CURRICULUM

MEDIA PRODUCTION (I)

GRADE IX
2020

GOVERNMENT OF PAKISTAN

Ministry Of Federal Education and Professional Training

ISLAMABAD

Contents

Introduction

Media production means a single-medium or multimedia feature film, television show or series, video, commercial, photographic project, interactive computer or video game or other program intended for a national audience and fixed on film, video tape, computer disk, laser disc or other delivery medium that can be viewed or reproduced and that is exhibited in theaters or by individual television stations or groups of stations, television networks or cable television stations or via other means or licensed for home viewing or use.

We live in a world dominated by various kinds of media. Every day, people engage with and consume information from many different mediums using various devices, sometimes at the same time. For instance, they may listen to a podcast or the radio while checking social media on their phone or watch TV while looking for recipes on their tablet.Media actually refers to any kind of communication whose purpose is to inform, educate or entertain a wide audience. It can be anything from web content to social media to TV, video and radio content.

The media trends are always changing and evolving, but one thing is certain: The role of media in people's everyday lives and its impact on our personal, social and political circumstances is enormous. A huge protest march can be organized through social media within days. A homemade video can go viral and spark a worldwide debate or simply amusement. A well-crafted ad or promotional website will convert a skeptic into a faithful customer of a brand. Students undertaking a career in media production will learn to understand the development and impact of various media trends, as well as produce different kinds of content and manage various media industries. Students pursuing a career in media production can choose from several streams.

Rationale

Media consumption and creation is essential to modern communication. Media, in its evolving forms, influences and shapes the way people view themselves and others and plays a crucial role in the creation of personal, social, cultural and global identity. This production-based course is designed for learners who wish to develop technical media skills and an understanding of the contexts of journalism, advertising and narrative within media. Learners explore the media and media conventions through practical experiences and formal analysis of the media products of themselves and others. Creative and critical thinking skills are a significant component of the course. Learners work within learning environments that simulate a professional setting in order to develop products in a specific medium. Through acquisition of technical and analytical skills learners will develop the ability to appreciate the operational functions and social implications of their medium of specialization.

Aims

- Use media techniques and technologies in order to create their own media products
- Implement aspects of design and design processes relevant to media works
- Manage media activities by applying appropriate time management, planning and negotiation skills
- Use and identify appropriate production elements and narrative structures in the creation of media products
- Analyze and respond to media issues and the role of media in society
- use media codes and conventions when making and responding to media works
- Identify target audiences for specific media products.

Objectives

- Students will be prepared to enter the workforce in desktop publishing, print production and/or multimedia production.
- Students will demonstrate proficiency in industry technical standards.
- Students will be able to identify and describe specific design career options and job skill requirements.
- Students will demonstrate proficiency in industry-standard safety procedures.
- Students will demonstrate proficiency in customer service skills and interaction with stakeholders in their roles with marketing, sales, advertising, reporting and production.

Grade-IX

Learning Themes and Students' Learning Outcomes Knowledge, Skills and Attitude					
Chapter 01					
Introduction to Media Production **T= 08, P= 11, Total=26**					
Content	**Students' Learning Outcome**	**Activities/Practical**	**Duration**	**Tools**	**Work place**
Basic concepts of media production	The students will be able to: • Define Media • Describe media production • Learn about role of media production in society • Describe different platform for media production • Describe different software applications of media production	• Group discussion on role of media production in society • Quote examples from real life scenario	02 Periods(T) 01 Periods(P)	Computer and its accessories	Lab

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
History & Evolution of Media Production	• Understand about history electronic media (radio, TV channels, social media etc.) • Know about transformation of print media	• Presentation about evolution of media production	01 Periods(T) 01 Periods(P)	Computer and its accessories	Lab
Scope of media production	• Learn about career opportunities in different industries • Learn about jobs rolesfor media production • Know about collaboration of media production with other industries (education, textile, fashion etc.)	• enlist job opportunities in different industry	01 Periods(T) 01 Periods(P)	Computer and its accessories	Lab

