periods (T) 5 Periods (P)</p>	<ul style="list-style-type: none"> • Working • Computer /Laptop • Internet 	Class Room field work

Basic Requirements for Lab (Tools / Equipment):

No	Tools & Equipment
1	Antivirus
2	Backup software
3	Cable connectors
4	Cable Tester
5	Computer Network
6	Computer system
7	Encryption software
8	Firewall software
9	Internet
11	Multimedia projector
12	Network
13	Network cable CAT5, CAT6
14	Networking Tools
15	Router
16	Switchers
17	WIFI router
18	Wireless router
19	Android mobile
20	Cloud Provider
21	Computer system
23	MS office
24	Multimedia, projector or LED TV with good sound system
25	Window image
26	Linux image
30	White board
31	IoT network
32	IDE for C language
34	Cable puncher
35	Relay module
36	Wire probes

37	DC water pump 12V.
38	ESP8266
39	Adafruit.io library
40	DHT11 Sensor.
41	DC Fan 5V

Curriculum Development, Review and Validation Committee:

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Dress Making

Aims & Objectives:

The specific objectives of this curriculum are as under:

- Provide students with a smooth transition to work.
- Develops job-readiness & enhance students' trade-specific employable skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I -II certification in a given trade.
- To introduce an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this course, the students will be able to:

- Know the importance of Dress Making.
- Know the basics of Textile Design.
- Understand the Evolution of Dress Making.
- Apply the basic tracing techniques.
- Perform surface designing.
- Perform surface embellishment techniques.
- Perform routine skilled and semi-skilled tasks to carry out pattern making and cutting.
- Perform garment sewing.

Middle Tech (ALP) Dress Making (Package-D)					
Chapter 01 (Introduction to 3S) (Personal safety, Equipment safety, Environmental safety)			Total 25 Period. T = 17, P = 08.		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Hazards at Workplace	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Explain the risks and hazards at Workplace. • Recognize Safety Symbols. • Define safety precautions. • Identify the fault of sewing machine. • Know the working / functioning of the tools / equipment, and materials that have the potential to cause harm. 	<ul style="list-style-type: none"> • Visit sewing lab of Your institute, identify potential hazards. • List PPE available and required to work there. • Identify any potential hazards and take appropriate action to minimize the risk. 	09 Periods (T) 03 Periods (P)	ICT Resources (Multimedia, Internet, Computer system, etc.) General Stationary Items (Notebooks, Pencil Erasers, Sharpeners, Scales, etc.)	Classroom/ Labs
Occupational Safety and Health (OSH)	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define Importance of health and safety precautions in line with the concept of 3S (Safety of Person, Equipment and Environment). • Define the uses of PPE's. • Know importance of keeping work area clean and clear of obstructions. • Describe cleaning and storing of tools/equipment after use. • Explain first aid treatment methods. • Define fire 	<ul style="list-style-type: none"> • Demonstrate first aid. • Perform activity of identifying obstructions at workplace and their cleaning / proper placement to avoid potential hazards. • Presentations on OSH • Operate Fire extinguisher. 	08 Periods (T) 05 Periods (P)	ICT Resources (Multimedia, Internet, Computer system, etc.) General Stationary Items (Notebooks, Pencil Erasers, Sharpeners, Scales, etc.) First aid Box, Fire Extinguisher.	Classroom/ Lab

	<p>extinguisher.</p> <ul style="list-style-type: none"> Explain the types of fire extinguishers and their uses. 				
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Chapter 02 (Basics of Dress Making and fashion designing)			Total 35 Period. T= 25, P= 10,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to Dress making and fashion designing	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define Dress Making. Know different steps involved in Dress Making / Garment construction (pattern making, cutting, stitching etc.). Define fashion. Describe different categories of fashion (Garments, lifestyle, beauty sector). Describe different tools and equipment used for dress making and fashion. Explain the 	<ul style="list-style-type: none"> Visit library and consult with related books, magazines, journals etc. Visit workplace to learn about tools and equipment involved in Dress Making. Identify different tools and equipment used for dress making and fashion. 	<p>08 Periods (T) 03 Periods (P)</p>	<p>ICT Resources (Multimedia, Internet, Computer system, etc.). General Stationary Items (Notebooks, Pencil, Erasers, Sharpeners, Scales, etc.)</p>	Classroom/ Lab
Scope of dress making and fashion designing	<p>The students will be able to:</p> <ul style="list-style-type: none"> Know the scope of Dress Making at domestic & Commercial level. Understand the importance of Dress Making in Local Market. 	<ul style="list-style-type: none"> Invite guest speaker from garment industry to address the students to highlight scope and importance of dress making and fashion designing in everyday life. 	<p>08 Periods (T) 03 Periods (P)</p>	<p>ICT Resources (Multimedia a, Internet, Computer system, etc.) General Stationary Items (Notebooks, Pencil, Erasers, Sharpeners, Scales, etc.)</p>	Classroom/ Lab
Evolution of Dress Making and fashion	<p>The students will be able to:</p> <ul style="list-style-type: none"> Describe the evolution of Dress Making and fashion designing (mid 90's – till date). Understand the development of Garment and fashion Industry in Pakistan. 	<ul style="list-style-type: none"> Visit any cultural museum to observe the evolution of Dress Making. Visit garment industry to learn the process flow. 	<p>09 Periods (T) 04 Periods (P)</p>	<p>ICT Resources (Multimedia a, Internet, Computer system, etc.) General Stationary Items (Notebooks, Pencil, Erasers, Sharpeners, Scales, history</p>	Classroom/ Lab / Field

				of fashion books etc.)	
Chapter 03 (Color and Design)			Total 33 Period. T=10, P=23,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Importance of Colors	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define the importance of color in design. • Describe the difference between primary, secondary and tertiary colors. • Understand different Color Schemes / Combinations. • Describe characteristics of Colors (Hue, Value). 	<ul style="list-style-type: none"> • Practice all lines in 2/2 inches box. • Making of color wheel in primary, secondary and intermediate colors. • Making a Hue, Value, Intensity in Geometrical shapes. • Create a design in 3/3 box with the help of lines and geometrical shapes. 	<p>05 Periods (T)</p> <p>10 Periods (P)</p>	<p>ICT Resources (Multimedia, Internet, Computer System, etc.)</p> <p>General Stationary Items (Notebooks, Pencil Erasers, Sharpeners, Scales, poster colors/ color pencils, brushes, containers, color pallet, sketch books, stencil of geometrical shapes, etc.)</p>	Classroom/ Lab
Principle of Design	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know the Elements of Design (Line, Shape, Form, Color, Texture, Space). • Know the Principles of Design (Balance, Rhythm, Emphasis, Composition, Proportion, Repetition) • Understand different types of designs (Geometrical, Floral, Abstract). 	<ul style="list-style-type: none"> • Identify elements and principles of design from the given drawing: • Draw a design with • the combination of • elements and • principles of design • and render it using • basic media and • materials: (Geometrical, 	<p>05 Periods (T)</p> <p>13 Periods (P)</p>	<p>ICT Resources (Multimedia, Internet, Computer System, etc.)</p> <p>General Stationary Items (Notebooks, Pencil, Erasers, Sharpeners, Scales, poster colors/ color pencils, brushes, containers, color pallet etc.)</p>	Classroom/ Lab

		Floral, Abstract)			
Chapter 4 (Hand Embroidery)			Total 35 Period. T=5, P=30,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to Hand Embroidery	<p>The students will be able to:</p> <ul style="list-style-type: none"> Know the basics of Hand Embroidery. Identify the tools used for hand embroidery (frames, needles, scissor, thimble, seam ripper, etc.). Know the Material for embroidery (Thread, fabric, etc.). Understand the Tracing techniques. 	<ul style="list-style-type: none"> Trace a design for embroidery on tracing paper using following techniques: Carbon paper. 	03 Periods (T) 05 Periods (P)	ICT Resources (Multimedia, Internet, Computer System, etc.) General Stationary Items (Notebooks, Pencil, Erasers, Sharpners, Scales, carbon paper, trace paper, needles, embroidery sketches, etc.)	Classroom/ Lab
Basic stitches of Hand Embroidery	<p>The students will be able to:</p> <ul style="list-style-type: none"> Identify different types of embroidery stitches. Understand about the variations / Types of basic hand embroidery and their techniques. Use different Types of basic hand embroidery stitches. Describe Color combinations of thread and fabrics. 	<ul style="list-style-type: none"> Create an embroidery napkin using following hand embroidery stitches or local traditional stitches - Running /skip stitch. - Chain stitch. - Back stitch. - Lazy daisy stitch. - Stem stitch - Local embroidery stitches 	02 Periods (T) 25 Periods (P)	ICT Resources (Multimedia, Internet, Computer System, etc.) Pencil, Sharpners, Scales, etc.) embroidery Material (Fabric, thread, needles, embroidery frames, scissors, etc.	Classroom/ Lab

Chapter 05 (Sewing and Measuring)			Total 56 Period. T=15, P= 41,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to Measuring and Sewing Machine	<p>The students will be able to:</p> <ul style="list-style-type: none"> Identify measuring tools (scale, measuring tape, etc.). Define figure analysis. 	<ul style="list-style-type: none"> Practice of scale reading. Take direct body measurements. Practice needle 	04 Periods (T) 08 Periods (P)	ICT Resources (Multimedia, Internet, Computer system, etc.) General	Classroom/ Lab

	<ul style="list-style-type: none"> Describe sewing tools (hand needles, sewing machine, etc.). Understand sewing machine maintenance. Understand the operations of sewing machine components; <ul style="list-style-type: none"> Speed control. SPI adjustment. Lubrication. Threading and winding. Thread tension adjustment. 	<ul style="list-style-type: none"> to thread. Practice of all described techniques on 5/5 fabric samples. Apply hemming, button hole, tuck snap fastener and basting. 		Stationary Items (Notebooks, Pencil Erasers, Sharpener, Scales, measuring tape, cotton fabric, hand needles, frames, thread, scissors, thumbnail, pinking shears, seam ripper, machine oil, screw driver etc.) sewing machines, bobbin case, bobbin machine needles, duster, snap fastener.	
Perform Basic Stitching Practice with Sewing Machine	The students will be able to: <ul style="list-style-type: none"> Know the importance of practicing on Paper with thread and without thread. Know the importance of practicing on fabric with thread. Understand adjustment of machine components according to fabric type. Operate sewing machine. Handle cloth while applying different types of stitches. 	<ul style="list-style-type: none"> Perform basic stitching practice on paper without thread: <ul style="list-style-type: none"> Straight line Curves Zigzags Perform basic stitching practice on paper with thread: <ul style="list-style-type: none"> Straight line Curves Zigzags Perform basic stitching practice on Fabric with thread: <ul style="list-style-type: none"> Straight line Curves Zigzags 	04 Periods (T) 10 Periods (P)	Stitching tools, equipment and Material (Paper, Fabric, thread, sewing machine, etc.)	Classroom/ Lab
Introduction about darn, patch and	The students will be able to: <ul style="list-style-type: none"> Recognize fabric darn, 	<ul style="list-style-type: none"> Apply these techniques on torn old 	03 Periods (T)	Fabric, scissors, thread, frame, hand needles,	Classroom / Lab

mend	patch and mend.	clothes. • Prepare samples of patch and mend techniques on 5x5 inch fabric.	03 Periods (P)	seam ripper,	
Introduction about seams and seam finishes	The students will be able to: • Identify and practice the different types of seams; 1. Plain seam 2. French seam 3. Flat fell seam 4. Lapped seam 5. Pinking seam • Understand the procedure to sew different seam types.	• Apply these techniques on torn old clothes. • Make a sample project of these seams. • Arrange motivational demonstration /videos.	04 Periods (T) 20 Periods (P)	Sewing machine, scissors, bobbin, bobbin case, thread, machine needles, ripper, measuring tape, scales, pinking shears, tailor chalk, etc.	Classroom / Lab

Chapter 6 (Introduction to Computer)			Total 38 Period. T = 08, P =30,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to Computer	The students will be able to: • Define computing • Define types of computing devices • understand uses of computers	• Identify different places where computers are being used in daily life. • Identify different computing devices	T=2 P=2	Multimedia, computer with accessories	Classroom / Lab
Components of computer	The students will be able to; • Know physical components of computer. • Identify peripheral devices; ✓ Input devices ✓ Output devices • Turn on and shutdown the computer.	• Enlist input devices, • Enlist output devices. • Connect peripheral devices. • Demonstrate the identification of input and output devices. • Demonstration of peripheral devices	T=2, P=4	Multimedia, computer with accessories	Classroom / Lab

		connection with system unit.			
Managing Files and Folders	The students will be able to; <ul style="list-style-type: none"> • Create a new folder & file. • Apply Cut, Copy, Paste a folder or file from one location to other. • Apply deletion and restoration of folder & file. 	<ul style="list-style-type: none"> • Create, Cut, copy paste, rename, and delete the file folder and shortcut. • Create folders, rename them with your classmates and create files inside these folders and rename them, copy/paste in other folders/ locations. 	T=1, P=4	Multimedia, computer with accessories	Classroom / Lab
MS Office	The students will be able to; <ul style="list-style-type: none"> • Know basic commands of MS Word and MS Excel; <ul style="list-style-type: none"> ✓ Font Formatting, ✓ Paragraph Formatting, ✓ Inserting Bullet & Numbering, ✓ Inserting and managing tables, ✓ Insert picture and shapes, ✓ Row Height and width. ✓ Simple formulas ✓ Cut copy and paste 	<ul style="list-style-type: none"> • Compose letters and reports in Microsoft Word. • Create a list using bullets and numbering. • Insert a table and make Time Table. • Insert a picture and shapes. • Prepare a data sheet and adjust row and column height and width. • Apply simple formulas of sum, multiplication and subtraction. 	T=3, P=20	Multimedia, computer with accessories	Classroom / Lab

Chapter 07 (Drawing and Design)			Total 25 Period. T= 10, P= 15,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Play with colors, Motif's Creation.	The students will be able to: <ul style="list-style-type: none"> • Understand color board. Understand motifs. • Define different types of textile repeats 	<ul style="list-style-type: none"> • Create color board. • Create design through Direct Repeat in 2x2 block. • Create design through Mirror 	10 Periods (T) 15 Periods (P)	ICT Resources (Multimedia, Internet, Computer system, etc.) General Stationary Items	Classroom / Lab

	<ul style="list-style-type: none"> ✓ Direct repeat ✓ Mirror repeats ✓ Half drop repeats. 	<p>Repeat in 2x2 block.</p> <ul style="list-style-type: none"> • Create design through Half drop Repeat in 2x3 block. • Develop motifs 		<p>(Notebooks, Pencil Erasers, Sharpeners, Scales, etc.) drawing sheets, poster colors, brushes, color pallets, container etc.)</p>	
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Middle Tech (ALP) Dress Making (Package-E)

Ch.1: Demonstrate Communication skills			Total 21 Period. T=11, P=10.		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Path of Success	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Understand the importance of soft skills in daily life like; <ul style="list-style-type: none"> - Self-confidence, - Self-discipline, - Decision making, - Critical thinking, - Problem solving 	<ul style="list-style-type: none"> • Group discussion and model presentation on soft skills. • Speech competition among students on importance of relevant trade. • Draw a Nine points in a square shape and join nine points without lifting the pencil complete in four lines 	06 Periods (T) 04 Periods (P)	White Board Marker Led Pencil Chart	Class Room/Lab
Effective communication	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Know model of communication. • Understand effective communication. • Understand importance of active listening and responding. • Understand the types of communication (verbal, nonverbal). • Define barriers in communication. 	<ul style="list-style-type: none"> • Perform role play. • Group exercise through listening audio and seeing video. • Carryout practice / role play among students to reflect verbal and nonverbal communication. 	05 Periods (T) 06 Periods (P)	ICT resources, Stationary	Classroom / Lab

Chapter 02 (Surface Embellishment Techniques)			Total 32 Period. T=05, P=27		
Themes / Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Work place
Basic Surface Embellishment Techniques	<p>The students will be able to:</p> <p>Know the basics of Surface Embellishment techniques.</p>	<p>Practice the tools to perform surface embellishment</p> <p>Show motivational videos about embellishment</p>	02 Periods (T) 07 Periods (P)	Pencils, Erasers, Sharpeners, Scales, White board, Multimedia, Tilla, mirror, gotta, sequences, cut dana,	Classroom/ Lab

	Describe the tools used for embellishment (Adda, needles, scissor, thimble, Aar, etc.)	Identify the tools used for embellishment (Adda, needles, scissor, thimble, Aar, etc.)		Arr, needle, threads resham, cotton thread, frame/adda, beads, fabric, embroidery design books, tracing paper, carbon paper, etc.	
Creation of Design by using Surface Embellishment Techniques	The students will be able to: Understand the Tracing techniques. Understand the process of applying different embellishment techniques (Tilla work, Mirror work, etc.). Know how to apply embellishment materials (Gotta, tilla, etc.) for creating sample.	Prepare a sample of 5x5 inches samples using following basic embellishments techniques: Tilla work Mirror work Gota work Sequence work (Sitara, cut dana, etc.). Prepare a clutch using different basic embellishments techniques.	03 Periods (T) 20 Periods (P)	Pencils, Erasers, Sharpeners, Scales, White board, Multimedia, Tilla, mirror, gotta, sequences, cut dana, Arr, needle, threads resham, cotton thread, frame/adda, beads, fabric, embroidery design books, tracing paper, carbon paper, fusing, magnet snaps, etc.	Classroom/ Lab
Chapter 03 (Pattern Making and Sewing)			Total 66 Period, T=16, P=50.		
Themes / Content	Students' Learning Outcome	Activities / Practical	Duration	Tools	Work place
Introduction to Measurements (Women / Kids)	The students will be able to: Know about the basics of: Anthropometry (the science of obtaining systematic measurements of the human body). Define the Sizing system. Describe Measurement chart.	Take full body Measurement using measuring tape according to the set standard. Show body measurement videos to students. Take measurements of the given garment and make measurement chart accordingly.	02 Periods (T) 04 Periods (P)	Measuring Tape, Pencil, Sharpener, Eraser, Paper, Scale, notebook, multimedia, internet, etc.	Classroom/ Lab
Introduction to drafting and pattern making	The students will be able to: Define the basics of drafting and pattern making. Understand the fabric behavior (Grain line).	Label all the basic information on the pattern (Length & Width Grain line Centre front Centre back)	02 Periods (T) 04 Periods (P)	Notebooks Clutch Pencils Erasers Sharpeners Steel edge, French curve, Japanese ruler, White board Drafting	Classroom/ Lab

	Understand the uses of drafting & pattern making tools (French curve, Japanese rulers, measuring tape, scale, etc.). Understand tech pack specifications.			/ pattern making tools, drafting sheets.	
Basic sewing techniques	The students will be able to: Understand the method to construct piping and edging. Understand the method to construct threading. Describe basic stitching on paper without thread: Straight line Curves Circles Squares Zigzag Describe basic stitching on paper with thread: Straight line Curves Circles Squares Zigzag Describe basic stitching on fabric with thread: Straight line Curves Circles Squares Zig-zag	Practice of piping and edging. Perform basic stitching on paper without thread: Straight line Curves Circles Squares Zigzag Perform basic stitching on paper with thread: Straight line Curves Circles Squares Zigzag Perform basic stitching on fabric with thread: Straight line Curves Circles Squares Zig-zag	03 Periods (T) 12 Periods (P)	Multimedia Internet Computer system, fabric, fusing, brown sheets, scales, pencil eraser, sharpener, measuring tape, thread, scissors, sewing machine, tailoring chalk, hand needles, seam ripper, common pins, Specification sheet. Size charts. Fusing paper	Classroom/ Lab
Draft and construct collar	The students will be able to: Describe different types of Collars (Band collar, one piece shirt collar, etc.). Understand the method to construct pattern	Draft & cut the band Collar & one Piece Shirt Collar on pattern sheet according to the Measurements. Prepare different types of Collars	02 Periods (T) 05 Periods (P)	Notebooks Pencils Erasers Sharpener Scales (French curve, Japanese ruler) White board, Drafting / pattern making tools and material, drafting sheets.	Classroom/ Lab

	of different types of collars	(Band collar, one piece shirt collar, etc.).			
Draft and construct basic necklines	The students will be able to: Define the different types of necklines. Understand the procedure to construct pattern of basic neckline. Know how to apply fusing to the fabric according to neckline design	Make a pattern of Neckline Round Square V-shape Prepare the following necklines with fabric. Round Square V-shape	02 Periods (T) 05 Periods (P)	Multimedia Internet Computer system, fabric, fusing, brown sheets, scales, pencil eraser, sharpener, measuring tape, thread, scissors, sewing machine, tailoring chalk, hand needles, seam ripper, common pins, Size chart, Fusing sheets.	Classroom/ Lab
Draft and Construct Basic Sleeve Block	The students will be able to: Know the different types of sleeves. Understand the procedure to construct pattern of basic sleeve block. Know how to cut the basic sleeve block on pattern sheet.	Draft & label the basic sleeve block on pattern sheet including: Length & Width Grain line Bicep line Elbow line Wrist line Front line Back line Crown depth line • Cut the basic sleeve block on pattern sheet.	02 Periods (T) 05 Periods (P)	Multimedia Internet Computer system, fabric, fusing, brown sheets, scales, pencil eraser, sharpener, measuring tape, thread, scissors, sewing machine, tailoring chalk, hand needles, seam ripper, common pins, Size chart ,Fusing sheets.	Classroom/ Lab
Draft and Construct Basic Skirt Block	The students will be able to: Know the different type of skirts. Understand the procedure to construct pattern of basic skirt block. Know how to cut the basic Skirt block on drafting sheet.	Draft & label the basic Skirt block on pattern sheet including: Length & Width Grain line Waistline Upper hip line Hip line Knee line / Hem line Dart line Centre front Centre back Side seam Cut the basic Skirt block on drafting sheet	02 Periods (T) 10 Periods (P)	Multimedia Internet Computer system, fabric, fusing, brown sheets, scales, pencil eraser, sharpener, measuring tape, thread, scissors, sewing machine, tailoring chalk, hand needles, seam ripper, common pins, Size chart, Fusing sheets.	Classroom/ Lab

Introduction to body frocks	The students will be able to: Describe the pattern of body frock. Understand cutting and sewing of body frock.	Cut and Sew body frock with the help of pattern.	01 Period (T) 09 Periods (P)	Multimedia Internet Computer system, fabric, fusing, brown sheets, scales, pencil eraser, sharpener, measuring tape, thread, scissors, sewing machine, tailoring chalk, hand needles, seam ripper, common pins, Size chart, Fusing sheets. Clipper, measuring tape, steam iron, hand needle, hock and eye button, press button, seam ripper	Classroom/ Lab
Perform Finishing	The students will be able to: Understand importance of finishing in a stitched garment. Know how to use tools equipment for hand finishing. Know the process of finding stitch faults (thread breakage, overlapping, fabric tempering, puckering etc.)	Enlist tools equipment used for hand stitching. Find stitch faults, Remove stitch faults. Perform finishing elements (thread breakage, overlapping, fabric tempering, puckering etc.)	01 Period (T) 04 Periods (P)		

Chapter 04 Computer aided designs (CAD)		Total 10 Period. T= 04, P=06,			
Themes /Content	Students Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to CAD	The students will be able to: <ul style="list-style-type: none"> Define the basic concept of CAD. Define the importance of CAD in fashion Industry. 	<ul style="list-style-type: none"> Show motivational videos. Group discussion 	02Periods (T) 3Periods (P)	Multimedia, Internet, Computer system, etc. General Stationary Items. Scales, printer, paper rim, CorelDraw software, etc.)	Classroom/ Lab
Introduction to coral draw	The students will be able: <ul style="list-style-type: none"> Define the basic concept of coral draw. Define the importance of coral draw in fashion Industry. 	<ul style="list-style-type: none"> Show motivational videos. Group discussion. 	2Periods (T) 3Periods (P)	Multimedia, Internet, Computer system, etc. General Stationary Items. Scales, printer, paper rim,	Classroom/ Lab

				CorelDraw software, etc.)	
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Chapter 05 (Textile Surface Techniques)			Total=25 Period. T=05, P=20,		
Themes / Content	Students Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to printing and Tie & Dye	The students will be able to: <ul style="list-style-type: none"> Define various types of printing. Understand the different techniques of tie & dye 	<ul style="list-style-type: none"> Create a printing pattern using natural material (Vegetables, Leaves and flowers, Tree bark, Fruits, etc. on fabric. Show different videos of tie & dye technique. Prepare samples of different tie & dye techniques. <ul style="list-style-type: none"> Folding technique. Pleating technique. Web binding. Cereal tying. Spiral twist. 	05 Periods (T) 20 Periods (P)	Multimedia, Internet, Computer system, etc.) General Stationary Items fabric, fabric paints, brush, sponge, different vegetables, container, carving cutter. different dye colors, thread, color fixer, salt, soda, pure cotton, gloves, aprons, tubs, container, stove, spatula, etc.)	Classroom / Lab

Chapter 06 (Entrepreneurship)			Total 16 Period. T= 9, P=07,		
Themes / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Entrepreneurship	The students will be able to: <ul style="list-style-type: none"> Know the Basic concept of Entrepreneurship Know the components of Entrepreneurship 	<ul style="list-style-type: none"> Invite an entrepreneur to explain briefly about entrepreneurship and its pros and cons. Group discussion and presentations on 	06 Periods (T) 04 Periods (P)	Multimedia Presentation and virtual exposure, internet.	Classroom

	<ul style="list-style-type: none"> Define characteristics and qualities of Entrepreneur. Understand the benefits and importance of Entrepreneurship . Define a Business Idea. 	<p>entrepreneurship .</p> <ul style="list-style-type: none"> Assign the students a task to observe the respective locality and enlist potential business ideas and present them in class. 			
Marketing and Marketing Mix	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define 4 P's of marketing. Know how to do costing and pricing. 	<ul style="list-style-type: none"> Perform costing and pricing of an apparel. 	03 Periods (T) 03 Periods (P)	Multimedia and White Board, board marker and internet.	Classroom

Ch. 07. Digital Communication and social media			Total 10 Period. T=2, P=8		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Workplace
Effective email writing	<p>The student will be able to;</p> <ul style="list-style-type: none"> Create, access and manage email account Learn how to write and respond official email 	<ul style="list-style-type: none"> Create email account Write an official email to school principal on subject of any importance 	01 Periods (T) 04 Periods (P)	Multi media System, Internet connection	Classroom / Labs
Introduction to Social Media Platforms	<p>Student will be able to;</p> <ul style="list-style-type: none"> Understand the role of social media in marketing and business development Explain merits and demerits of social media 	<ul style="list-style-type: none"> Create social media page for yourself: <ol style="list-style-type: none"> Facebook, Instagram Twitter, YouTube, 	01 Periods (T) 04 Periods (P)	Multi media System, Internet connection	Classroom / Labs

Basic Requirements for Lab (Tools / Equipment):

No	Tools & Equipment	Quantity
1	Measuring Tape	25
2	Scissors (paper/fabric)	25
3	Curve Square	25
4	Sewing Machine	25
5	Steam Iron	10
6	Seam ripper	25
7	Clipper	25
8	Safety pins	25 boxes
9	Screw Drivers	5
10	Embroidery Frames	25
11	Embroidery Adda	25
12	Adda Needles/Aar	25
13	Drawing Board	25
14	Tracing wheels	25
15	Computers	25
16	Color palette	25
17	Paint brushes	25 sets
18	Seam ripper	25
19	Japanese Ruler	25
20	French curve	25
21	Measuring Tape	25

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Cosmetology / Beautician

History of cosmetology:

Cosmetology is the application of beauty that provides students with a study of concepts related to the cosmetology profession. This study includes cosmetology history and opportunities, professional image, infection control and basic fundamentals and principles of hair and beauty care. Many people work in the cosmetology industry as barbers, skin-care specialists, hair stylists and nail technicians.

Back ground of Cosmetology:

- **Egyptian Cosmetology**
 - Egyptian put makeup on their eyes, lips and skin. The materials they used were made from minerals, berries and insects. They colored their hair and finger nails with rich warm and red Henna and stains.
- **Chinese cosmetology**
 - In Chinese history the Chinese's nobility during the colored their nails crimson or by rubbing a mixture of gum Arabic, gelatin, bees wax and egg white.
- **Greek Cosmetology:**
 - The ancient Greeks used perfumes and cosmetics in all aspects of their personal grooming.
 - Roman Cosmetology. Ancient roman women define what cosmetology by their use of natural ingredients.
- **Europe Cosmetology:**
 - In the middle age women were forbidden to wear makeup but it never deterred them from this fat. Infect makeup was so important many women died from using the makeup.
- **Russian Cosmetology:**
 - This is the period in history were civilization truly modernized cosmetology.
- **21st Cosmetology:**
 - Today, cosmetology has become more specialized. beauticians concentrate in hair, coloring or hair cutting. Aestheticians focus on aesthetic and medical related services such as plastic surgery and nail technicians specialized nail care and paddy cure.

Significance:

Cosmetology is the foundational course in the human services career cluster for students interested in learning more about becoming a cosmetologist. Upon completion of this course, proficient students will gain knowledge in the fundamental skills in both theory and practical applications of cosmetology practices. Laboratory facilities and experiences simulate those found in the cosmetology industry. Upon completion and acquisition of designed hours, students are eligible to take the concerned bogy examination to attain certification. It will reduce unemployment in Pakistan with the growth of career opportunities and empower the women in beauty industry.

The high demand for cosmetology course will help students to generate self-employment opportunities for the betterment of society. The purpose of this course is to develop youth of Pakistan through education and training. To control the increasing un-employment, promoting entrepreneurship (self-employment), alleviate poverty and provide skilled manpower for industrial/economic growth of state.

The carrier possibility in this industry of beauty is endless. This industry offers various careers for these professionals to excel and grow. It is a lucrative career option with earnings increasing with experience and reputation trained cosmetologists find well-paid jobs in beauty parlors, high-end salon, showbiz, media and main objective is self-employment/entrepreneurship. Makeup professionals are always in demands in television and industries and also in demand in the world of fashion other options are being an image consultant, writing books, articles and academic.

Aims:

The specific objectives of developing qualifications are as under:

- Provide students with a smooth transition to work.

- Develops job- readiness & enhance students' trade-specific skills and provide opportunities for the development of new skills.
- Train the students in practical skills, theoretical knowledge and professional attitude necessary to obtain competency entry level positions in the cosmetology profession upon completion of course requirements
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.
- Develop the economic opportunities for the cosmetology field
- Produce a capable & skillful workforce as required by the prevailing market demands.
- Develop quality training to those seeking a career as professional beauty therapist

Objectives:

After completing this, the students will be able to:

- Develop understanding of the basic principles, properties and application of various types of cosmetics and their effect on the human beings.
- Assist in the areas of hair cutting, hair styling, hair coloring, skin care, makeup and other fields related to cosmetology
- Communicate effectively with colleagues, supervisors and guests.
- Ensure adherence to safety measures in salons.
- Project professionalism.
- Apply academic learning, technical information and related matter to assure sound judgements, decision and procedure.

Middle Tech (ALP) Beautician (Package-D)

Chapter 01 Basics of Cosmetology			Total 23 Period. T= 10, P= 13,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction of cosmetology	The students will be able to; <ul style="list-style-type: none"> Define cosmetology Understand importance of cosmetology. Define terminologies used in cosmetology. Define cosmetology Industry. 	<ul style="list-style-type: none"> Identify components of cosmetology (hair, skin, nail, makeup and fitness etc.). Identify cosmetology Industry. 	T=4, P=6	Multimedia, projector, or LED TV with good sound system	Classroom / Lab
History of cosmetology	The students will be able to; <ul style="list-style-type: none"> Describe background of cosmetology. Understand gradual development in beauty sector. 	<ul style="list-style-type: none"> Group discussion on background of cosmetology and its gradual development. 	T=3, P=3	Multimedia, projector, or LED TV with good sound system	Classroom / Lab
Scope of cosmetology	The students will be able to; <ul style="list-style-type: none"> Describe the scope of cosmetology industry (entrepreneur and academic opportunities). Familiarize with the growing demand for cosmetology career options. Recognize collaboration with different sectors (fashion industry, media channels and showbiz industry etc.). 	<ul style="list-style-type: none"> Group Presentation on growing demands and career opportunities. Group presentation on collaboration with different sectors. Visit local area and explore the career options in cosmetology. Gather information about two national brands in beauty sector and collect information about two local brands and share their information in class. 	T=3, P=4	Multimedia , projector, or LED TV with good sound system	Classroom / Outdo or visit

Chapter # 2. Introduction to Soft Skills			Total 15 Period. T=5, P=10		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Soft Skills	<p>The students will be able to;</p> <ul style="list-style-type: none"> Understand the importance of soft skills in daily life like; <ul style="list-style-type: none"> Self-confidence, Self-discipline, Decision making, Critical thinking, Problem solving 	<ul style="list-style-type: none"> Group discussion and model presentation on soft skills. Speech competition among students on importance of relevant trade. 	T=2, P=3	Multimedia, computer with accessories	Classroom / Lab
Communication Skills	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know model of communication. Understand effective communication. Understand importance of active listening and responding. Understand the types of communication (verbal, nonverbal). Define barriers in communication. 	<ul style="list-style-type: none"> Perform role play. Group exercise through listening audio and seeing video. Carryout practice / role plays (Trade Context) among students to reflect verbal, nonverbal and effective communication. 	T=2, P=5	Multimedia, computer with accessories	Classroom / Lab
Time management	<p>The students will be able to;</p> <ul style="list-style-type: none"> Understand the importance of time management; <ul style="list-style-type: none"> ✓ Professional, ✓ Personal. 	<ul style="list-style-type: none"> Arrange a small competition task to complete in specified time. Make a schedule of the routine daily activities or a professional task. 	T=1, P=2	Multimedia, computer with accessories	Classroom / Lab
Chapter # 03 Basics of Computer			Total 24 Period. T=4, P=20		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Introduction to Computer	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define computer. Define types of computer devices 	<ul style="list-style-type: none"> Identify different components of computers. Enlist different 	T=1 P=2	Multimedia, computer with accessories	Classroom / Lab

	<ul style="list-style-type: none"> Understand uses of computers 	<p>places where computers are being used.</p> <ul style="list-style-type: none"> Identify different computer related devices 			
Components of computer	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know physical components of computer. Define peripheral devices: <ul style="list-style-type: none"> ✓ Input devices ✓ Output devices Know the techniques to connect peripheral devices. 	<ul style="list-style-type: none"> Enlist input devices, Enlist output devices. Connect peripheral devices with system unit. Turn on and shutdown the computer. 	T=1, P=2	Multimedia, computer with accessories	Classroom / Lab
Managing Files and Folders	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know how to create a new folder & file. Know Cut, Copy, Paste a folder or file from one location to other. Know deletion and restoration of folder & file. 	<ul style="list-style-type: none"> Create, Cut, copy paste, rename, and delete the file folder and shortcut. Create folders, rename them with your classmates and create files inside these folders and rename them, copy/paste in other folders/ locations. 	T=1, P=2	Multimedia, computer with accessories	Classroom / Lab
MS Office	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know basic commands of MS Word and MS Excel; <ul style="list-style-type: none"> ✓ Font Formatting, ✓ Paragraph Formatting, ✓ Inserting Bullet & Numbering, ✓ Inserting and managing tables, ✓ Insert picture and shapes, ✓ Row height and width. ✓ Simple formulas 	<ul style="list-style-type: none"> Compose letters and reports in Microsoft Word. Create a list using bullets and numbering. Insert a table and make Time Table. Insert a picture and shapes. Prepare a data sheet and adjust row and column height and width. Apply simple 	T=1, P=14	Multimedia, computer with accessories	Classroom / Lab

	✓ Cut copy and paste	formulas of sum, multiplication and subtraction.			
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Ch.4 Occupational Health, Safety and Safe Work Environment			Total 20 Period. T=11, P=9		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to health, safety and environment	The students will be able to; <ul style="list-style-type: none"> define health safety & environment know basic principles of safety. understand standard operating procedure regarding health and safety. Describe basic rules of health & safety in workplace environment 	<ul style="list-style-type: none"> Discuss the standard operating procedures (SOP's) regarding basic safety (personal hygiene and vaccination, first aid treatment, allergy test, age limit policies, environmental hygiene etc.) 	T=4, P=3	PPE Kits,	Classroom/Lab
Basics of safety	The students will be able to; <ul style="list-style-type: none"> understand the types of hazards and preventive measures Know basic certification of safety learn awareness on physically transmitted diseases learn sterilization (tools and towel) and sanitization know-about ventilation and illumination. Explain First Aid. Understand the use of Fire Extinguisher. 	<ul style="list-style-type: none"> Presentations on types of hazards and preventive measures. Perform sterilization process of tools. Maintain checklist for basic facilities and services of safety. Operate fire extinguisher. 	T=7, P=6	PPE Kit Sterilization tools and equipment, First Aid Kit, Fire Extinguisher	Classroom/Lab

Chapter # 05 (Manicure & Pedicure)			Total 20 Period. T= 06, P = 14,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace

Manicure	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define manicure. • Understand purpose of manicure. • Define types of manicure. • learn about types of tools and equipment for manicure. • know about trolley setting for manicure. • Know the techniques to prepare nails for manicure. • learn application of cuticle cream on nail edges. • Describe soaking of hands by using related product. • Know how to remove cuticle and clean the nails. • Describe massage techniques on hands following reflexology / pressure points. • Know the application of mask on hands. 	<ul style="list-style-type: none"> • Divide the class in different groups and assign the different task to each group. Each group will exhibit their task. • Identify the nail skin disorder and disease. • Perform nail art. • French manicure. • Prepare client for concerned treatment. • Perform manicure process in groups <ul style="list-style-type: none"> a) Sanitize the hands b) Nail cutting and shaping c) Apply cuticle softening cream/lotion d) Soak hands by adding manicure products e) Clip file and buff the nails f) Push back cuticles • Select cleanser for hands <ul style="list-style-type: none"> g) Exfoliate h) Massage the hands with moisturizer Mask 	T=3, P=7	Dipping tub, towel, manicure tool and product Kits.	Classroom / Lab
Pedicure	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define pedicure. • Understand purpose of pedicure. • Describe the types 	Divide the class in different groups and assign the different task to each group. Each group will exhibit their task.	T=3, P=7	Dipping tub, towel, pedicure tool and product kits.	Classroom / Lab