Chapter 02

Health, Safety and Environment
T=06, P=10, Total= 16

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to health, safety and environment	The students will be able to: • define health safety & environment • know basic principles of safety • understand standard operating procedure regrading health and safety • observe the basic rules of health & safety in workplace environment	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.)	01 Periods(T) 01 Periods(P)	PPE Kits	Classroom/ Lab
Basics of safety	• understand the types of hazards and preventive measures • adopt basic certification of safety • learn awareness on physically transmitted diseases • learn sanitization process for office safety • know-about ventilation and illumination	• Presentations on types of hazards and preventive measures Maintain checklist for basic facilities and services of safety	02 Periods(T) 02 Periods(P)	PPE Kit Sterilization tools and equipment	Classroom/ Lab
Personal safety	• know-about the importance of personal hygiene • learn the importance of personal protective equipment (PPE) • Know about use of personal protective equipment (PPE)	Perform the use of PPE kits (Gloves, Uniforms, Shoes, Hair net, beard net, masks etc.)	01 Periods(T) 01 Periods(P)	PPE Kits. sterilization oven Hair & Beard Nets Tools and equipment	Classroom/ Lab
Fire hazards	• know about fire triangle • identify types of fires and fire extinguishers • learn correct evacuation/emergency procedures • identify and report hazards to concerned	• Demonstrate use of Fire Extinguishers and Fire Safety Equipment. • Perform correct evacuation procedures. • Demonstrate various incidents reporting through role play.	02 Periods(T) 02 Periods(P)	PPE Kit & Safety and Hazard Signs. Dry Powder Water Based and Foam Fire Extinguishers Water buckets & Sand	Lab

Chapter 03

Photography
T= 10, P= 18, Total= 28

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to photography	The students will be able to: • Define photography • Know purpose of photography	• Group presentation on techniques of photography	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
	• Describe different techniques of photography				
Camera handling techniques for photography	• Understand components of camera (lens, light, chassis, battery, tripod, memory card, shutter, LCD screen, image sensor) • Know about hand held shooting process • Learn about tripod shots	• Demonstration on components of camera • Perform assembling of camera	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Camera operations for photography	• Know about adjustment of focus • Learn about exposure of camera • Know about density of camera • Learn about shutter speed of camera • Learn about white balance and ISO for image stabilization • Learn about indoor and outdoor shooting	• Capture image(portrait and landscape) of indoor by using different setting of camera • Capture image(portrait and landscape) of outdoor by using different setting of camera	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab

Chapter 04

Videography
T= 10, P= 18, Total= 28

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to videography	• Learn about concept of videography • Identify purpose of videography • Know about videos formats • Describe different techniques of videography	• Group presentation on techniques of videography	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Camera handling techniques for videography	• Understand components of camera (lens, light, chassis, battery, tripod, memory card, shutter, LCD screen, image sensor, quadcopter drone) • Know about hand held shooting process • Learn about tripod shots	• Demonstration on components of camera • Perform assembling of camera	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Lightning Techniques	• Understand different types of lightning system • Learn about location selection for recording • Understand about studio lights (foreground, mid, background, lightening grid, dimmers, reflectors and special effects. • Learn about warm and cool lights equipment • Understand about intensity of light	• 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	02 Periods(T) 05 Periods(P)	Computer and its accessories	Lab
Camera operations for videography	• Know about adjustment of focus • Learn about exposure of camera • Know about density of camera • Learn about shutter speed of camera • Learn about white balance and ISO for image stabilization • Learn about indoor and outdoor video shooting	• Record indoor by using different setting of camera • Record outdoor by using different setting of camera	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab

Chapter 05					
Script Writing **T = 12, P = 20, Total = 32**					
Content	**Students' Learning Outcome**	**Activities/Practical**	**Duration**	**Tools**	**Wo rkpl ace**
Introduction of Script Writing	Student will learn about: • Define script writing • purpose of script writing • know basic structure of script writing(beginning/setup, middle/conflict and end/resolution)	• Discuss basic structure of script writing	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Steps of script writing	• Generating different ideas about script writing • Demonstrate story telling • Develop plot of story(dialogue, scenes and formatting • Know about working on story board	• Prepare a template for script writing	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Script writing applications	• Learn about scripts for TV commercials • Know techniques of scripts for reporting • Comprehend structure of script for documentaries	• Write scripts for short moral story of any given scenario • Write script for radio commercial • Write script for celebrity interview	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Chapter 06 **Adobe After Effects(Basics)s-I**					
T = 08, P = 16, Total = 24					
Content	**Students Learning Outcome**	**Activities/Practical**	**Duration**	**Tools**	**Work place**
Introduction of Adobe After Effects	The student will be able to: • Define adobe after effects • Describe purpose of Adobe After Effect • Know about installation step for adobe software • Learn about source material (audio, video, still image etc.) • Understand about concept of file extension	• Install Adobe AE software • Discuss file extension for adobe after effects	02 Periods(T) 04 Periods(P)	Computer and its accessories, adobe software	Lab
Fundamentals of Motion Graphics	• Use motion graphics • Know the attributes of motion graphics. • RGB Color Model • Frame Size • Resolution • Pixel Aspect Ratio • Alpha Channels • Frame Rate • Time Code • Interpreting Footage	• Discuss about attributes of motion graphics	01 Periods(T) 04 Periods(P)	Computer and its accessories, adobe software	Lab
Project Setup	• Start working in After Effects • OverCreate a new project • Customize workspaces • Set a project by using attributes of motion graphics • Add a composition and arrange layers	• Create a project and customize workspace • Create a project by using attributes of motion graphics	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Shapes	• apestypes of shapes • Create custom shapes	• Create Animation project based on	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
	• Know about default properties of shape layers • Add/edit properties • Create shape groups	different shapesgroups			
Masking	• About Learn about masks • Create a mask with the Pen tool • Edit mask as per requirement • Learn about Feathering the edges of a mask • Learn to replace the content of the mask • Understand mask interpolation	• Use mask on video as per requirement. •	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
TextAnimation	• Learn about text animation • Create and format point text vs paragraph text • Use text animation preset • Learn text animation on path • Animate imported Photoshop text • Animate text using a path animation preset	• Create Apply text animation on student's name. • Create Apply text animation on paragraph.	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Puppet Tools	• Describe Puppet tool • Understanding Deform pins • Defining areas of overlap • Understand Stiffening an area • Animate pin positions • Record animation	• Apply puppet tool on different characters and record an animation.	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Effects	• Comprehend working of the followingTime remapping • Motion sketch • The smoother • The wiggler • Auto orient • Splitting a layer • Adjustment layers • The effects and presets pane	• Apply Different effects to videos	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Basic Animations Using Effects and Presets	• Import video clips • Import stills • Import a sequence of stills • Import multilayered photoshop and illustrator files • Apply composition as per requirements • Apply effects to a layer • Change parameters as per requirement • Create key frames(auto, continuous, and bezier interpolation Temporal and spatial) • Learn about roving • Learn about animation preset • Preview your work	• Create animation video composition using layer	02 Periods(T) 04 Periods(P)	Computer and its accessories	Lab
Rendering and Output	• LearnCreate templates for the Render Queue • Export using the Render Queue • Render movies with Adobe Media Encoder	•	01 Periods(T) 04 Periods(P)	Computer and its accessories	Lab

Chapter 7 **Adobe After Effects(Advance)**					
T= 05, P= 14, Total=19					
Content	**Students' Learning Outcome**	**Activities/Practical**	**Duration**	**Tools**	**Workplace**