	<ul style="list-style-type: none"> of pedicures. Classify types of tools and equipment for pedicure. Know about trolley setting for pedicure. Know the procedure to prepare the feet for pedicure Understand to use cuticle cream on nail edges. Understand soaking procedure. Learn to remove cuticle and clean the nails. Understand to use appropriate product for cleansing and scrubbing Know how to apply massage the feet following reflexology / pressure points. Learn application of mask on feet. 	<p>Practice pedicure process in groups</p> <ol style="list-style-type: none"> Sanitize the feet Remove nail polish if applied Nail trimming and shaping Apply cuticle softening cream/lotion Soak feet by adding pedicure products Push back and remove cuticles Exfoliate Remove the dead skin form heels Clip file and buff the nails <p>Massage the feet with moisturizer Mask.</p>			
Chapter 6 (Henna)			Total 25 Period. T = 7, P =18,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to henna	<p>The students will be able to;</p> <ul style="list-style-type: none"> Learn about the history of henna. Understand the culture and trends of henna 	<ul style="list-style-type: none"> Presentation about concept and background of applying Henna. Class discussion on tradition and cultural demand 	T=2, P=1	TLM, visualization, Multimedia, related booklets , internet, notebook	Classroom
Types of henna	<p>The students will be able to;</p> <ul style="list-style-type: none"> Learn different types of henna (chemical, organic, etc.). Understand different henna application techniques 	<ul style="list-style-type: none"> Practice with cone or needle on glass frame or hands of colleague. 	T=1, P=5	cone, syringe\needle tracing sheets, glass frame etc.	classroom

Henna patterns	The students will be able to; <ul style="list-style-type: none"> • Know how to create pattern according to the requirements. • Describe shading and filling. 	<ul style="list-style-type: none"> • Create pattern on paper sheet. • Practice of shedding and filling the flowers sketch. • Practice on glass board. • Practice on different flowers\leaves pattern. 	T=1, P=5	whiteboard, marker, sketch papers, pencils, eraser, sharpener, multimedia, internet, designs booklet, glass board	Classroom
Apply henna	The students will be able to; <ul style="list-style-type: none"> • Understand the client's requirement regarding design / pattern / motif / tattoo. • Know the procedure of applying henna on hands and feet. • Describe aftercare advices <ul style="list-style-type: none"> ✓ Post treatment Precautions ✓ Appropriate maintenance • ✓ Product procedure 	<ul style="list-style-type: none"> • Practice on different designs. • Prepare research board. • Create a final design and motif. • Get client consultation. • Prepare client for henna application. • Apply party henna design / pattern / motif / tattoo. • Apply bridal henna design/pattern / motif. • Apply experimental henna design / pattern / motif. 	T=3, P=7	cone, syringe\needle tracing sheets, glass frame etc.	classroom
Chapter 07 (Hair Care)			Total 28 Period. T= 11, P= 17,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Hair anatomy and analysis	The students will be able to; <ul style="list-style-type: none"> • Define hair and its types. • Define the role of hair in personality reflection. • Understand the layers of hair. • Describe the texture of hair. 	<ul style="list-style-type: none"> • Observe the hairs of classmates and categorized according to the hair types, discuss in groups and present in the class. 	T=4, P=4	Computer with accessories	Classroom / Lab

Shampooing , masking and combing	The students will be able to; <ul style="list-style-type: none"> Define basic principles of shampooing. Know how to use the appropriate product for masking. Know hair preparation for shampooing. Understand the proper way of combing. 	<ul style="list-style-type: none"> Identify the appropriate product for shampooing. Prepare the hair for shampooing. Perform shampooing and combing process in groups 	T=5, P=10	Washing unit, Shampoo, mask, comb, towel Gloves	Classroom / Lab
Hair tools and equipment	The students will be able to; <ul style="list-style-type: none"> Differentiate the terms tools and equipment. Describe use of tools for Hair services. 	<ul style="list-style-type: none"> Identify tools for hair services. Enlist equipment use for hair services. Practice how to use hair tools and equipment. 	T= 2, P=3	Hair tools and equipment (Hair trolley, hand sanitizer, gown and towel for hair services, bowl for creams, applicator brushes, mirror scissors, hair clips, sectioning clips, paddle brush, the right combs pins for styling, all-purpose shears, blending shears, razor round brush, Straightener)	Classroom / Lab
Chapter 08 (Hair cutting and Hair styling)			Total 80 Period. T = 10, P = 70,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Preparation for Hair cutting	The students will be able to; <ul style="list-style-type: none"> Explain about trolley setting for hair services. learn to prepare clients for haircut Services. 	<ul style="list-style-type: none"> Practice the hair sectioning application. Perform technique of straight cutting. Perform basic trim in different 	T=5, P=25	Cape, apron, comb, section, clips, setting powder, Invisible-, bowl, brushes,	Classroom / Lab

	<ul style="list-style-type: none"> Describe about hair Sections. Know straight line haircut techniques following angles & degrees. Know about basic trim techniques. 	<p>groups. Each group will perform</p> <ul style="list-style-type: none"> one cutting style. 		apron, section clips, shower cap,	
Basic Hair Styling	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe basic hair styling straightening, curling, braids and back combing. 	<ul style="list-style-type: none"> Perform basic hairstyling, straightening curling crimping, braids back combing. 	T=2, P=25	setting powder, bobby pins, Invisible-pins, hair decorating a, hair ponies (big and small)	
Hair Cutting Styles	<p>The students will be able to;</p> <ul style="list-style-type: none"> learn to handle tools and equipment according to SOPs learn different hair cutting techniques and rules Know haircut types for women. <ul style="list-style-type: none"> ✓ u-shaped cut ✓ layers cut ✓ Bob cut 	<ul style="list-style-type: none"> Discuss about types of cut according to face shape and client requirement. Perform hair cut for women u-shaped cut, layers cut, feather cut, wedge cut, steps cut, bangs or flick short bob, A-line bob, graduation bob, pointed bob, undercut bob, emo cut, Diana cut. Perform hair cut for men army layers, spike, side cut. Divide the class in different groups. Each group will perform one cutting style. 	T=3, P=20	Cape, apron, comb, section clips, shower gun	Lab
Chapter # 09 (Tools and Equipment for skin and massage services)			Total 12 Period. T = 02, P =10,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duratio n	Tools	Work place
Skin tools and equipment	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe types of skin 	<ul style="list-style-type: none"> Identify tools for skin services. Identify 	T=1, P=5	Black heads extractor needle,	Classroom / Lab

	<p>tools</p> <ul style="list-style-type: none"> Describe use of tools/ equipment for skin services. 	<p>equipment for skin services.</p> <ul style="list-style-type: none"> Practice how to operate tools and equipment for skin services. 		<p>Facial bed / stool, Facial trolley, Face massager, Head massager, Hand sanitizer, Scissors, Tweezer, Wax strips, Epilation thread, Gown and towel for facial, Head bands, spatula, Bowl for creams, Applicator brushes, Sponges, Mirror, magnifying glass, Sterilizer, Steamer, Skin scanner, Wax warmer</p>	
Massage tools and equipment	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe types of massage tools Describe use of tools/ equipment for massage services. 	<ul style="list-style-type: none"> Identify tools for massage services. Identify equipment for massage services. Practice how to operate tools and equipment for skin services. 	T=1, P=5	<p>Head massager, Face massager, Body massager, Bowl for oil, Brush for oil application, Towel</p>	Classroom / Lab

Middle Tech (ALP) Beautician (Package-E)

Chapter 1 (Introduction to skin)			Total 32 Period. T = 14, P =18,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Skin Anatomy	<p>The students will be able to;</p> <ul style="list-style-type: none"> learn about skin. classify the layers of the skin. learn the function of layers of skin. Describe skin tests to recognize allergies and other skin issues. 	<ul style="list-style-type: none"> Role Play on client consultation about skin treatment 	T=3, P=2	Magnifying glass, concerned products, applicator, bowl, towel, tissue, gloves, disposable towel, wipes Face wash, cleanser, toner, wipes, wet tissues,	Classroom / Lab
Analyze Types of Skin	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe different types of skin (Oily, dry, normal, sensitive and combination). Describe skin problems (blemishes, freckles, acne, pigmentation, black and white heads, Melia, saggy etc.). 	<ul style="list-style-type: none"> Identify different types of the skin (dry, oily, sensitive, combination and ageing) of your class fellows. Categorize issues of the skin (blemishes, freckles, acne, pigmentation, black and white heads. 	T=3, P=5	Magnifying glass, concerned products, applicator, bowl, towel, tissue, gloves, disposable towel, wipes Face wash, cleanser, toner, wipes,	Classroom / Lab
Preparation of skin	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe face washing. Describe about the hydration of skin. Define cleansing, toning and moisturizing (CTM) skin as per SOP. 	<ul style="list-style-type: none"> Perform cleansing, toning and moisturizing (CTM) 	T=2, P=5	Magnifying glass, concerned products, applicator, bowl, towel, tissue, gloves, disposable towel, wipes Face wash, cleanser, toner, wipes, wet tissues, towel, gown, facial band, Dura prep so lotion, facial bed/chair, stool steamer, exfoliating	Classroom / Lab

				tools and products, basic facial kit, trolley, facial bed/chair	
Skin tools and equipment	The students will be able to; <ul style="list-style-type: none"> Describe types of skin tools. Describe use of tools for skin services. Describe use of equipment for skin services. 	<ul style="list-style-type: none"> Identify tools and equipment for skin services 	T=1, P=3	Skin tools and equipment. black heads extractor needle facial bed/stool facial trolley face massager head massager hand sanitizer	Classroom
Introduction to skin care	The students will be able to; <ul style="list-style-type: none"> know concept of skin care learn importance of skin care know about products for skin care learn about tools and equipment for skin care understand trolley setting for skin care know about personal hygiene for skin care. know about client and environment 	<ul style="list-style-type: none"> Group discussion on importance of skin care Perform trolley setting for skin care Prepare for skin care 	T=5, P=3	Cleanser, toner, exfoliator, mask, wipes, head-bands, PPE, Face towel, moisturizer	Lab
Chapter 02 (Facial)			Total 25 Period. T =07 P=18		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Basic Facial	The students will be able to; <ul style="list-style-type: none"> Define facial. Define role of facial in skin care. Describe types of 	<ul style="list-style-type: none"> Prepare the client for facial. Perform skin polish Perform basic facial 	T=4, P=9	Magnifying glass, concerned products, applicator, bowl, towel,	Classroom / Lab

	<p>facial.</p> <ul style="list-style-type: none"> • Know how to prepare the client for facial. • Describe products for facial. • Describe trolley setting for facial. • Define basic facial process. <ul style="list-style-type: none"> ✓ Cleansing ✓ Toning, ✓ Exfoliation • Explain pre and post precautionary measures. 	<ul style="list-style-type: none"> • Cleansing, Toning, Exfoliation, Steam as per requirement, <ol style="list-style-type: none"> 1. Massage 2. Mask 3. Sunscreen cream • Demonstrate role play on post treatment precaution to client 		<p>tissue, gloves, disposable towel, wipes Face wash, cleanser, toner, wipes, wet tissues, towel, gown, facial band, Dura prep so lotion, facial bed/chair, stool steamer, exfoliating tools and products, basic facial kit, trolley, facial bed/chair</p>	
Lightening Facial	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Describe skin type/condition according to SOPs • Know how to select products according to skin type/condition and facial requirement. • Know the techniques to apply polisher according to skin type/condition. <ul style="list-style-type: none"> • Know the procedure to perform deep cleansing according to skin 	<ul style="list-style-type: none"> • Identify skin type of different students of the class • Apply polisher according to skin type/condition • Perform lightening facial 	T=3, P=9	<p>Cleanser, toner, exfoliator, mask, wipes, headbands, PPE, Face towel, moisturizer, black head remover, lightning serum, spatula, bowl, facial bed, stool, facial trolley, sterilizer</p>	Lab
Chapter 03 (Introduction to makeup)			Total 10 Periods. T=3, P=7		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Makeup tools and equipment	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Learn types of makeup tools. • Learn types of equipment for makeup services. • Describe use of tools for makeup 	<ul style="list-style-type: none"> • Identify types of makeup tools. • Identify types of equipment for makeup services 	T=1, P=3	<p>Make up tools and equipment (make up trolley, hand sanitizer, gown and towel for make-up</p>	Classroom / Lab

	<p>services.</p> <ul style="list-style-type: none"> Describe use of equipment for makeup services. 			<p>services, bowl for creams applicator, brushes, scissors, sponges, puff, eye lash curler, beauty blenders, make up pellets, powder brush, blush and contour brush, round buffing brush, foundation brush, setting brush, blending brush, eyeshadow brush, fan brush, spooli, eyeliner brush)</p>	
Introduction to makeup	<p>The students will be able to;</p> <ul style="list-style-type: none"> Understand the concept of makeup Describe need and importance of makeup Understand different types of makeup 	<ul style="list-style-type: none"> Group discussion on role of makeup in personality. Differentiate the types of make-up and its importance 	T=2, P=4	<p>Computer, Multimedia contour palette, Sketch paper, pencil, makeup brushes Cleanser, moisturizer, Tonner, wipes, makeup brushes kit, tissue towel</p>	Classroom/Lab
Chapter 04 (Make-up)			Total 65 Period, T= 5, P= 60,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Skin preparation	<p>The students will be able to;</p> <ul style="list-style-type: none"> learn pre and post services of makeup. learn to prepare skin for makeup. Understand principals of CTM. Understand cleansing, toning, 	<ul style="list-style-type: none"> Prepare client for makeup. Perform CTM. Practice makeup. <ul style="list-style-type: none"> a) Primer b) Camouflage c) Base and foundation. d) Compact powder. e) Contouring 	T=5, P=30	<p>Computer, Multimedia Contour palette, Sketch paper, pencil, makeup brushes Cleanser, Moisturizer, Tonner,</p>	Lab

	moisturizing (CTM) technique. <ul style="list-style-type: none"> learn primer technique. learn to camouflage the skin Understand how to apply base on skin. Describe compact powder procedure. Understand how to contour the face: <ol style="list-style-type: none"> Blush on. Eye makeup. Lipstick. Makeup fixer (optional). 	f) Blush-on g) Highlighter h) Basic eye makeup. i) Lipstick		wipes Makeup kit, makeup brushes kit, tissue towel, beauty blenders	
Soft Make Up	The students will be able to; <ul style="list-style-type: none"> Understand the concept of model makeup design. Plan accurately according to the theme. Learn process of Model makeup according to the requirement. 	<ul style="list-style-type: none"> Select suitable color cosmetics to perform Model make-up according to requirement. Practice model makeup in a group activity 	T=2 P=13	Makeup kit, Makeup brushes kit, Beauty blender, puff, towel, head band, tissue, wipes, sterilizer	Classroom/ Lab
Natural / Party Makeup	The student will be able to; <ul style="list-style-type: none"> Understand the concept of natural/no-makeup. Describe the latest trends of makeup. Describe trolley setting for make-up services. 	<ul style="list-style-type: none"> Prepare the client according to the requirement. Prepare the skin according to the requirement. Perform natural / no makeup look. Apply party makeup look. Apply day makeup look. Apply night makeup look 	T=2 P=13	Makeup kit, Makeup brushes kit, Beauty blender, puff, towel, head band, tissue, wipes, sterilizer	Classroom / Lab
Chapter 05 (Waxing & Threading)			Total 34 Period. T= 09, P=25		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to Waxing and threading	The students will be able to; <ul style="list-style-type: none"> define waxing 	<ul style="list-style-type: none"> Recognize types of threading and waxing 	T=3, P=9	Thread, tweezer, loose power,	Classroom/ Lab

	<ul style="list-style-type: none"> and threading Describe types of threading and waxing know the usage of thread and tweezer Define the effects of wax w.r.t skin type know suitable temperature for applying wax. know about the proper way of hair removal and wax quantity to be used 	<ul style="list-style-type: none"> Demonstrate the temperature setting of wax warmer. Perform role play on post precaution of wax 		scissor, wax strips wax warmer, spatula, wax strips, loose powder, after wax/threading lotion	
Eyebrows shaping	The students will be able to; <ul style="list-style-type: none"> define eyebrows shaping describe face mapping for eyebrow shaping Describe eyebrow shaping according to face structure. Know suitable temperature of wax for eyebrow 	<ul style="list-style-type: none"> Identify suitable temperature of wax for eyebrow Demonstrate eyebrow shaping. Perform threading of eyebrows. Perform waxing of eyebrows 	T=2, P=6	Thread, tweezer, loose power, scissor, wax strips wax warmer, spatula, wax strips, loose powder, after wax/threading lotion	Classroom/Lab
Upper lip waxing and threading	The students will be able to; Know about the client preference for threading or waxing. <ul style="list-style-type: none"> Describe techniques of waxing and threading for upper lips Know suitable temperature of wax for upper lips know about the removing of hair according 	<ul style="list-style-type: none"> Identify suitable temperature of wax for upper lips. Perform waxing and threading for upper lips 	T=2, P=5	Thread, tweezer, loose power, scissor, wax strips wax warmer, spatula, wax strips, loose powder, after wax/threading lotion	Classroom/Lab

	<ul style="list-style-type: none"> to direction Describe post wax precautions. 				
Face waxing / Threading	The students will be able to; <ul style="list-style-type: none"> know suitable temperature of wax for face know about the removing of hair according to direction. know about the client preference for threading or waxing 	<ul style="list-style-type: none"> Perform face waxing and threading 	T=2, P=5	Thread, tweezer, loose power, scissor, wax strips wax warmer, spatula, wax strips, loose powder, after wax/threading lotion	Classroom/Lab
Chapter 06 (Introduction Of Management)			Total 14 Period. T=4, P=10		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction Of Management	The students will be able to; <ul style="list-style-type: none"> define management know concept of management learn benefits of management Define importance of management in cosmetology sector Understand the problems of management functions and its solutions. 	<ul style="list-style-type: none"> Presentation on management role Role play on problems of management and its solution 	T=2, P=5	Stationary items, multi media, computer system/laptop	Classroom/Lab
Front desk management	The students will be able to; <ul style="list-style-type: none"> Describe greeting rules. Understand the roles and responsibility of receptionist. learn appointment and scheduling of clients. Know how to maintain check and balance of the records. 	<ul style="list-style-type: none"> Perform role play of receptionist. Group discussion on front desk management. Perform call handling. 	T=2, P=5	Stationary items, multi media, computer system / laptop	Classroom / Lab

	<ul style="list-style-type: none"> Know how to maintain bill book and cheque book. 				
Chapter 07 (Nutrition and fitness)			Total 10 Period. T=4, P=6,		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Nutrition value	The students will be able to; <ul style="list-style-type: none"> understand the importance of nutrition in daily intake Describe daily amount of nutrients according to requirements Know about intake of fruits and food (carbohydrates, protein, dairy etc.) 	<ul style="list-style-type: none"> Interpret daily amount of nutrients according to requirements Pictorial presentation of nutrition value 	T=2, P=3	Multimedia	Lab
Basic exercise	The students will be able to; <ul style="list-style-type: none"> understand the importance of exercise Know how to prepare client and environment for exercise Know how to perform basic exercise steps. 	<ul style="list-style-type: none"> Prepare client and environment for exercise. Perform different warm up exercises. 	T=2, P=3	Multimedia Exercise kit	Lab
Ch. 8 Entrepreneurship			Total 8 Period. T=4, P=4		
Theme / Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction To Entrepreneurship	The student will be able to: <ul style="list-style-type: none"> Define Entrepreneurship- and entrepreneur. Define the characteristics / qualities of an entrepreneur. Understand the benefits / importance of Entrepreneurship. Define business idea.	<ul style="list-style-type: none"> Group discussion and presentation on Entrepreneurship . Form groups of 5 students each and assign them to observe their respective localities enlist potential business ideas and make presentation. 	T= 04, P=04	Computer and its accessories	Lab / Classroom

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Applied Electrician

Aims:

The specific objectives of developing these qualifications are as under:

- Provide students with a smooth transition to work.
- Develops job-readiness & enhance students' trade-specific employable skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I - II technical training certification or equivalent in a given trade.
- To set high profile standard professions for the industry to generate standard outputs.
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this, the students will be able to;

- Perform routine semi-skilled tasks to carry out a variety of electrical / electronic installations
- Assist in repairing of electrical facilities and system.
- Perform maintenance jobs under supervision and assist other team members in the assigned preventive maintenance.

Middle Tech (ALP) Applied Electrician (Package-D)					
Chapter # 01 Introduction to Applied Electrician			Total 02 Period. T=1, P=1		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Course introduction	The students will be able to; <ul style="list-style-type: none"> Understand the work of an electrician. Understand the scope & importance of electrician work. 	<ul style="list-style-type: none"> The students will be required to give a presentation on the scope of work of an electrician. 	T=1, P=1	Multimedia, computer with accessories	Classroom / Lab
Chapter # 02 Introduction to Soft Skills			Total 15 Period. T=5, P=10		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Soft Skills	The students will be able to; <ul style="list-style-type: none"> Understand the importance of soft skills in daily life like; <ul style="list-style-type: none"> Self-confidence, Self-discipline, Decision making, Critical thinking, Problem solving 	<ul style="list-style-type: none"> Group discussion and model presentation on soft skills. Speech competition among students on importance of relevant trade. 	T=2, P=3	Multimedia, computer with accessories	Classroom / Lab
Communication Skills	The students will be able to; <ul style="list-style-type: none"> Know model of communication. Understand 7C's of effective communication. Understand importance of active listening and responding. Understand the types of communication (verbal, nonverbal). Define barriers in communication. 	<ul style="list-style-type: none"> Perform role play. Group exercise through listening audio and seeing video. Carryout practice / role play among students to reflect verbal and nonverbal communication. 	T=2, P=5	Multimedia, computer with accessories	Classroom / Lab
Time management	The students will be able to; <ul style="list-style-type: none"> Understand the importance of time management; 	<ul style="list-style-type: none"> Arrange a small competition task to complete in specified time. Make a schedule 	T=1, P=2	Multimedia, computer with accessories	Classroom / Lab

	<ul style="list-style-type: none"> ✓ Professional, ✓ Personal. 	of the routine daily activities or a professional task.			
Chapter # 03 Introduction to Computer			Total 24 Period. T=4, P=20		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Introduction to Computer	The students will be able to: <ul style="list-style-type: none"> • Define computer • Define types of computer devices • Understand uses of computers. 	<ul style="list-style-type: none"> • Identify different places where computers are being used in daily life. • Identify different computing devices 	T=1 P=2	Multimedia, computer with accessories	Classroom / Lab
Components of computer	The students will be able to; <ul style="list-style-type: none"> • Know physical components of computer. • Know peripheral devices; <ul style="list-style-type: none"> ✓ Input devices ✓ Output devices 	<ul style="list-style-type: none"> • Identify input devices, • Identify output devices. • Connect peripheral devices with system. 	T=1, P=2	Multimedia, computer with accessories	Classroom / Lab
Managing Files and Folders	The students will be able to; Know basic steps for: <ol style="list-style-type: none"> 1. Creating a new folder & file. 2. Applying Cut, Copy, Paste a folder or file from one location to other. 3. Applying deletion and restoration of folder & file. 	<ul style="list-style-type: none"> • Create, Cut, copy paste, rename, and delete the file folder and shortcut. • Create folders, rename them with your classmates and create files inside these folders and rename them, copy/paste in other folders/ locations. 	T=1, P=2	Multimedia, computer with accessories	Classroom / Lab
MS Office	The students will be able to; <ul style="list-style-type: none"> • Know basic commands of MS Word and MS Excel; <ul style="list-style-type: none"> ✓ Font Formatting, ✓ Paragraph Formatting, ✓ Inserting Bullet & Numbering, 	<ul style="list-style-type: none"> • Compose letters and reports in Microsoft Word. • Create a list using bullets and numbering. • Insert a table and make Time Table. • Insert a picture and shapes. • Prepare a data 	T=1, P=14	Multimedia, computer with accessories	Classroom / Lab

	<ul style="list-style-type: none"> ✓ Inserting and managing tables, ✓ Insert picture and shapes, ✓ Row height and width. ✓ Simple formulas ✓ Cut copy and paste 	<p>sheet and adjust row and column height and width.</p> <ul style="list-style-type: none"> • Apply simple formulas of sum, multiplication and subtraction. 			
Chapter 04 Basics of Electricity			Total 63 Period. T=24, P=39		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Atoms and molecules	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Understand matter and its State. • Define atom. • Understand the structure of an atom. • Define mass, force and weight. • Define atomic number and atomic mass. • Describe element, molecule and compound. • Define unit and basic units of measurement. • Define system of units. 	<ul style="list-style-type: none"> • Draw atomic structure, calculate atomic number and atomic mass. • Visual demonstration of atom and its structure. 	T= 5, P=5	Multimedia, computer	Classroom / Lab
Charge, current and voltage	<p>The student will be able to;</p> <ul style="list-style-type: none"> • Define electrostatic charge. • Explain types of electrostatic charge with examples. • State coulomb's law. • Define Current-Voltage and resistance. • State ohms law and its mathematical formulas. • Explain relation among current voltage and 	<ul style="list-style-type: none"> • Practical demonstration of electrostatic charge. • Calculate voltage, current and resistance. 	T= 9, P= 19	Multimeter, Conductor, Rubber pad, comb, pieces of paper	Classroom / Lab

	<ul style="list-style-type: none"> resistance. Describe conductor, insulator and semi-conductor. Explain conductance. 				
Work, Energy and Power	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define Work. Define Energy and law of conservation of energy. Describe types of energy and conversion of energy from one form to other. Define electric power and its units. Understand relation between work, energy and power. Define efficiency. 	<ul style="list-style-type: none"> Demonstrate the energy conversion from one form to other. Demonstration using videos. Calculate power and efficiency. 	T= 10, P= 15	Multimedia, computer, Generator, Motor	Classroom / Lab
Chapter # 05 Basic Electrical Drawings			Total 11 Period. T=5, P=6		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Interpret drawings	<p>The students will be able to:</p> <ul style="list-style-type: none"> Know the types of electrical drawings. Understand the drawing scale. Know various electrical signs and symbols. Know the units of measurement. Understand the unit of conversion. Know the terms and abbreviations use in electrical drawings. 	<ul style="list-style-type: none"> Read the drawing scale Interpret the electrical symbols Read the instructions as per drawing. 	T=5 P=6	Electrical drawing	Classroom / Lab
Chapter # 06 Electrical Circuits			Total 50 Period. T=10, P=40		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Types of electrical circuits	<p>The students will be able to;</p> <ul style="list-style-type: none"> Explain Electric Circuits. Describe open circuit, close circuit and short circuit. Understand series, 	<ul style="list-style-type: none"> Draw and install series, parallel and compound circuits. Calculate equivalent resistance of 	T= 15 P=40	Battery, Toolkit, wiring boards, Wiring Material, light bulbs, Switches,	Classroom / Lab

	parallel and compound circuit.	parallel- and series circuits. • Measure voltage and current across parallel and series circuits.		Multimeter.	
Chapter # 07 Magnetism			Total 35 Period. T=15, P=20		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Concept and types of magnets	The students will be able to; • Define magnet and its types. • Explain magnetic poles. • Understand magnetic field and magnetic lines of force. • Define and understand electromagnet. • Define Magnetic Flux and Flux Density. • Explain magnetic field of a coil.	• Study and practically demonstrate properties of the magnet. • Demonstrate how to make an electromagnet • Use Compass. • Find direction of magnetic field.	T=15 P=20	Magnet, Battery, iron file / powder, magnetic compass,	Classroom / Lab
Chapter # 08 Measurement of electrical quantities			Total 15 Period. T=5, P=10		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Measurement of Electrical Quantities.	The students will be able to; • Define the SI units of Different electrical quantities. • Enlist electrical measurement instruments like ammeter, voltmeter, multi-meter and energy meter. • Describe the working principle of electrical measuring instruments. • Differentiate between analogue and digital meter.	• Measure current, voltage and resistance in a simple circuit.	T=5 P= 10	Analogue and digital meters.	Classroom / Lab
Chapter # 09, Alternating Current (AC) and Direct Current			Total 9 Periods. T=3, P=6		

(DC)					
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Introduction to AC & DC	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define Alternating current (AC) and its brief explanation. Define Direct current (DC) and its brief explanation. Compare AC and DC. Describe the applications of AC and DC in Pakistan. Know how to measure AC and DC with multi-meter. 	<ul style="list-style-type: none"> Record readings of current with multi-meter. 	<p>T= 3 P=6</p>	Generator, Battery, Multimeter	Classroom / Lab
Chapter # 10, Health & Safety (Personal & Occupational)			Total 15 Period. T=5, P=10		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Health, safety and environment (HS&E)	<p>The students will be able to;</p> <ul style="list-style-type: none"> Know about personal health / hygiene. Understand risk and hazards at workplace. Understand safety and its importance. List safety equipment for Individual. Workplace (PPEs). Explain necessary precautions for Individual workplace. Explain requirement and necessary steps of first aid. Describe fire extinguisher and its types. 	<ul style="list-style-type: none"> Familiarize with PPE and their usage. Demonstrate how to provide first aid in case of electrical shock. Operate fire extinguisher. 	<p>T=10 P= 15</p>	Electric PPE Kit, First aid Box, Fire Extinguisher.	Classroom / safety Lab

Middle Tech (ALP) Applied Electrician (Package-E)					
Chapter # 01, Electrical Machines			Total 30 Period. T=15, P=15		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Motors, Generators and Transformers.	The students will be able to; <ul style="list-style-type: none"> • Define and explain brief working principles of a motor. • Explain main parts of a motor. • Understand the difference between AC & DC motors. • Define and explain the working principles of a generator. • Understand parts of a generator. • Differentiate between motor and generator. • Explain uses of motors and generators. • Define transformer. • Understand the working principles of a transformer 	<ul style="list-style-type: none"> • Identify parts of motors and generators. • Identify parts of a transformer and learn their working. 	T=15 P= 15	Motor, Generator, Transformer	Classroom / Lab
Chapter # 02, Cell and Battery			Total 25 Period. T=10. P=15		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Introduction to cell and batteries	The student will be able to; <ul style="list-style-type: none"> • Define cell. • Explain the types of cells. • Explain the simple structure of dry cells. • Define battery. • Differentiate between cell and battery. • Understand series and parallel connections of cells. 	<ul style="list-style-type: none"> • Draw the structure of dry cell and lead acid cell. • Connect cells in series and parallel and measure voltage and current. 	T=10 P= 15	Battery, Cell, Bulb, wiring material	Classroom / Lab

Chapter # 03, Electrical Wiring			Total 85 Periods. T=25, P=60		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Wiring essential	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Enlist common tools of wiring. • Enlist common accessories of wiring. • Understand symbols of electrical quantities. • Understand different types of wiring. • Understand different types of cables and cable joints. • Understand circuit types. • Understand circuit breaker and its importance. • Explain simple load calculation and selection of breaker. • Explain earthing and its importance. 	<ul style="list-style-type: none"> • Make points on wiring board. • Install electrical wiring. • Install joints. • Make wire connections. • Connect with main supply. • Take measurements (current, voltage et.) with multimeter. 	T= 25 P=60	Toolkit, Wiring Board, Wiring Material,	Classroom / lab
Chapter # 04, Generation of Electricity			Total 30 Period. T=15, P=15		
Theme / Content	Student Learning Outcome	Activities / Practical	Duration	Tools / Equipment	Work place
Sources of Electricity generation	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Enlist different sources of electricity generation. • Describe different methods of electricity generation for AC and DC current. • Explain backup power sources <ul style="list-style-type: none"> - Battery - inverter - Generator • Describe solar system and its components. <ul style="list-style-type: none"> - Photovoltaic (PV) Panel. 	<ul style="list-style-type: none"> • Video demonstration of AC generation. • Demonstrate generation of DC using simple circuit with battery and solar panel. 	T= 15 P= 15	Multimedia, computer, generator, solar system, multimeter.	Classroom / Lab

	<ul style="list-style-type: none"> - Charge controller. - Battery plus inverter. 				
Chapter # 05 Team Work			Total 10 Period. T=5, P=5		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools / Equipment	Work place
Working in a team.	<p>The students will be able to;</p> <ul style="list-style-type: none"> • Define teamwork. • Understand the importance of team work. • Explain the benefits of team. 	<ul style="list-style-type: none"> • Make groups of five members each and assign tasks for team work. 	T=5 P= 5	Toolkit, wiring board, wiring material	Classroom / Lab
Ch. 06. Digital Communication and social media			Total 10 Period. T=2, P=8		
Themes	Students' Learning Outcomes	Activities	Duration	Tools	Work place
Effective email writing	<p>The student will be able to;</p> <ul style="list-style-type: none"> • Create, access and manage email account • Know how to write and respond email 	<ul style="list-style-type: none"> • Create email account. • Write an official email to school principal on subject of any importance. 	T=1, P=4	Multi media System, Internet connection	Classroom / Labs
Introduction to Social Media Platforms	<p>The student will be able to;</p> <ul style="list-style-type: none"> • Know different social media platforms: <ol style="list-style-type: none"> 1. Facebook, 2. Instagram 3. Twitter, 4. YouTube, • Understand the role of social media in marketing and business development • Define merits and demerits of social media. • Use different features of social media, face book, Instagram, whatsapp, twitter, youtube etc. • Upload/delete and 	<ul style="list-style-type: none"> • Enlist different social media platforms: <ol style="list-style-type: none"> 1. Facebook, 2. Instagram 3. Twitter, 4. YouTube, • Create a social media account 	T=1, P=4	Multi media System, Internet Connection Mobile phone	Classroom / Labs

	amend video and text on social media.				
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Chapter 7: Entrepreneurship			Total=10 Period. T=05, P=5		
Content	Students Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Introduction To Entrepreneurship	The student will be able to: <ul style="list-style-type: none"> • Know the Basic concept of Entrepreneurship. • Know the components of Entrepreneurship. • Define characteristics and qualities of Entrepreneur. • Understand the benefits and importance of Entrepreneurship. • Define a Business Idea 	<ul style="list-style-type: none"> • Group discussion and presentation on Entrepreneurship. • Assign the students a task to observe the respective locality and enlist potential business ideas and present them in class. 	T= 05, P=05	Computer and its accessories	Lab / Classroom

Basic Requirements of Lab (Tools / Equipment):**NOTE: (30 Students – 5 Groups):**

No	Name	Quantity
1	Pliers	6
2	Nose Pliers	6
3	Side Cutter Pliers	6
4	Phase Tester	6
5	Screw Driver Flat	6
6	Screw Driver Philips	6
7	Drill Machines	6
8	Drill Bits different sizes	2 sets
9	Hammer	6
10	Hack Saw	6
11	Standard wire gauge	6
12	Measuring tape	6
13	Wire stripping plier	6
14	Tri Square	6
15	Student Working Bench	30
16	Magnetic Compass	5
17	Leg Punching Machine	2
18	Almirah for Tools and Materials	2

Equipment List:

No	Name	Quantity
1	Generator (2.5 KW)	2
2	Battery (12V) 22 AH, 26 AH	2
3	Motor (AC)	2
4	Motor (DC)	2
5	Gigger	2
6	Digital Multimeter	6
7	Analogue Meter	2
8	Invertor (KW)	3
9	Solar Panel with Stands (350 / 450 W)	3
10	Charge Controller (MPPT) 12 A	2
11	LED TV (43")	1
12	Multimedia	1
13	Computer with accessories	1

Safety Equipment:

No	Name	Quantity
1	Electric PPE Kit	30
2	First Aid Box	2
3	Fire Extinguisher	2

Training Consumable:

Sr. #	Name	Quantity
1	Black Cable (1.5 mm Sq)	5 Coils
2	Black Cable (1.5 mm Sq)	5 Coils
3	Red Cable (2.5 mm Sq)	5 Coil
4	Red Cable (2.5 mm Sq)	5 Coil
5	Black DC Cable (15 A)	1 Coil
6	Red DC Cable (15 A)	1 Coil

7	Electric Board (7X4") 5 holes	50
8	Electric Board (8X 0") 7 holes	50
9	Push Button	20
11	Socket (2 pin)	100
12	Main Switches	40
13	MCB (20A)	20
14	PVC Pipe (1/2 inch)	200 Ft.
15	PVC Duct Channel (1")	200 Ft.
16	Insulation Tape	60
17	Electric Bell	5
18	Bulb (60 W)	24
19	Single Way Switch	100
20	Two Way Switch	10
21	Lamp Holder	100
22	Screw 2.5 inches	15 Packets
23	Screw .75 inches	15 Packets

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Assistant Technician

Plumbing and Solar Water Heating

Aims:

The aim of this Program is to make youth skillful who are competent to install, remove, check, repair, replace or service different types of bath room and kitchen fixtures, including solar water heating installations. In addition, this Program aims to prepare youth to find employment in the construction industries or to enable them in becoming successful as entrepreneur in future. The term used in this document is called Toll Box Talk for Specific Task.

Objectives:

After completion of training the trainees will be able to:

- Identify plumbing materials, tools, equipment and fittings materials related to plumbing.
- Handle plumbing related tools and equipment.
- Identify and apply plumbing symbols.
- Perform various bench work such as measuring, marking, cutting and filing.
- Make various sizes of threads on galvanized iron pipes.
- Join and connect G.I and PVC fittings.
- Make various types of polyethylene fittings for joining the pipes.
- Install various types of fixtures in private and public buildings.
- Replace/repair and maintain the parts of installations and fixtures.
- Prepare quantity estimates and costing.