3D Features	Student will be able to • Understand 3D concepts • Elaborate the difference between 2D and 3D • Know the role of Cameras, lights, and points of interest • Know the effect of Repositioning the layers • Rotate a 3D object • Learn about Axis modes • 3D layer interactions, render order, and collapsed transformations • Work with Shadows, Null Object, Text in 3D, • Use Vanishing Point VPE and add dimension to stills • View, build, and render 3D scenes / text using cinema 4d (cane ware)	• Perform the 3D operations on an image and text • Perform 3d vanishing point operations on selected image • Render 3D scenes using cinema 4D lite • Perform animation on objects, lights, point of interest, and auto orient.	02 Periods(T) 04 Periods(P)	Stationary items,multi media,comp uter system/lapto p	Classroom /Lab
Effects	• Use Particles for compound objects • Apply paint effects (Stroke, Scribble, Write-on, Paint) • Adjust color balance • Replace the background	• Performa particles on image as per requirement • Apply color correction on images	02 Periods(T) 04 Periods(P)	Stationary items,multi media,comp uter system/lapto p	Classroom /Lab
Tracking/Stabilizi ng	• Understand tracking and stabilizing • Track Motion	• Apply tracking and stabilizing on objects.	02 Periods(T) 04 Periods(P)	Stationary items,multi media,comp uter system/lapto p	Classroom /Lab
Expressions	• Know about Expressions • Knowledge of using expressions to animate shapes • Adjust the expression direction, parameters, rate of change and loops • Explore new expressions	• Preform expressions on image/ video	02 Periods(T) 04 Periods(P)	Stationary items,multi media,comp uter system/lapto p	Classroom /Lab
Keying	• Understand function of Keying • Change the background and adjust foreground object • Render and export the project.	• Apply keying on video • Perform 3d animation on cartoon/ animal character • Apply rain effect in a desert scene	02 Periods(T) 04 Periods(P)	Stationary items,multi media,comp uter system/lapto p	Classroom /Lab

Chapter 08
Media Production Management **T= 08, P= 20, Total=28**

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Work place
Introduction to media production management	The students will be able to: • Define Media • Define management • Describe media production management • Learn techniques of media management	•	01 Periods(T) 02 Periods(P)	Stationary items,multimedia,computer system/laptop	Classroom/ Lab
Human Resource management	• Determine strategies for delivery of human resource services • Manage the delivery of human resource services • Evaluate human resource service delivery • Manage integration of business ethics in human resource practices	• Discuss human resource management concept.	02 Periods(T) 02 Periods(P)	Stationary items,multimedia,computer system/laptop	Classroom/ Lab
Customer services and sales	• Identify prospects for sales • Learn about to pitch services to client • Negotiate deal with client • Close the sales opportunity • Maintain Customer Database • Provide customer services	• Maintain feedback record • Maintain record of regular client	02 Periods(T) 02 Periods(P)	Stationary items,multimedia,computer system/laptop	Classroom/ Lab
Revenue and expense management	• Develop a personal budget • Develop long term personal budget • Identify ways to maximize future finances	• Perform filling the record book of expenses and revenue	02 Periods(T) 02 Periods(P)	Stationary items,multimedia,computer system/laptop	Classroom/ Lab
Project Management	•	•	02 Periods(T) 02 Periods(P)	Stationary items,multimedia,computer system/laptop	Classroom/ Lab

Assessment and Evaluation

The technical subject curriculum for matric tech emphasizes on a classroom environment in which students will be encouraged to learn technical processes and knowledge of graphic designing within meaningful contexts. It is important that assessment strategies reflect this emphasis and are consistent in approach. An assessment program, which provides regular feedback, and is part of the learning process, is important to both student and teacher. Feedback tells students if they demonstrate understanding of concepts and if their actions display expected performance levels for inquiry, decision making, and problem solving. Regular feedback inspires confidence in learning graphic designing and becoming technically literate.

Therefore the assessment of students' learning must be aligned with curriculum outcomes. The curriculum provides suggestions for developing student learning across the general curriculum outcome areas: knowledge, skill and attitude. These outcomes describe a balance of inquiry problem solving, and decision making, within a suggested social-environmental context, for a given set of technical knowledge.

Incorporating assessment into the learning process

Assessment of students' learning must be part of every teaching and learning experience. Students should learn to evaluate their own learning. Traditional student testing programs, which rely on final, one-time

evaluations, provide data that is of limited use to students as they construct knowledge. Meaningful assessment, like meaningful learning, must be authentic and connected to real-life problems.

A constructivist approach to learning and teaching has profound implications for the way learning is measured. Traditional classroom practice relies heavily on paper-and-pencil tests to measure students' learning and ability to apply knowledge. Learning is a processor connecting prior understanding with new learning. Consequently, an assessment strategy that measures the acquisition of facts and elements cannot serve a constructivist model.

To allow students to construct learning in the classroom through authentic experiences, assessment must be:
- Valid, leading to attainment of multi-dimensional technical learning
- Open-ended, allowing for discussion and revision of new understanding
- Tolerant of divergent thinking and promote the notion of no "one right answer"
- Presented in alternative modes, not just paper-and-pencil responses to limiting questions
- Designed to promote analysis, comparison, generalization, prediction, and modification
- Capable of promoting collaboration and team effort in demonstration of competence; and ongoing and cumulative, showing development over time.