Middle Tech (ALP) Plumbing and Solar Water Heating (Package-D)

Ch.1: Demonstrate Communication and IT skills			Theory = 14 period, Practicum = 35 period Total period: 49		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Path of Success	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define Self-Confidence • Define Value of Time • Define Decision making • Define Discipline • Describe How to Avoid Negative Thinking? • Define Creativity 	<ul style="list-style-type: none"> • Every student Prepare a speech of three minutes perform one by one in the front of the class. • Draw a Nine points in a square shape and join nine points without lifting the pencil complete in four lines 	<p>Theory = 2 period, Practicum = 3 period Total period: 5</p>	White Board Marker Led Pencil Chart	Class Room/Lab
Work in Team	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Treat team members with respect and maintain positive relationships. • Listen the instructions carefully & comply with those instructions • Provide work related information to team members and identify interrelated work activities to avoid confusion. • Adopt communication skills appropriate to 	<ul style="list-style-type: none"> • Make a team of 5 students; check the wiring of class room and lab. • Discuss the problems in team. • Make a report for the in-charge Maintenance. • Identify problems and resolve them through discussion and mutual agreement. 	<p>Theory = 2 period, Practicum = 3 period Total period: 5</p>	ICT resources, Stationary	Classroom / Lab

	work activities and company procedures				
Communication skills	The students will be able to; Know model of communication. Understand effective communication (importance of active listening and responding). Understand types of communication (verbal, non-verbal). Identify barriers in communication.	<ul style="list-style-type: none"> Perform role play and group exercises through listening audio or video documentaries. Carry out practice amongst students to reflect verbal and non-verbal communication. 	Theory = 3 period, Practicum = 6 Period. Total period;9	ICT resources, Stationary	Classroom / Lab
Deal with Clients	The students will be able to: <ul style="list-style-type: none"> Define client. Know value of client. Learn the concept of attitude and behavior. Provide clear information to client about work requirement (Cost & Time). Negotiate with client effectively (wages, time, labor requirements). 	<ul style="list-style-type: none"> Make a team of five members, two of them are service provider and rests three are client. Client requires some wiring in his office. Service provider should Collect and confirm work requirements from clients using appropriate communication procedures. Discuss about the types of cable, cost and quality. Service provider and client should negotiate on the cost. 	Theory = 2 period, Practicum = 3 period Total period: 5	ICT resources, Stationary	Classroom / Lab
Demonstrate Basic IT Skills	The students will be able to: <ul style="list-style-type: none"> Define 	<ul style="list-style-type: none"> Practice of applying different 	Theory = 5 period, Practicum	ICT resources, Stationary	Computer Lab

	<ul style="list-style-type: none"> computer. • Know input / output devices. • Create folders & save files. • learn major commands of operating system / windows. • Describe basic commands of MS Word & MS Excel. • Describe the use of internet. ✓ World wide web, ✓ Email ✓ Social media 	<ul style="list-style-type: none"> commands and tools. • Make a Detail invoice for client and send it to him by email as per following instructions. • Invoice should be saved in separate folder in your PC for further work. • Prepare invoice in excel and word both formats. 	<p>= 20 period Total period: 25</p>		
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Ch.2 Occupational Health, Safety and Safe Work Environment			Theory = 08 period, Practicum = 14 period Total period: 22		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Hazards at Workplace	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know about the personal hygiene • Define risks and Hazards at workplace. • Define safety precautions. • Describe personal protective equipment (PPE). • Understand safety symbols. 	<ul style="list-style-type: none"> • Visit Plumbing lab of your institute, • Identify potential hazards. • List PPE available and required to work there. • Recognize the required tools, equipment, PPE's and consumable material. 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	ICT Resources, Stationary, PPE, Safety symbols Charts, etc.	Classroom / Lab Work place
Observing Occupational Safety and Health (OSH)	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define importance of OSH. • Understand the importance of Keeping the 	<ul style="list-style-type: none"> • Demonstrate to wear relevant PPE. • Demonstrate first aid procedure for any victim of electric 	<p>Theory = 3 period, Practicum = 6 period Total period: 9</p>	ICT Resources, Stationary, PPE, Safety Charts, Tool box.	Classroom / Lab

	<p>work area clean and clear of obstructions, and proper cleaning & storing of tools or equipment.</p> <ul style="list-style-type: none"> • Know how to deal with problems and ensure in time reporting of the problems to the supervisor. • Describe the use of PPE's. • Explain First aid treatment methods including methods of resuscitation 	<p>current.</p> <ul style="list-style-type: none"> • Perform cleaning and clearance of work area. • Demonstrate the storing of tools and equipment. 			
Fire Extinguisher	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define fire extinguisher • Explain the types of fire extinguishers and their uses. 	<ul style="list-style-type: none"> • Check the expiry date. • Operate fire extinguisher. • Perform cleaning and storing of PPE's. 	<p>Theory = 2 period, Practicum = 3 period Total period: 5</p>	Fire Extinguisher	Classroom / Lab

Ch.3 Introduction to plumbing.			Theory = 07 period, Practicum = 06 period Total period: 13		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Plumbing & its Importance	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define Plumbing. • Knows the basics of plumbing • Understand the purpose of plumbing. • Know the importance of plumbing. 	<ul style="list-style-type: none"> • Recognition of existing fixtures. • Describe the basics of plumbing 	<p>Theory = 04 period, Practicum = 04 period Total period: 08</p>	Multimedia or LED TV with good sound system Tool Box	Classroom / Plumbing Lab

Types of Plumbing	The students will be able to; <ul style="list-style-type: none"> Define types of plumbing Understand the different sections of plumbing system. 	<ul style="list-style-type: none"> Describe different types of plumbing. Identify different types of plumbing systems at your institute. 	Theory = 03 period, Practicum = 02 period Total period: 05	Multimedia or LED TV with good sound system Tool Box	Classroom / Plumbing Lab
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Ch.4 Plumbing Tools and Equipment.			Theory = 15 period, Practicum = 40 period Total period: 55		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction and use of Plumbing tools	The students will be able to: <ul style="list-style-type: none"> Identify Plumbing tools. Know different types of Plumbing Tools. Know the purpose and application of plumbing tools safely & correctly. Define tools insulation. Know cleaning and proper storing of plumbing tools. 	<ul style="list-style-type: none"> Identify measuring tools, Identify marking tools, Identify cutting tools, Identify threading tools, Identify fixing tools. Demonstration of tool box and the use of plumbing tools. Chip removal forming process Chip-less forming process Use of plumbing tools Adopt Safety precautions during tool and instrument use. Introduce Consumables Demonstrate types of insulation and their use. Exercise 	Theory = 5 period, Practicum = 10 period Total period: 15	PPE's Chalk Sketch Book Measuring Tape Plumbing Tool Box (Pipe Wrenches Adjustable Wrenches Pliers set Hammer Chisel set Measuring scales Tri square Marker etc.)	Classroom / Plumbing Lab

		<p>storage of tools.</p> <ul style="list-style-type: none"> • Perform counting and tagging tools. 			
Introduction and use of Plumbing equipment	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Enlist plumbing equipment. • Know different types of plumbing equipment • Know the purpose and application of plumbing equipment safely & correctly. • Define the maintenance of plumbing equipment. • Know cleaning and proper storing of plumbing equipment. 	<ul style="list-style-type: none"> • Identify plumbing equipment. • Demonstrate safe use of equipment • Demonstrate equipment maintenance. • Practice the use of different types of plumbing equipment. • Demonstration of cleaning and storing of plumbing equipment. 	<p>Theory = 5 period, Practicum = 15 period Total period: 20</p>	<p>PPE's Chalk Measuring Tape Marker Sketch Book Drill Machine Hand grinder welding machine PPR Heater Universal thread cutting die machine etc.</p>	<p>Classroom / Plumbing Lab</p>
Welding Operations	<p>Student will be able to:</p> <ul style="list-style-type: none"> • Define welding operation • Describe welding principle. • Describe safe welding operation. • Define materials used in welding 	<ul style="list-style-type: none"> • Demonstrate safety precautions during welding operation. • Practice welding Operation. • Demonstrate welding requirements. 	<p>Theory = 5 period, Practicum = 15 period Total period: 20</p>	<p>Welding Machine / plant Welding rods Welding shield Hammer Steel Tape Steel edge Tri square Measuring scales</p>	<p>Classroom / Plumbing Lab</p>
Ch.5 Introduction to Pipes and Fittings			<p>Theory = 18 period, Practicum = 31 period Total period: 49</p>		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place

Introduction to G.I pipes	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define GI Pipes • Define different gauges and sizes of G.I pipes. 	<ul style="list-style-type: none"> • Identify G.I pipes • Identify different gauges / sizes of G.I pipes. 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	<p>Multimedia or LED TV with good sound system. GI Pipes (different sizes)</p>	<p>Classroom / Plumbing Lab</p>
Introduction to G.I fittings.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define GI fittings. • Describe names and sizes of GI fittings. 	<ul style="list-style-type: none"> • Demonstration of all fittings. • Recognized G.I fittings by their names and sizes. • Make sketches of all fittings. 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	<p>All G.I fittings including male and female fittings.</p>	<p>Classroom / Plumbing Lab</p>
Introduction to PVC pipes.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define PVC pipes. • Know types of PVC pipes • Define basic principles for using PVC pipes. 	<ul style="list-style-type: none"> • Identify P.V.C pipes for a plumbing project. • Identify PVC pipes applicable to a specific plumbing project. • Group Discussion on basic principles of PVC pipes. 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	<p>Multimedia or LED TV with good sound system. PVC Pipes</p>	<p>Classroom / Plumbing Lab</p>
Introduction to PPRC, HDPE pipes.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define PPRC & HDPE pipes with sizes. • Describe PPRC, HDPE pipes applicable to a specific plumbing project. • Define basic principles for using PPRC, HDPE pipes. 	<ul style="list-style-type: none"> • Identify PPRC, HDPE pipes and sizes. • Group Discussion on basic principles of PPRC, HDPE pipes are observed. 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	<p>Multimedia or LED TV with good sound system.</p>	<p>Classroom / Plumbing Lab</p>
Purpose of PPRC, HDPE pipes	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define the uses of PPRC, HDPE pipes • Describe the difference between PPRC and PVC pipes • Know the advantages and disadvantages of 	<ul style="list-style-type: none"> • Group Discussion and presentation on basic uses of PPRC, HDPE pipes • Differentiate between PPRC, HDPE and PVC 	<p>Theory = 3 period, Practicum = 6 period Total period: 9</p>	<p>Multimedia or LED TV with good sound system.</p>	<p>Classroom / Plumbing Lab</p>

	PPRC, HDPE pipes.	pipes.			
Introduction to PVC, PPRC, HDPE pipe fittings	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define PVC, PPRC, HDPE fittings with their sizes. Describe names of PVC, PPRC, HDPE fittings. Describe PVC, PPRC, HDPE fittings (male and female parts). 	<ul style="list-style-type: none"> Demonstration of all fittings. Recognized fittings by their names with sizes. Make sketches of all fittings. 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	All G.I fittings including male and female fittings.	Classroom / Plumbing Lab
Ch. 6 Plumbing symbols and Drawings			Theory = 20 period, Practicum = 20 period. Total period: 40		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to Plumbing symbols.	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define plumbing symbols. State types of plumbing symbols. Understand plumbing symbols. State the importance of symbols in plumbing drawing. 	<ul style="list-style-type: none"> Demonstrate plumbing symbols. Draw plumbing symbols and named them. 	<p>Theory = 5 period, Practicum = 5 period Total period: 10</p>	PPE's Chalk Measuring Tape Charts, marker, stationary	Theory Classroom Practical Lab Workshop
Introduction to Plumbing Drawings	<p>The students will be able to;</p> <ul style="list-style-type: none"> Describe layout drawings/diagrams. 	<ul style="list-style-type: none"> Interpret plumbing drawings / diagrams. 	<p>Theory = 5 period, Practicum = 5 period. Total period =10</p>	Layout Drawings	Classroom / Lab
Cost / Estimation of Materials	<p>The student will be able to;</p> <ul style="list-style-type: none"> Understand the importance of estimation. Plan the work as per drawing / diagram. Identify & quantify the required materials as per job specifications and drawing. Calculate cost of materials. 	<ul style="list-style-type: none"> Perform Estimation of material as per drawing by following below mentioned instructions. Enlist the required material. Estimate Material Cost. Calculate 	<p>Theory = 5 period, Practicum = 5 period. Total period =10</p>	Plumbing Drawings, Calculators, Map measuring Tools, Computer.	Classroom / Lab

	<ul style="list-style-type: none"> Know the standard formats of preparing estimates. 	<p>Transportation Cost.</p> <ul style="list-style-type: none"> Present the cost estimate to the client or supervisor. 			
Calculating Labour Cost	<p>The student will be able to;</p> <ul style="list-style-type: none"> Define labor Cost. Know the concept of minimum wages. Describe method of calculating labor cost. 	<ul style="list-style-type: none"> Calculate hours required for completing the task in accordance with the job requirements. Perform Estimation of Labour cost for the provided drawing. 	<p>Theory = 5 period, Practicum = 5 period. Total period =10</p>	<p>Plumbing Drawing, Calculators, Computer.</p>	<p>Classroom / Lab</p>

Chapter 7: Entrepreneurship			Total=20 Period. T=11, P=9		
Content	Students Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Introduction To Entrepreneurship	<p>The student will be able to:</p> <ul style="list-style-type: none"> Know The Entrepreneurship. Know the Basic concept of Entrepreneurship. Know the components of Entrepreneurship. Understand the importance of Entrepreneurship. 	<ul style="list-style-type: none"> Group discussion and presentation on Entrepreneurship 	<p>Theory = 5 period, Practicum = 5 period Total period: 10</p>	<p>Computer and its accessories</p>	<p>Lab / Classroom</p>
Generating a Business Idea.	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Define Business Idea. Describe their region assets that foster entrepreneurship. Describe a number of business ideas 	<ul style="list-style-type: none"> Assign the students a task to observe the respective locality and enlist potential business ideas and present them in class. Videos playing, 	<p>Theory = 6 period, Practicum = 04 period Total period: 10</p>	<p>Computer and its accessories</p>	<p>Lab / Classroom</p>

	that can be carried out by a group or an individual in catchment area of school.				
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Middle Tech (ALP) Plumbing and Solar Water Heating (Package-E)

Ch.1 Measuring, Marking, cutting and filing.			Theory = 13 period, Practicum = 33 period Total period: 46		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Measure plumbing pipes, fittings and fixture	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define different types of measurements. • Define diameter. • Define linear measurement. • Define measuring tool for plumbing. • Understand the importance of measuring tools. • Understand the use of measuring tools as per job requirement / plumbing work. • Know the support interval for different dia. PPR & PVC pipes. 	<ul style="list-style-type: none"> • Measure the length of pipes. • Measure the internal and external diameter (dia) of given fittings, PPR and PVC pipes. • Perform different types of measurement according to a plumbing drawing. 	<p>Theory = 5 period, Practicum = 10 period Total period: 15</p>	PPEs, Measuring tape. Steel scale. Plumb bob. Angle measuring tools Inside and outside calipers. Venires calipers	Class Room / Plumbing Lab.
Marking of Pipes and fixtures	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define marking. • Know the use of correct tools for marking as per jobs requirement. • Know work piece according to job requirement. 	<ul style="list-style-type: none"> • Mark the dimension as per drawing. • Mark the specified length on pipes. • Mark the pipe for cutting as per drawing. • Mark the position of fixture on site for its installation. • Mark the position of Basin and 	<p>Theory = 2 period, Practicum = 5 period Total period: 07</p>	PPEs. Measuring tape. Marking tool. Cloth duster. Pencils. Angle measuring tools.	Class Room / Plumbing Lab

		Shower as per given drawing.			
Cutting of pipes	The students will be able to: <ul style="list-style-type: none"> • Define cutting tools. • Understand appropriate tool for cutting of different types of pipes. • Know the cutting procedures of pipes and deburring. 	<ul style="list-style-type: none"> • Perform cutting of pipes of different materials. • Cut the PPRC pipes of given size. • Cut the PVC pipes as per drawing. • Cut the GI pipes. • Perform deburring. 	Theory = 2 period, Practicum = 8 period Total period: 10	PPEs, Measuring tape, Pipes, Pipe cutter, Hacksaw, miter saw, wooden saw, pocket knife, pipe cutter, Deburrer, vice.	Class Room / Plumbing Lab
Perform Filing	The students will be able to; <ul style="list-style-type: none"> • Define filing. • Define different types of files. • Know the correct use of filing tool as per job requirement. • Understand the method of using files. 	<ul style="list-style-type: none"> • Identify different types of files. • File the work piece using appropriate file. 	Theory = 2 period, Practicum = 5 period. Total period:7	Triangle half, round file, square file, needle file, pe file, wooden file, bench vice, pipe vice,	Class Room / Plumbing Lab
Perform Leveling	The students will be able to; <ul style="list-style-type: none"> • Define leveling of fixtures. • Know leveling tools. • Describe leveling techniques. 	<ul style="list-style-type: none"> • Demonstration and practice of using spirit level and plumb bob. 	Theory = 2 period, Practicum = 5 period. Total period:7	Spirit level, plumb bob	Class Room / Plumbing Lab

Ch.2 Installation, Fitting and Excavation			Theory = 5 period, Practicum = 15 period Total period: 20		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Plan and prepare for work	The students will be able to: <ul style="list-style-type: none"> • Define Safety 	<ul style="list-style-type: none"> • Identify and interpret safety and 	Theory = 3 period,	Safety Gloves. Safety	Theory Classroom Practical

	<p>techniques.</p> <ul style="list-style-type: none"> Describe work preparation as per job requirement / provided plumbing drawing. 	<p>other regulatory requirements</p> <ul style="list-style-type: none"> Perform measurements Identify and select the tools and equipment for work Interpret and confirm layout plan Mark out excavation Perform marking according to the drawing. 	<p>Practicum = 5 period Total period: 8</p>	<p>Helmets Safety Belts. Industrial mask. Tool Box. Barricade Tape. Reporting Book. Recordkeeping Book.</p>	<p>Lab Workshop</p>
<p>Excavate according to plan</p>	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define safety, hazards and risks. Describe excavation procedures and techniques related to plumbing work Define waste disposal procedures. 	<ul style="list-style-type: none"> Identify Risk and hazard. Perform excavation Install trench support Clean up and store tools, equipment and materials Perform safety precautions during excavation. Demonstrate methods of trench support Perform excavation for plumbing wiring in ground and walls. Perform waste disposal procedures Perform care of tools and equipment 	<p>Theory = 2 period, Practicum = 10 period Total period: 12</p>	<p>Safety Gloves. Safety Helmets Safety Belts. Industrial mask. Tool Box.</p>	<p>Theory Classroom Practical Lab Workshop</p>

<p>Ch.3 Jointing of pipes and Fittings</p>			<p>Theory = 14 period, Practicum = 39 period Total period: 53</p>		
<p>Theme/Content</p>	<p>Student Learning Outcome</p>	<p>Activities/Practical</p>	<p>Duration</p>	<p>Tools</p>	<p>Work place</p>

Thread Cutting	The students will be able to; <ul style="list-style-type: none"> Define GI pipe threading. Know the tools for threading. Know threading techniques. 	<ul style="list-style-type: none"> Fix work piece for threading. Fix cheesier in threading die. Perform external threading on G.I pipe. Perform cleaning and lubrication of Die. 	Theory = 5 period, Practicum = 15 period. Total period = 20	Plumbing plier. Plumbing wrench. Plumbing spanners. Threading tools.	Class Room/ Plumbing Lab
Reaming	The students will be able to; <ul style="list-style-type: none"> Define GI pipe reaming. Know the tools for reaming. Know reaming techniques. 	<ul style="list-style-type: none"> Fix work piece for reaming. Perform reaming on different diameter of pipes. 	Theory = 2 period, Practicum = 5 period. Total period = 7	Plumbing plier. Plumbing wrench. Plumbing spanners. Reamers.	Class Room/ Plumbing Lab
Types of joints and their uses.	The students will be able to: <ul style="list-style-type: none"> Know about joint types and their uses such as socket joint, union joint, threaded joint, coupling joint, long thread joint, Flange joints and welded joint. Describe the uses of joints according to materials of pipes and nature of material flowing in pipes. Knows about joint gaskets, packing material and jointing materials. 	<ul style="list-style-type: none"> Practice on all types of joints. Practice on making joints of G.I Pipe such as socket, union, thread, coupling, long thread, Flange and welding joints. Practice on all joint types such as socket joint long threading and coupling joint. Practice with wrapping tap, threading and packing material for leak proof joint. 	Theory = 3 period, Practicum = 5 period. Total period: 8	G.I pipes, G.I fitting tools. Pipe wrenches. Adjustable wrenches. <ul style="list-style-type: none"> Pipe vice. G.I pipe pieces with threading at ends. Sockets, couplings pipe wrench. Screw wrench. Pipe vise. Insulating material 	Class Room/ Plumbing Lab

G.I Pipe joint with union.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define union and its uses. • Understand jointing with union and importance of union joint. 	<ul style="list-style-type: none"> • Practice on G.I pipe with union fitting. • Practice union fitting on fixed line. • Practice with flange joint and gasket. 	<p>Theory = 1 period, Practicum = 2 period Total period: 3</p>	<p>G.I pipe pieces with threading at ends. Union flange joint with gasket. pipe wrench Screw wrench. Pipe wise.</p>	<p>Class Room/ Plumbing Lab</p>
Check leakage in domestic G.I pipe line.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Understand the importance of joints and damages caused by leakage. • Know the procedure of detection of leakage in joints. 	<ul style="list-style-type: none"> • Detect leakage in joints. 	<p>Theory =1 period, Practicum = 2 period Total period: 3</p>	<p>All fittings used in jointing and packing material . Pressure Pump</p>	<p>Class Room/ Plumbing Lab</p>
Jointing plastic Pipes (PVC, PPRC)	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define procedure to remove required diameter heating sockets with heater. • Define procedure to join pipes and cool the joint. • Know to join plastic Pipes. 	<ul style="list-style-type: none"> • Select appropriate heater for supplied pipes and fitting. • Fix and remove required diameter heating sockets with heater. • Join the PPRC pipes system. • Join the PVC pipes system. • Join plastic Pipes. 	<p>Theory = 2 period, Practicum = 10 period Total period: 12</p>	<p>PPEs. Drill machine . Screw wrench. Screw driver. Chisel. Hammer. Steel Tape. PPR heater set. Spanner set.</p>	<p>Class Room / Plumbing Lab</p>

Ch.4 Fixtures			Theory = 11 period, Practicum = 25 period Total period: 36		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction and installation of fixtures	<p>The students will be able to:</p> <ul style="list-style-type: none"> Understand meanings of sanitary installation and fixtures fittings. Understand the importance of appliances. Change fixtures. Understand the working procedures of different fixtures. 	<ul style="list-style-type: none"> Presentations about concept of different fixtures used for sanitation. Groups' discussion / exercises about sanitation fixtures Differentiate between appliances and fixtures. 	<p>Theory = 3 period, Practicum = 3 period Total period: 6</p>	Multimedia or LED TV with good sound system. Computer Whiteboard with markers.	Classroom / Plumbing Lab
Install W.C. (Indian & English)	<p>The students will be able to:</p> <ul style="list-style-type: none"> Identify W.C. Installation procedure of W. Cs (Indian and English). 	<ul style="list-style-type: none"> Locate place Fix trap Fix W.C. Check Level Practice for Installation of W. Cs (Indian & English) 	<p>Theory = 2 period, Practicum = 5 period Total period: 7</p>	Multimedia or LED TV with good sound system. Pipe Wrench. Screw driver. Screw wrench. PPEs. Threading Die. Cutter. Plier. Drill Machine.	Classroom / Plumbing Lab
Install Sink.	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define Sink. Describe installation procedure of sink. 	<ul style="list-style-type: none"> Identify Sink. Locate place Fix stands in wall Fix bolt kits Check Level Practice for Installation of Sink. 	<p>Theory = 2 period, Practicum = 5 period Total period: 7</p>	Multimedia or LED TV with good sound system. Pipe Wrench. Screw driver. Screw wrench. PPEs. Threading Die.	Classroom / Plumbing Lab

				Cutter. Plier. Drill Machine.	
Install wash hand basin	The students will be able to: <ul style="list-style-type: none"> Define wash basin Describe installation procedure of wash basin. 	<ul style="list-style-type: none"> Identify wash hand basin Locate position for installation Perform installation of wash basin 	Theory = 1 period, Practicum = 5 period Total period: 6	Multimedia or LED TV with good sound system. Pipe Wrench. Screw driver. Screw wrench. PPEs. Threading Die. Cutter. Pliers. Drill Machine.	Classroom / Plumbing Lab
Introduction to waste water fittings	The students will be able to: <ul style="list-style-type: none"> Know about meanings for waste water sanitary fittings. Understand the importance of fitting. Understand the working procedures of different fittings. 	<ul style="list-style-type: none"> Presentations about concept of different waste water fittings Groups' discussion / exercises about waste water fittings. Differentiate between fittings used in different places. 	Theory = 3 period, Practicum = 07 period Total period: 10	Multimedia or LED TV with good sound system.	Classroom / Plumbing Lab

Ch.5 Maintenance & troubleshoot			Theory = 6 period, Practicum = 15 period Total period: 21		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Inspect and troubleshoot systems	The students will be able to: <ul style="list-style-type: none"> Define key safety hazards associated with troubleshooting Describe the procedures for 	<ul style="list-style-type: none"> Identify Hazards in a given situation. Demonstrate different kinds of Troubleshooting. 	Theory = 3 period, Practicum = 5 period Total period:	Tool box,	Theory Classroom Practical Lab Workshop

	<p>preventive maintenance</p> <ul style="list-style-type: none"> Define system fault 	<ul style="list-style-type: none"> Demonstrate the Identification of faults by checking shape and size of parts. 	8		
Conduct maintenance	<p>The students will be able to:</p> <ul style="list-style-type: none"> Describe the key hazards associated with maintenance Describe minor adjustments. Know dismantling procedures of faulty parts. Describe replacing and repairing procedures Define commissioning procedures. 	<ul style="list-style-type: none"> Identify safety, hazards and other regulatory requirements during maintenance. Identify worn out or damaged parts Replace worn out or damaged parts Clean plumbing tools after use. 	<p>Theory = 3 period, Practicum = 10 period Total period: 13</p>	<p>G.I pipe pieces with threading at ends. Sockets, couplings. pipe wrench. Screw wrench. Pipe wise. Insulating material. Tool box.</p>	<p>Theory Classroom Practical Lab Workshop</p>

Ch.6 Introduction to solar water heating			Theory = 9 period, Practicum = 11 period Total period: 20		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Benefits of solar water heating	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define solar water heating system. Describe the purpose of solar water heating system. Describe the importance of solar water heating system. State the parts of solar water heating system. Define application of solar water heating system. 	<ul style="list-style-type: none"> Prepare basic flow diagram of existing solar water heating system. Identify components used in solar water heating system. 	<p>Theory = 4 period, Practicum = 4 period Total period: 8</p>	<p>Complete water heating system Tool box</p>	<p>Theory Classroom Practical Lab Workshop</p>

<p>Merits and demerits of solar water heating system</p>	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Describe advantages of solar water heating system • Describe disadvantages of solar water heating system 	<ul style="list-style-type: none"> • Group discussion regarding benefits of solar water heating system 	<p>Theory = 2 period, Practicum = 2 period Total period: 04</p>	<p>Multimedia or LED TV with good sound system. Facemask Handkerchief.</p>	<p>Class Room / Plumbing Lab.</p>
<p>Outline solar water heating system fundamentals</p>	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Describe hazards associated with solar water heating installation and maintenance • Define the term 'solar thermal' • Describe the basic function of domestic solar water heating • Enlist components of solar water heating system. 	<ul style="list-style-type: none"> • Identify hazards associated with solar water heating installation and maintenance • Identify the components in a solar water heating system • Distinguish between different water heating systems 	<p>Theory = 3 period, Practicum = 5 period Total period: 8</p>	<p>Complete water heating system. Tool box.</p>	<p>Theory Classroom Practical Lab Workshop</p>

Basic Requirements for Lab (Tools/Equipment):

Sr. #	Name	Quantity
1	Adjustable wrench 6",8",12"	
2	Pipe Bender Machine Hydraulic complete set	
3	Chisel set	
4	Trowel	
5	Electric Drill machine (hammering)3/4"	
6	Die (Ratchet), Die Fix 1/2,3/4,1,2	
7	Tape and die	
8	Extension board 10-meter 2 core	
9	First Aid box	
10	Gloves lather, rubber	
11	Safety goggles Plastic, glass	
12	Hand Electric Grinder Electric Wall Cutter	
13	Grip plier 10"	
14	Hammer 250gm,500gm,1000gm,1500gm,2000gm	
15	Hand bit ¼", 3/8"	
16	Helmet ABS Material	
17	Hacksaw 12" with blade	
18	Spirit Level 6",12",8"	
19	L-key set Star L key Set	
20	Measuring tape 3meter ,10 meter	
21	Pipe wrench ,10",12",14",18"	
22	Plier	
23	Long nose plier.	
24	Pipe cutter (½" - 2")	
25	PPRC Heater 750W to 1000W	
26	PPR cutter	
27	G.I cutter	
28	Tubing cutter	
29	Safety boots (Shoes)	
30	Screw driver set (6",8",10",12")	
31	Spanner set (6mm to 24mm)	
32	Line testing pump (leakage) (Hand type)	
33	Tools box iron+3 draws	
34	Torch Chargeable	
35	Vice with iron stand(2nos)	
36	Compass Spring type 8"	
37	Solar Water Heater (Complete Set) Different denominations with different types i.e., pressurized and gravity based thermosyphon.	
38	Water Filling Pumps Centrifugal pump ½" Reciprocating 1/2	
39	Pipe Insulation Material	
40	Caulking tools.	
41	Ladle	
42	Melting pot.	
43	Bench Vice 5" with bench	
44	Oil Can	
45	Center Punch	
46	Hand bit tool	
47	Wire Brush	
48	Broom	

49	Vernier caliper	
50	Hand grinder	
51	Pipe Reamer	
52	Gi Pipe (½",3/4",1")	
53	Gi fitting ½",3/4",1" (Elbow, tee, socket etc.)	
54	PPRC pipe 25mm,32mm	
55	PPRC fitting 25mm,32mm	
56	PVC pipe 2",3",4"	
57	UPVC 2",3",4"	
58	P trap 4"	
59	Solution PVC	
60	All types of valves ½",3/4",1"	
61	Plastic Pipe ½",3/4",1"	

Curriculum Development, Review and Validation Committee:

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Heating, Ventilation, Air Conditioning & Refrigeration (HVACR)

Aims:

- Provide students with a smooth transition to work.
- Develops job-readiness & enhance students' trade-specific employable skills and provide opportunities for the development of new skills.
- Provide students with the opportunity to obtain from Level I -II technical training certification or equivalent in a given trade.
- To set high profile standard professions for the industry to generate standard outputs.
- To validate an individual skill, knowledge and understanding regarding relevant occupations.
- Provide flexible pathways and progressions in training and assessment field.

Objectives:

After completing this, the students will be able to:

- Perform routine skilled and semi-skilled tasks to carry out a variety of HVACR installations.
- Repair of equipment, facilities and system.
- Perform maintenance jobs and assist other team members in the assigned preventive maintenance.
- Perform their duties in an efficient manner.
- Establish a standardized and sustainable system of Refrigeration and Air conditioning training in the institutes / colleges / schools of Pakistan.
- Improve the professional competence of Refrigeration and Air conditioning industry.

Middle Tech (ALP) HVACR (Package-D)					
Ch.01: Communication and IT skills			Theory = 12, Practicum = 35 Contact Periods:47		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Path of Success	The students will be able to: <ul style="list-style-type: none"> Define Self-Confidence Define Value of Time Define Decision Power Define Discipline Define How to Avoid Negative Thinking? Define Creativity 	<ul style="list-style-type: none"> Every student Prepare a speech of three minutes perform one by one in the front of the class. Draw a Nine points in a square shape and join nine points without lifting the pencil complete in four lines. 	T=2 P= 3 Total= 5	White Board Marker Led Pencil Chart	Class Room/Lab
Work in Team	The students will be able to: <ul style="list-style-type: none"> Treat team members with respect and maintain positive relationships. Listen the instructions carefully & comply with those instructions Provide work related information to team members and identify interrelated work activities to avoid confusion. Know communication skills appropriate to work activities and company procedures 	<ul style="list-style-type: none"> Make a team of 5 students; check the wiring of class room and lab. Discuss the problems in team. Make a report for the in-charge Maintenance. Identify problems and resolve them through discussion and mutual agreement. 	T= 2 P= 3 Total= 5	ICT resources, Stationary	Classroom / Lab
Effective Communication	The students will be able to; <ul style="list-style-type: none"> Know model of communication . Understand effective 	<ul style="list-style-type: none"> Perform role play and group exercises through listening audio or video documentaries. 	T=3, P=6 Total=9	ICT resources, Stationary	Classroom / Lab

	<p>communication (importance of active listening and responding).</p> <ul style="list-style-type: none"> • Understand types of communication (verbal, non-verbal). • Identify barriers in communication. 	<ul style="list-style-type: none"> • Carry out practice amongst students to reflect verbal and non-verbal communication. 			
Deal with Clients /	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define client. • Know value of client. • Learn the concept of attitude and behavior. • Provide clear information to client about work requirement (Cost & Time). • Negotiate with client effectively (wages, time, labor requirements). 	<ul style="list-style-type: none"> • Make a team of five members, two of them are service provider and rests three are client. • Client requires some wiring in his office. • Service provider should Collect and confirm work requirements from clients using appropriate communication procedures. • Discuss about the types of cable, cost and quality. • Service provider and client should negotiate on the cost. 	<p>T=2, P=3 Total=5</p>	<p>ICT resources, Stationary</p>	<p>Classroom / Lab</p>
Demonstrate Basic IT Skills	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define computer. • Know input / output devices. • Create folders& save files. • learn major commands of operating system / windows. 	<ul style="list-style-type: none"> • Practice of applying different commands and tools. • Make a Detail invoice for client and send it to him by email as per following instructions. • Invoice should 	<p>T= 3 P= 20 Total= 23</p>	<p>ICT resources, Stationary</p>	<p>Computer Lab</p>

	<ul style="list-style-type: none"> • Demonstrate basic commands of MS Word & MS Excel. • Explain the use of internet. 	<ul style="list-style-type: none"> • be saved in separate folder in your PC for further work. • Prepare invoice in excel and word both formats. 			
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Ch.02: Occupational Health, Safety and Safe Work Environment			Theory = 8. Practicum = 14. Contact Periods: 22.		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Hazards at Workplace	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define risks and Hazards at workplace. • Define what might be harmed (potential hazards) at workplace. • Define safety precautions. • Describe PPE's • Understand safety symbols. 	<ul style="list-style-type: none"> • Visit HVACR lab of your institute, • Identify potential hazards. • Identify PPE available and required to work there. • Recognize the required tools, equipment and consumable material. 	T= 3 P= 5 Total 8	ICT Resources, Stationary, PPE, Safety Charts, screw driver set, Multimeter etc.	Classroom/ Lab Workplace
Observing Occupational Safety and Health (OSH)	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define importance of OSH. • Describe health and safety precautions and other relevant guide lines & symbols. • Understand the importance of Keeping the work area clean and clear of obstructions, and proper cleaning & storing of tools or equipment. • Know how to deal with problems and ensure in time reporting of the problems to the supervisor. • Define First aid treatment methods including methods of resuscitation 	<ul style="list-style-type: none"> • Demonstrate first aid procedure for any victim of electric current. • Perform cleaning and storing of tools / equipment. • Demonstrate the use of PPE's. • Keep work area clean and clear of obstructions. 	T= 3 P= 6 Total= 9	ICT Resources, Stationary, PPE, Safety Charts, screw driver set, Multimeter Tool box	Classroom/ Lab

Fire Extinguisher	The students will be able to: <ul style="list-style-type: none"> Define fire extinguisher. Describe the types of fire extinguishers and their uses. 	<ul style="list-style-type: none"> Check the expiry date. Operate fire extinguisher. Perform cleaning and storing fire extinguishers 	T= 2 P= 3 Total= 5	Fire Extinguisher	Classroom / Lab
Ch. 03: Introduction to HVACR			Total=34, T=13, P=21		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Basic Concept of HVACR	The students will be able to; <ul style="list-style-type: none"> Define HVACR. Describe scope of HVACR. Comprehend the importance of HVACR. 	<ul style="list-style-type: none"> Arrange introductory visit of HVACR Lab. Play Introductory videos on HVACR. Enlist Components of HVACR. Individual presentations on HVACR importance / use. 	T=3, P=4. Total=7	HVACR Lab	Classroom / Lab
Sources of HVACR	The students will be able to; <ul style="list-style-type: none"> Define HVACR sources. Explain the importance of HVACR sources. 	<ul style="list-style-type: none"> Demonstrate various sources of HVACR 	T=1, P=2 Total=3	Computer with accessories.	Classroom / Lab
Refrigeration and Air Conditioning.	The students will be able to; <ul style="list-style-type: none"> Define refrigeration. Define types of refrigeration. Define air conditioning. Define types of air conditioning. Differentiate between refrigeration and air conditioning. 	<ul style="list-style-type: none"> Demonstrate air conditioning circuits. Demonstrate refrigeration circuits. 	T=3 P=3 Total=6	Computer with accessories. Air conditioning and refrigeration circuits.	Classroom / Lab
Tools & Equipment	The students will be able to; <ul style="list-style-type: none"> Enlist HVACR tools. Enlist HVACR equipment. Know the functions of HVACR tools and equipment. 	<ul style="list-style-type: none"> Visit HVACR lab and identify tools and equipment. Perform cleaning of different tools and equipment. Perform storage of tools and equipment. 	T=2 P=6	HVACR Tools & Equipment.	Classroom / Lab

Arrange Tools / Material for a specific Job	The students will be able to; <ul style="list-style-type: none"> Understand the Identification & Collection of tools and material as per job requirement. Learn how to prepare workplace for the job / task. 	<ul style="list-style-type: none"> Prepare Layouts / Drawing / circuit diagram for job /task. Practical demonstration & practice of identification, collection and preparation of tools, materials and workplace by providing different kinds of tasks. Arrange backup resources for lighting, power and safety purposes as per job requirement. 	T=4. P=6. Total=10.	PPEs, Tools and equipment for HVACR Trade	Classroom / Lab
Ch. 04: Basic Electrical Operations			Theory: 14, Practicum: 20 Contact Periods: 34		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Basic Concept of Electricity	The students will be able to: <ul style="list-style-type: none"> Define electricity. Differentiate electrical and electronics. Define current, voltage & resistance and their units. Define conductor, semi-conductor, insulator and capacitor. Understand electrical symbols. 	<ul style="list-style-type: none"> Identify electrical symbols. Measure electrical current voltage resistance and power with multi-meter. 	T= 7 P=10 Total=17	Resister, battery, capacitor, multi meter.	Classroom / Lab.
Introduction to materials	The students will be able to; <ul style="list-style-type: none"> Know about accessories and their types used in HVACR. Describe the types of electrical conduits, casing and capping etc.; <ul style="list-style-type: none"> ✓ their applications, ✓ their cutting / jointing / fixing 	<ul style="list-style-type: none"> Video playing, Material demonstration. Identify different types of accessories and their symbols. Demonstrate electrical conduits, casing and capping etc.; their cutting, jointing & fixing. 	<ul style="list-style-type: none"> T=7 P=10 Total=17 	HVACR Accessories, Electrical Conduits, Insulation material, earth electrode,	