Types of assessment

Assessment serves many important purposes. Some of them are given below:
- Diagnostic (to plan instruction to fit the student's prior knowledge)
- Formative (to improve performance and adapt instruction)
- Summative (to report on final performance)

Classroom assessment

The primary purpose of classroom assessment is not only to evaluate and classify students' performance but also to inform of teaching methods and learning environment, and to monitor student progress in achieving year-end learning outcomes. Therefore, classroom assessment is used for various purposes:
- Assessment as Learning
- Assessment for Learning
- Assessment of Learning

Traditionally, the focus of classroom assessment has been on assessment of learning (summative assessment). Assessment for learning has been used only for diagnostic processes and for feedback. In order to enhance learning of all students, the role of assessment as learning must provide an opportunity to students whereby they become critical and analysts of their own learning.

Assessment strategies

Teachers learn about students' progress not only through formal tests, examinations, and projects, but also through moment-by-moment observation of students. To assess students' knowledge, skills, competencies and attitudes, teachers require a variety of tools and approaches, such as:

- **Selected Response**: Multiple-choice, matching, completion tests, etc.

- **Self-constructed Response Questions**: Fill-in-the-blank phrase(s), essay (restricted and extended response), reports, procedures, explanations, short answer sentence(s), paragraph(s), label diagram, and graph/table, etc.
- **Performance and Activity Based Assessment:** Portfolios, presentation, illustrations, lab, workshops, workstations, field visits, demonstration, process skills, enactment, project, group discussion, exhibition, table, graph, portfolios, etc.
  Note**:** Rubrics for all assessment tools must be prepared before administration.
- **Communication, Attitudes and Values Assessment:** Oral questioning, observation, interview, conference, process description, checklists, rating scales, anecdotal records etc.

Students' self-assessment

Students recognize the relationship between content achievement, skill proficiency, and assessment opportunities by setting their sights on their own demonstration. They can do self-assessment if they are provided with the knowledge-related checklists as well as checklists specific to applications and attitudes. Students assume the role of a researcher and use critical thinking skills as they find facts and make inferences to reach more conclusions about their learning. They are not receiving information passively and then simply giving it back to the teacher after memorizing it. Assessment should allow students to monitor their progress in various technical skills: initiating and planning; performing and recording; analyzing and interpreting; communication and teamwork. The curriculum calls for students to be actively involved in their learning, using the tools of dress making during classroom, laboratory, and workshop activities.

Quality in assessment

Assessment of professional and vocational learning must change as technical instruction moves from a focus on facts to a focus on in-depth understanding of major concepts and processes. Whereas the Quality Assessment will have the following major objectives:
- Measurement of what students should know and are able to do according to the Learning Outcomes
- Objective verification of the application of technical principles to familiar and unfamiliar situations; and
- Alignment with the Learning Outcomes and the Teaching/Learning Strategies.

Therefore, assessment and evaluation of the students' learning of technical aspects according to predetermined objectives and learning outcomes will ensure the quality of their academic achievements.

CONSTRUCTION OF TEST ITEMS

Written test items (selected response and creative response) should adhere to the following criteria:
- Items should be clearly written according to domain and depth of concept.
- Each test items should be written on the understanding level of learners.
- Test items should cover what learners have had opportunities to learn.

Too frequently, these test items measure students' gains in recall of factual information. There are other relevant facts for students to acquire. These are higher levels of thinking and competency that students should also develop.

These test items should measure students' achievement in:
- Understanding basic technical education concepts of graphic designing and acquired learning;
- Evaluating contents in terms of criteria or learning outcomes
- Problem-solving skills

- Analytical and creative thinking
- Positive attitudes developed toward methods of thinking
- Ability to work together with others
- Relevant concepts and generalizations developed
- Ability to manipulate and utilize techniques and technical equipment
- Understanding the concepts of design development
- Developing the software commands

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 content.
- 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.

Guideline 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 Learner 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 student 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.

Basic Requirements for Lab (Tools/Equipment)

S. 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)

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