	<p>methods</p> <p>Define types of electrical wires / cables and their ratings (gauges /sizes).</p> <ul style="list-style-type: none"> Define the types of insulation materials used in electrical installations. Define types of earth electrodes and their applications. Define types of electric control and protective switchgear and accessories used in electrical circuits. 	<ul style="list-style-type: none"> Measure gauges of electrical wires/cables. 		<p>electrical control and protective switchgear, different types of wires and cables.</p>	
Ch. 05: PVC Cable Joints and Constructing Electrical Test Box			Theory: 15, Practicum: 33		
			Contact Periods: 48		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Make different types of joints	<p>The students will be able to:</p> <ul style="list-style-type: none"> Describe the procedure of removal and cleaning of insulation from conductors. Describe the procedure of twist and over lay the conductors Describe the procedure of making simple twist joint of PVC cable No.1/0.044 Describe the procedure of making married joint of PVC cable No 7/0.036 or 7/0.029 Describe the procedure of making pigtail joint of PVC Cable No 1/0.044. Describe the procedure of making "tee" joint of PVC Cable No 7/0.036 or 7/.029 Describe the procedure of splicing the conductors 	<ul style="list-style-type: none"> Demonstrate and practice the: <ol style="list-style-type: none"> Removal and cleaning of insulation, Twisting of conductors, Twist joint, Married joint, Pigtail joint, Tee joint, Splicing and soldering, Insulation. 	<p>Theory: 05.</p> <p>Practical : 09.</p> <p>Total: 14.</p>	<p>Personal Protective Equipment (PPE). Combination Plier. Electrician Knife. AVO Meter (Multi Meter). Cables. Insulation tape.</p>	<p>Classroom / Lab</p>

	<p>smoothly & properly</p> <ul style="list-style-type: none"> • Describe the procedure of soldering. • Describe the procedure of Insulation. 				
Construct an electrical Test Board	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know the procedure to make the layout/circuit diagram for test board • Importance of Test board. • Describe parallel and series circuits. • Describe the steps of preparing an electrical test board. 	<ul style="list-style-type: none"> • Prepare the layout /circuit diagram for making test board • Install series-parallel circuit on test board by using two pin socket, lamp holder & single way switch. • Install AVO-Meter on test board to check the voltage, current and resistance of the circuit. • Make test lamp (Single phase, three phases) for checking the presence of electricity. 	<p>Theory: 04. Practical : 10. Total: 14</p>	<p>Personal Protective Equipment (PPE). Combination Plier. Power Supply. Electrician Knife. Lamps. Lamp Holders. Single way switches . AVO Meter (Multi Meter). Two Pin Socket. Wooden Board.</p>	<p>Classroom / Lab</p>
Connect loads in series circuit	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know the safety precautions. • Understand how to connect load in series. 	<ul style="list-style-type: none"> • Arrange tools & materials for job. • Connect two loads (bulbs) in series using a switch to turn them off and on. 	<p>Theory: 02. Practical : 05. Total: 7.</p>	<p>PPE. Power Supply. Combination Plier. Electrician Knife Lamps. Lamp Holders. Single way switches AVO Meter (Multi Meter). Two Pin Socket.</p>	<p>Classroom / Lab</p>

				Cables. Insulation tape.	
Connect loads in Parallel circuit	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know the safety precautions. • Understand how to connect load in parallel. 	<ul style="list-style-type: none"> • Connect three loads (bulbs) in a parallel circuit by using a single-throw switch to control the circuit. • Connect three loads (bulbs) in parallel using a single-pole single-throw switch to turn two light bulbs off and leave one light bulb on all the time 	<p>Theory: 02. Practical : 05. Total: 07</p>	<p>PPE. Power Supply. Combination Plier. Electrician Knife Lamps. Lamp Holders. Single way switches . AVO Meter (Multi Meter). Two Pin Socket. Cables. Insulation tape.</p>	Classroom / Lab
Connect loads in series and Parallel circuit.	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Know the safety precautions. • Understand how to connect a series-parallel circuit with a single-pole single-throw switch controlling the total circuit. • Define Voltage drop. • Know types of switches. 	<ul style="list-style-type: none"> • Connect a series-parallel circuit with six light bulbs - three lights wired in parallel, and three light bulbs wired in series. • Connect a series-parallel circuit with a single-pole single-throw switch controlling the total circuit. • Verify the voltage drop of loads (light bulbs) wired in parallel, • Verify the voltage drop of three loads (light bulbs) wired in series. 	<p>Theory: 02. Practical : 04. Total: 06</p>	<p>PPE. Power Supply. Combination Plier. Electrician Knife Lamps. Lamp Holders. Single way switches . AVO Meter (Multi Meter). Two Pin Socket. Cables. Insulation tape.</p>	Classroom / Lab
Ch. 6: Measuring Electrical Quantities in Electric Circuits			Theory = 11, Practicum = 18 Contact Periods: 29		

Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Electrical Quantities	<p>The students will be able to;</p> <ul style="list-style-type: none"> Define electric quantities. <ul style="list-style-type: none"> ✓ Watts, ✓ Ohm, ✓ Volts, ✓ Ampere Know the techniques to measure different electrical quantities. 	<ul style="list-style-type: none"> Use <ul style="list-style-type: none"> ✓ Ammeter, ✓ Ohmmeter, ✓ Voltmeter, ✓ Wattmeter <p>to measure current, resistance, voltage and power.</p>	T=3, P=5	PPE, Power Supply, Ammeter, Ohmmeter, Voltmeter, Wattmeter	Classroom / Lab
Measure Resistance	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define Ohm's law Understand how to measure resistance of cable using multi-meter 	<ul style="list-style-type: none"> Collect tools and material as per job. Measure resistance using Ohm's law. formula $V=I/R$ Measure resistance of a given wire with the help of ampere, volt, ohm (AVO) meter 	Theory: 03. Practical : 05. Total: 8.	PPE's Multi-meter and electrical cables resistor.	Classroom / Lab
Measure Voltage & Current in Series and Parallel circuits	<p>The students will be able to:</p> <ul style="list-style-type: none"> Understand how to measure voltage. Current and resistance in a complex circuit. 	<ul style="list-style-type: none"> Measure voltage drop in a series circuit using Voltmeter. Measure voltage drop in a parallel circuit using Voltmeter. Measure current in a series circuit using clamp-on ammeter. Measure current in a parallel circuit using clamp-on ammeter. <p>Measure an in-line amperage reading with AVO meter.</p>	Theory: 05. Practical : 8. Total: 13	(PPE), Power Supply, Combination Plier, Electrician Knife, Lamps, Lamp Holders, Single way switches , AVO Meter (Multi Meter), Two Pin Socket, Cables, Insulation tape. Series / parallel test	Classroom / Lab

				bench	
Ch.7 Reading Technical Drawing, Cost calculation / Estimation			Theory = 18, Practicum = 18 Total: 36 period		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Basic Technical Drawing	<p>The student will be able to:</p> <ul style="list-style-type: none"> Define meaning, importance and use of technical drawing. Define angles, triangles, quadrilateral, polygons, circle and circle elements. Know basic terminologies & symbols of technical drawing. Interpret layout plans / diagrams, service manuals and manufacturer's specifications. 	<ul style="list-style-type: none"> Draw Basic Lines, Sketch different types of angles, triangles, quadrilateral, polygons and circle. Provide different technical drawings to the students and ask them to read and enlist the required material and quantities. Provide service manuals to the students to read and interpret. 	T=11, P=11 Total=22	Drawing table / board, Drawing instruments, Pencil, rubber, sharpener Drawing tools, stationery, symbol charts. Technical drawings. Service manuals.	Classroom / Lab
Cost / Estimation of Materials	<p>The student will be able to:</p> <ul style="list-style-type: none"> Understand the importance of estimation. Plan the work as per drawing / diagram. Identify & quantify the required materials as per job specifications and drawing. Calculate cost of materials. Know the standard formats of preparing estimates Present the cost estimate to the client or supervisor. 	<ul style="list-style-type: none"> Perform Estimation of material as per drawing: <ul style="list-style-type: none"> ✓ Enlist the required material. ✓ Estimate Material Cost. ✓ Calculate Transportation Cost. 	T=5 P=5 Total=10	Electrical Drawings, Calculators, Map measuring Tools, Computer.	Classroom / Lab
Calculating Labour Cost	<p>The student will be able to:</p> <ul style="list-style-type: none"> Define labor Cost. Know the concept of 	<p>Practical Activity</p> <ul style="list-style-type: none"> Calculate hours required for completing the 	T=2 P=2 Total=4	Electrical Drawings,	Classroom / Lab

	<p>minimum wages.</p> <ul style="list-style-type: none"> • Describe how to calculate task completion time as per job requirement. • Describe method of calculating labor cost. 	<p>task in accordance with the job requirements.</p> <ul style="list-style-type: none"> • Perform Estimation of Labour cost for the provided drawing 		<p>Calculators, Computer.</p>	
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Middle Tech (ALP) HVACR (Package-E)

Ch.01: Evaluating Transformer			Theory = 6. Practicum = 10. Total Periods: 16.		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to capacitors & transformers	The students will be able to: <ul style="list-style-type: none"> Define capacitors. Understand working of capacitor. Define transformer. Know types of transformers. Define electric motors Know types of electric motors. 	<ul style="list-style-type: none"> Identify various types of capacitors. Identify various types of transformers. Identify various types of electric motors. 	T=2 P=2 Total=4	Capacitors, Transformers, Electric motors.	Classroom / Lab
Evaluate the transformer	The students will be able to: <ul style="list-style-type: none"> Understand the specification of transformer. 	<ul style="list-style-type: none"> Check resistance of transformer with an ohm meter. Check transformer primary and secondary voltage using voltmeter. Verify current and voltage transformation ratios of transformer. 	T= 2. P=2. Total= 4.	PPE. Transformer. Relay contactor Voltmeter Switching relay Ohmmeter Ampere meters Resistors (Assorted Range) Screwdriver set Combination Plier Electrician Test Box Electric Line Tester	Classroom / Lab
Control circuit of transformer	The students will be able to: <ul style="list-style-type: none"> Define relays. Describe how to control two loads connected with step 	<ul style="list-style-type: none"> Connect a step-down transformer to a relay contactor Check a relay 	T= 2. P= 6. Total= 8	PPE Transformer Relay contactor	Classroom / Lab

	<p>down transformer using switching relay contactor.</p> <ul style="list-style-type: none"> Describe how to control two loads connected with step up transformer using switching relay contactor. 	<p>contactor with voltmeter.</p> <ul style="list-style-type: none"> Check a relay contactor with ohm meter. Control two loads using switching relay into the circuit. 		<p>Voltmeter Switching relay Ohmmeter Ammeters Resistors (Assorted Range) Screwdriver set Combination Plier Electrician Test Box Electric Line Tester</p>	
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Ch. 02 Fundamentals of HVACR			Total 36 Periods, Theory = 16. Practicum = 20.		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Basic Concept of Heat & Energy	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define energy and its unit. Know about different types of energy (Kinetic, Potential, heat). Define heat and its units. Know about the different types of heat transfer. 	<ul style="list-style-type: none"> Calculate different types of energy (Kinetic energy, potential energy, heat energy). 	<p>T=4 P=5 Total=9</p>	<p>Calculator, Pencil, Paper.</p>	<p>Classroom / Lab</p>
Pressure, Temperature & Volume	<p>The students will be able to:</p> <ul style="list-style-type: none"> Define pressure and its unit. Understand pressure measuring gauges. Define temperature and its unit. Know about different scales of temperature (C, 	<ul style="list-style-type: none"> Read the scale of pressure gauge. Measure pressure of refrigeration system. Measure temperature by thermometer. 	<p>T=4 P=6 Total=10</p>	<p>Pressure gauge, thermometer, refrigeration system.</p>	<p>Classroom / Lab</p>

	Kelvin. F). <ul style="list-style-type: none"> Define volume and its unit. 				
Refrigeration Cycle	The students will be able to: <ul style="list-style-type: none"> Define cycle. Understand refrigeration cycle. Describe working principle of refrigeration cycle. Enlist basic components of refrigeration cycle. 	<ul style="list-style-type: none"> Draw refrigeration cycle. Identify pressure at various points. Identify color coding in refrigeration cycle. Identify different components of refrigeration cycle. 	T=5 P=6 Total=11	Refrigeration system, pressure gauges, thermometer, compressor, condenser, evaporator, refrigerant control valves.	Classroom / Lab
Refrigerants	The students will be able to: <ul style="list-style-type: none"> Define refrigerant. Describe types of refrigerants. Differentiate between eco-friendly and non-eco-friendly refrigerants. 	<ul style="list-style-type: none"> Identify refrigerant according to color code of refrigerant. Identify chemical formula of different refrigerants. 	T=3 P=3 Total=6	Refrigerants, Refrigerant Chart.	Classroom / Lab

Ch. 03: Introduction to Domestic Refrigeration Units			Theory = 16. Practicum = 24. Total= 40.		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place
Refrigerator	The students will be able to: <ul style="list-style-type: none"> Define refrigerator. Understand functions of refrigerator. Describe types of refrigerators. Know different parts of refrigerators. Understand electrical wiring diagram of refrigerator. 	<ul style="list-style-type: none"> Sketch / interpret electrical wiring diagram of refrigerator. Identify different parts of refrigerator. Check working of the refrigerator. 	T=4 P=6 Total=10	Refrigerator and its parts, AVO meter, Toolkit	Classroom / Lab

Water cooler	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define water cooler. • Understand functions of water cooler. • Describe the types of water coolers. • Learn parts of water cooler. • Understand electric wiring diagram of water cooler. 	<ul style="list-style-type: none"> • Sketch / interpret electrical wiring diagram of water cooler. • Identify different parts of water cooler. • Check working of the water cooler. 	T=4 P=6 Total=10	Water cooler and its parts, AVO meter, Toolkit	Classroom / Lab
Deep Freezer	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define deep freezer. • Learn functions of deep freezer. • Describe types of deep freezer. • Learn parts of deep freezer. • Understand electric wiring diagram of deep freezer. 	<ul style="list-style-type: none"> • Sketch / interpret electrical wiring diagram of deep freezer. • Identify different parts of deep freezer. • Check working of the deep freezer. 	T=4 P=6 Total=10	Deep freezer and its parts, AVO meter, Toolkit	Classroom / Lab
Air Conditioner	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Define air conditioner and its types. • Understand function of window air conditioner. • Understand electrical wiring diagram of window AC. • Learn working of split AC. • Understand construction of Split AC. • Understand electrical wiring diagram of Split AC. • Understand pump down of Split AC. 	<ul style="list-style-type: none"> • Draw electrical wiring diagram of window AC. • Identify different parts of window AC. • Check working of the window AC. • Draw electrical wiring diagram of Split AC. • Identify different parts of Split AC. • Check working of the Split AC. • Perform Pump down of Split AC. 	T=4 P=6 Total=10	Air conditioners (window + Split) and their parts, AVO meter, Clamp on meter, Toolkit	Classroom / Lab

Ch.04: Repair / Service Domestic Refrigeration Units			Theory = 25. Practicum = 45 Hrs. Total.: 70		
Theme/Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place

Components of Domestic Refrigeration Units	The students will be able to: <ul style="list-style-type: none"> • Know the function of non-Frost refrigerators • Define the types of compressors and their functions. • Define the types of condensers and their functions • Explain refrigerant control types and their functions. • Describe types of evaporators and their functions. • Understand the methods of Copper Tube cutting, Bending, Swaging, Flaring, Brazing, Jointing and fixing. • Know gas welding (Soldering and Brazing). • Describe methods of pressurizing, evacuation, purging, and refrigerant charging. 	<ul style="list-style-type: none"> • Practical Demonstration of Technical operations, Compressors, Condensers, refrigerant control and evaporators. • Practical demonstration and practice of copper tube cutting, bending, swaging, flaring, brazing, jointing, and fixing. • Practical demonstration of gas welding. • Practice pressurizing, evacuation, purging and refrigerant charging. 	T=6 P=9 Total=15	Toolkit, Compressors, Condensers, refrigerant controls, Evaporator, Copper tube, Swaging, flaring, brazing, jointing, fixing material, Gas welding plant and material, Refrigerant.	Classroom / Lab
Maintenance of Domestic Refrigeration Units	The students will be able to: <ul style="list-style-type: none"> • Understand servicing of domestic refrigeration unit. • Understand leakage testing techniques in domestic refrigeration unit system. • Understand evacuation process in domestic refrigeration unit system. • Understand gas charging process in domestic refrigeration unit system. 	<ul style="list-style-type: none"> • Perform servicing of refrigeration unit (Fridge, Freezer, water cooler, AC). • Detect leakage in a refrigeration unit. • Perform vacuum of refrigeration unit. • Charge refrigerant in a refrigeration unit. 	T=6 P=6 Total=12	Refrigerator, AC, Refrigerant, Tools & Equipment.	Classroom / Lab
Diagnose Faults in	The student will be able to:	<ul style="list-style-type: none"> • Check that electricity is on 	T=5 P=15	Personal protective	Classroom / Lab

Domestic Refrigeration Units	<ul style="list-style-type: none"> • Understand the techniques for diagnose and troubleshooting / repairing of domestic refrigeration unit. 	<p>for each equipment</p> <ul style="list-style-type: none"> • Check compressor for Continuity / Ground / Short test • Perform leak test in the residential refrigeration units • Perform test for thermostat working • Perform test for capacitor working • Diagnose faults of Non-Frost Refrigerator by using specified tools and instruments • Check for obvious problem to determine which component or system is causing the problem • Check power supply, electric wiring, electric / electronic components as recommended by manufacturer and record the results • Check different types of heaters as recommended by manufacturer and record the results • Check refrigerant pressure to determine the exact problem by using AVO meter / • Gauge manifold as recommended by manufacturer and record the results 	<p>Total=20</p>	<p>e equipment.</p> <p>General toolkit.</p> <p>Locking plier.</p> <p>Adjustable screw wrench.</p> <p>Ratchet wrench.</p> <p>Open ended spanner set.</p> <p>Box spanner.</p> <p>screw drivers.</p> <p>Spirit level.</p> <p>Digital Clamp-on Ampere meter.</p> <p>Digital Optical Tachometer</p> <p>Digital Capacitor analyzer.</p> <p>Tube cutter.</p> <p>Digital pressure gauges set (High & Combine)</p> <p>. Flaring and swaging tool kit.</p> <p>Laser temperature measuring device.</p> <p>Electronic leak detector.</p>	
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		<ul style="list-style-type: none"> • Diagnose the causes of the problem according to the manufacturer's manual and standards. 		Digital Air Flow / Velocity meter	
Repair Domestic Refrigeration Units.	<p>The student will be able to:</p> <ul style="list-style-type: none"> • Define Ozone Protection and Synthetic Greenhouse Gas. • Define techniques for repairing of Domestic Refrigeration Units. • Understand techniques of Diagnose and Troubleshooting of Domestic Refrigeration Units. • Describe types of Lubricants and their properties • Define Compressor types and their functions • Understand the methods of Copper Tube cutting, Bending, Swaging, Flaring, Brazing, Jointing, fixing • Know Gas welding (Soldering and Brazing) • Describe methods of Pressurizing/ Evacuation / Purging / Refrigerant charging 	<ul style="list-style-type: none"> • Prepare a charging line of soft copper tube \varnothing (diameter) 1/4 "with the help of flare • Joint two soft copper tubes of different sizes with the help of gas welding. • Disconnect the Refrigeration Units electric supply and follow the manual instructions for rectification. • Rectify the faults as per diagnosed, repair / replace the components, as necessary • Trace the leakage in Domestic refrigeration units after giving the pressure. • Repair leakage. • Replace the condenser fan motor of domestic refrigeration units. • Replace the thermostat / Door Gasket / Heaters of domestic refrigeration 		Personal protective equipment. General Toolkit. Refrigeration Tool Kit. Adjustable screw wrench. Open ended spanner set. Box spanner screw drivers. Gas welding set with table and all accessories. Nitrogen gas cylinder with Hose pipe, regulator and back arrestor. Bearing puller. Electric Screw driver set. Soldering iron. Desoldering tool. Digital	Classroom / Lab

		<ul style="list-style-type: none"> units. • Charge the refrigerant in the domestic refrigeration units. • Replace the defrost heater of non-frost refrigerator. • Check and wash Domestic refrigeration units' body / cabinets and restore to the actual condition. • Switch on the domestic refrigeration units to check the performance of electrical/ electronic and mechanical components as specified in the manufacturer's manual and record the results. 		<p>Clamp-on Ampere meter. Hot air gun. Digital Capacitor analyzer. Tube cutter. Digital pressure gauges set (High & Combine) . Pinch-off plier. Flaring and swaging tool kit. Vacuum pump 2-stage, 6cfm. Laser temperature measuring device. Electronic leak detector. Digital Air Flow / Velocity meter. Portable Refrigerant charging station. Fins straightening comb set.</p>	
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Ch.05: Install Domestic Air Conditioner			Theory = 4. Practicum = 14. Total Period = 18.		
Theme / Content	Student Learning Outcome	Activities/Practical	Duration	Tools	Work place

<p>Install Split Air Conditioner</p>	<p>The student will be able to:</p> <ul style="list-style-type: none"> • Illustrate the method of installation of Split (DC Inverter). • Define technical Operations of all types of split air conditioners. 	<ul style="list-style-type: none"> • Select tools, equipment and related accessories according to job requirements • Select and mark the area on the wall where Indoor and Outdoor units are to be installed according to Unit specifications and client requirements. • Perform physical inspection of indoor and outdoor unit according to unit specifications. • Make opening for the refrigerant pipes, Condensate pipe and control wires to pass through • Mount the Indoor unit wall mounting plate according to manufacturer's specifications and install the indoor unit on it • Prepare the base for fixing of Outdoor according to manufacturer's specifications and fix on it • Connect the refrigerant pipes amongst both indoor and outdoor units, supply and control wires according to manufacturer's 	<p>T=4 P=14 Total=18</p>	<p>PPE. General toolkit. Refrigeration- tools. Metal Drill bit set. Masonry drill set. Hand saw. Rivet gun. Adjustable screw & Ratchet wrench. Box spanner. Screw drivers. Chisel set. Spirit level. Digital Clamp on Multi-meter. Electric hand drill machine. Laser distance & temperature measuring device.</p>	<p>Classroom / Lab</p>
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		<p>manual</p> <ul style="list-style-type: none"> • Perform electric connections between indoor and outdoor units. • Add additional refrigerant for additional piping according to manufacturer's recommendations. • Make oil trap in copper pipe as per site requirement. • Perform leak test, evacuation procedure, charge refrigerant and open the service valves • Insulate the joints and refrigerant pipes according to standards and manufacturer's installation manual • Make sure that all packing materials - including Cardboard, Styrofoam, Tape, and Plastic film have been removed • Switch on the Air conditioner and check performance as per capacity and specifications. 			
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Ch. 06: Entrepreneurship			Total=20 Period. T=11, P=9		
Content	Students Learning Outcome	Activities/ Practical	Duration	Tools	Work place
Introduction To Entrepreneurshi	The student will be able to:	<ul style="list-style-type: none"> • Group discussion and 	T= 05 P= 05	Computer and its	Lab / Classroom

p	<ul style="list-style-type: none"> • Know The Entrepreneurship. • Know the Basic concept of Entrepreneurship. • Know the components of Entrepreneurship. • Able to know Entrepreneur. • Understand the importance of Entrepreneurship. 	presentation on Entrepreneurship	Total = 10.	accessories	m
Generating a Business Idea.	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Define Business Idea. • Describe their region assets that foster entrepreneurship. • Describe a number of business ideas that can be carried out by a group or an individual in catchment area of school. 	<ul style="list-style-type: none"> • Assign the students a task to observe the respective locality and enlist potential business ideas and present them in class. • Videos playing, • Group Work, 	T=6, P=4 Total = 10	Computer and its accessories	Lab / Classroom

Basic Requirements for Lab (Tools/Equipment/Material):

No.	Specification	Quantity
1	Filling of oxygen Gas cylinder	3 Cylinder
2	Filling of LPG Gas cylinder	28 kg
3	Silver soldering Rod (chandi Rod)	02 kg
4	Brass Rod (Petal Rod)	02 kg
5	Copper Tube dia 1"/4 (50 feet / Coil)	04 koil
6	Copper Tube dia 5"/16 (50 feet / Coil)	04 koil
7	Capillary Tube dia 0.031"	02 koil
8	Gastric Sheet (4'x6')	02 sheet
9	Seal Threading Tap	10 nos
10	Majic defoxi (small size)	10 nos
11	wooden Board (10"x12" single)	06 doz
12	single way switch (5A open)	10 doz
13	Two Way Switch (5A Open)	08 doz
14	Batten Holder Baculite	12 doz
15	Two Pin socket (5A open)	08 doz
16	Cut out fuse (10 A Porcelain)	08 doz
17	Electric LAMP (Bulb 100 w)	06 doz
18	Electric Lam (Bulb 200w)	02 doz
19	Electric Call bell (Bizzes 220v/5W)	06 doz
20	Push button (5A open)	06 doz
21	Fuse wire (5A)	06 reel
22	P.V.C WIRE (3/.029")	04 coil
23	P.V.C WIRE (1/.044")	04 coil
24	Insulation Tap (Nitto) 3"/4	30 nos
25	Wooden Screw 1"/2, 3"/4	10 pkt / each
26	Hand Hack Saw Blade (Double Edge)	10 doz
27	M.S Flat (64mmx8mm)	100 kg
28	Mineral Oil 3 or 4 GS	10 Litr
29	Cotton Waist Cleaning Cloth	50 kg
30	Detergent Soap	02 doz
31	Thermostat switch cooler water	12 nos
32	Thermostat for Refrigerator	12 nos
33	Thermostat for A.C	12 nos
34	Amperage type relay Cap type 1/4, 1/3, 1/5, 1/6, 1/8 (6 No Each)220v	30 nos
35	Overload 1/8, 1/6, 1/5, 1/4, 1/3 (220v)	30 nos
36	Electronic Relay (Danfoss)	12
37	Electronic Relay two point	12
38	Current Relay for 220v Refrigerator	12

39	Over load for 220v = (1/4, 1/3) Refrigerator	12
40	starting capacitor 80/110 uf	12
41	Starting capacitor 138/182 uf	12
42	Running capacitor 40, 45, 50 60 uf	12
43	Combine Running capacitor 60 + 5 uf	12
44	Timer for Non-Frost Refrigerator 220v	12
45	Bi metal fuse 12 no 220v	24
46	Bi Metal Strip	6
47	Fan capacitor 2, 2.5, 3, 3.5 μ F	25
48	copper tub 1"/2	3 coils (50')
49	Potential Relay	12
50	Split Control circuit with display	12
51	Sensor for Split A.C	60
52	F-134a Gas cylinder	2 cylinders
53	F-22 Gas	2 Cylinder
54	G-I pipe 1"/2 dia	4 length
55	G-I pipe 3"/4 dia	4 length
56	G-I union 1"/2	12
57	G-I Tee	12
58	G-I Socket	12
59	P.V.C wire 7/044	2 coils
60	Three pin shoe 20 A	12
61	Power Plug 2, A	2 dozen
62	Circuit Breaker 20 A	2 dozen
63	Three Pin Shoe 5A	2 dozen
64	Two Pin Shoe 5A	2 dozen
65	Flair nuts 1/4"	3 nos
66	Union 1/4"	3 nos
67	Flair nuts 5"/16	3 nos
68	union 5/6"	3 nos
69	Flair nut 1"/2	3 nos
70	union 1/2"	3 nos
71	compressor outof order 1/3, 1/4, 1/5, 1/6, 1/8,	2 each
72	Kit kat fuse 20 A	2 dozen
73	Liquid service valve 1/4" Split A.C	2 dozen
74	Suction service valve 1/2 "for Split A.C	2 dozen
75	Filter dryer	3 dozen
76	Nut and Bolt (M10)	2 pkt
77	Nut and Bolt (M12)	3 pkt
78	Nut and Bolt (M14)	3 pkt

79	Flexible cable (copper) wire 110-76	1 coil
80	Arab flax insulation 1"/4,1/2",3/8"	3 dozen
81	Arab flax insulation 5/8",3"/4 for tub	3 dozen

No.	Tools/Equipment/Material
1.	Working tables
2.	Tablet chairs
3.	Dice
4.	Tool box (empty)
5.	Tool lockers for trainees
6.	Personal protective equipment
7.	Allen key set
8.	Bench vice
9.	Center punch
10.	Pedestal drill machine
11.	Digital Vernier caliper
12.	Metal Drill bit set
13.	Masonry drill set
14.	File set
15.	Hand Hacksaw frame
16.	Hand saw
17.	Hammer set
18.	Mallet set
19.	Digital micro meter
20.	Diagonal side cutter
21.	Combination plier
22.	Nose plier set
23.	Locking plier
24.	Measuring tape
25.	Rivet gun / plier
26.	Adjustable screw wrench
27.	Adjustable pipe wrench
28.	Ratchet wrench
29.	Box spanner set
30.	Socket set
31.	Open ended spanner set
32.	Box spanner screw drivers
33.	Steel ruler
34.	Scissors
35.	Scriber
36.	Tap and Die set
37.	Try square
38.	Chisel set
39.	Pulley wheel puller

40.	Gas welding set with table and all accessories
41.	Nitrogen gas cylinder with Hose pipe, regulator and back arrestor
42.	Pipe cutter
43.	Pipe vice
44.	Bearing puller
45.	Manual Screw driver set
46.	Electric Screw driver set
47.	Spirit level
48.	Electric hand grinder
49.	Scissors
50.	Multi-media projector with screen
51.	Laptop
52.	Soldering iron
53.	Crimping tool
54.	Insulation remover
55.	Laser jet color printer
56.	Scanner
57.	De-soldering tool
58.	Wire stripper
59.	Digital Multi meter
60.	Digital Clamp-on Ampere meter
61.	Electric hand drills
62.	Hot air gun
63.	HILTI drill machine (Piston type)
64.	Digital Optical Tacho meter
65.	Magar meter (0 - 1000 Volts)
66.	Dial type Ampere meter
67.	Dial type Volt meter
68.	Digital Capacitor analyzer
69.	Hand electric blower
70.	Single phase induction motor
71.	Three phase induction motor
72.	Tube cutter
73.	Pressure gauges set analog (High & Combine)
74.	Micron pressure gauge
75.	Digital pressure gauges set (High & Combine)
76.	Pinch-off plier
77.	Flaring and swaging tool kit
78.	Vacuum pump 2-stage, 6cfm
79.	Tube benders (Spring type and pulley bender type)

80.	Laser distance measuring device
81.	Laser temperature measuring device
82.	Electronic leak detector
83.	Manometer
84.	Digital Air Flow / Velocity meter
85.	Portable Refrigerant charging station
86.	Fins straightening comb set
87.	Refrigerator De-frost type
88.	Refrigerator Non-frost type
89.	Window air conditioner
90.	Split air conditioner (Simple)
91.	DC Inverter type split air conditioner
92.	Deep freezer
93.	Electric water cooler
94.	Electric water dispenser
95.	Compressor (Reciprocating, Rotary, Centrifugal and Scroll type)
96.	Digital humidity meter
97.	Digital Psychrometer (Hygrometer)
98.	Water Pressure gun for service

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GUIDELINES FOR AUTHORS (WRITERS OF LEARNING MATERIALS) AND ASSESSMENT & EVALUATION:

Guidelines for Writing a Textbook:

A textbook is an important teaching and learning resource and one of the most extensively used resources in classrooms. To reflect national needs and aspirations the needs and aspirations, the textbooks should be written in accordance with this curriculum. This curriculum meets not only the general aims and objectives but also fulfills the specific requirements of the individual subject. As the textbook serves as a framework for teaching, the author/authors should consider the following features:

- A textbook must include an introduction to the textbook, explaining how to use the textbook.
- The textbook must be in line with the National Curriculum, covering all SLOs of each theme or concept.
- Content and illustrations must be culturally, contextually and age appropriate.
- All text and material must be accurate, up-to-date and error-free.
- The continuity of the concepts, their integration and logical development should be ensured.
- Horizontal and vertical overlapping of the concepts should be avoided.
- The textbook should be informative and interactive with questions to be put at suitable intervals to provoke the students to think.
- The language used should be simple, clear, straight forward, unambiguous and easily comprehensible by the students of the particular level.
- Simple questions may be asked within the chapter, which requires students to recall, think, and apply what they have just learnt as well as to reinforce the learning of the concepts and principle.
- The examples and applications should be from everyday life and be supportive of our cultural values.
- Photographs and illustrations should be clear, labeled and supportive of the text. Tables, flow charts and graph may be given wherever needed.
- Key points at the end of each chapter should provide a summary of the important concepts and principles discussed in the chapter.
- End-of-the-Chapter exercises must include a variety of assessment styles based on levels of Bloom's Taxonomy. These should encourage students to think, develop skills, and use information for a variety of purposes.
- Textbooks should be free from all kinds of biases including, gender, religion, occupation, social background etc.
- To make the students self-learner use of IT based resources may be encouraged. Relevant internet links and other online resources may be included.
- Glossary of the new vocabulary must be included.

Guidelines for Planning and Writing a Chapter:

The textbook author may decide the titles of each chapter and can choose to cover students' learning outcomes (SLOs) from any themes in developing the content of the chapter. The textbook author must also keep in mind that a number of SLOs cannot be addressed in the text (as if this is done it would lead students to simply memorize the text and not serve the realization of the curriculum). These SLOs could be realized through questions and practical activities within and at the end of the chapter exercises.

- Learning outcomes must be given at beginning of each chapter.
- Decide on key ideas, facts, concepts, skills and values that can be developed.
- Illustrations must clearly convey the desired concept.

- Activities must demand from students to do inquiry and problem solving according to grade level.
- Ensure that the content is up to date, accurate and developmentally appropriate.
- Contents must be in line with chapter outcomes.
- Language must be consistent, culturally appropriate and grammatically correct (as if talking to a group).
- Language must engage and hold reader's attention.
- Recall previous learning, where possible.
- Structure the writing so that the sentence is simple, paragraphs deal with single ideas etc.
- Interesting information in the form of tidbits, fact file, point to ponder etc. must be given.
- Write a summary/concept map at end of each chapter, reviewing key knowledge and skills.
- End-of-chapter exercises.
- Recall and integrate previous learning.
- Engage students and develop their creativity.
- Move from lower to higher order thinking.
- Focus on multiple intelligences.
- Keep the text contextually relevant in line with local teaching and learning.
- Provide website links for further research.

Guidelines for Writing Learners Workbook:

Workbooks are books that contain writing activities and exercises that build upon each chapter in the textbook. Workbook exercises help students to develop conceptual understanding of the concepts dealt with in the text, to develop skills and to apply knowledge to new situations.

Basic features of a workbook a workbook should have:

- Various exercises and activities for each chapter, topic, subtopic.
- Exercises and activities that will enable students to develop and practice the content knowledge, skills and higher order thinking.
- Accurate and variety of exercises.
- Clear illustrations/ examples/ explanations to show what students are supposed to do, and/or what product looks like.
- Exercises and activities with a variety of purposeful, stimulating, challenging and innovative items to encourage students to review and practice the knowledge and skills they have learnt.
- Exercises that include both constructed and restricted response items.
- Activities, which requires readily available, acceptable, and affordable materials and resources.

Guidelines for Assessment & Evaluation:

Assessment is the practice of collecting evidence of students learning. It aims at improving learning and teaching as well as recognizing the achievement of students. It determines students' progression through their learning experiences and enables them to demonstrate that they have achieved the intended learning outcomes. The assessment is aligned with curriculum aims, design and learning outcomes.

Evaluation is an integral part of teaching-learning process. It involves gathering information through various assessment techniques, making valuable judgment and sound decisions. Assessment provides information about students' achievement in relation to learning objectives. With this information, the teacher makes informed decisions about what should be done to enhance the learning of students or to improve teaching methods. Assessment must be:

- Mainly open-ended, allowing for discussion and revision of new understanding.

- Tolerant of divergent thinking of students and promote the notion of no “one right answer”.
- Presented in alternative mode, not just paper-and-pencil responses to limiting questions.
- Designed to foster analysis, comparison, generalization, prediction, and modification according to the grade and development level.
- Capable of promoting collaboration and team effort in demonstration of competence.
- Ongoing and cumulative, showing growth over time.

Formative (Internal) Assessment:

Formative Assessment is also called assessment for learning. It refers to the assessment practices employed as part of the learning and teaching process. It is an ongoing process throughout the session and uses Test — Feedback — Adjust cycle repeatedly to improve students' performance and efficiency in learning and teaching. In designing internal assessment for the subject, teachers should maintain a proper balance between the formative and summative functions of assessment. It should be comprehensive to cover all the objectives as per curriculum. A diversity of assessment modes/tools should be adopted so that students are given opportunities to develop and demonstrate the full range of learning outcomes of the curriculum, including those of knowledge, skills and attitudes.

Methods for Internal/Formative Assessment:

Following tasks can help in formative assessment;

Assignments, quizzes, tests, group discussions, oral/multimedia presentations, worksheets, online interactive activities, role play, demonstration, practical exercises.

Feedback on students' work in all of the above tasks must be prompt, effective, and efficient. Assessment should have such questions that specifically help in finding out knowledge, understanding and skills.

Summative /External Assessment:

Summative assessment is managed by concerned examining bodies. It will be composed of two parts;

1) Theory Assessment /Written examination: The theory examination is suggested to consist of a wide variety of questions. Its overall weight age should be 40 %. It should be based on the curriculum rather than textbook. The assessment should be designed to examine the candidate's understanding of the whole syllabus and should test the range of abilities according to Bloom Taxonomy.

2) Practical Assessment/Practical examination: This is designed to test Practical skills of students. Its overall weight age should be 60%. It may comprise of written exam (10%), practical (70 %) and viva/oral exam (20%).

A standards-referenced approach will be adopted for grading and reporting students' performance. The purpose of this approach is to recognize what each student can do in the subject at the end of the middle school level education. The performance of each student may be matched against a set of performance standards, rather than comparing to the performance of other students.