

**CURRICULUM**  
**GRAPHIC DESIGNING (II)**  
**GRADE X**  
**2020**



**GOVERNMENT OF PAKISTAN**  
**Ministry Of Federal Education and Professional Training**  
**ISLAMABAD**

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## **Introduction**

Graphic designing is the art, profession and academic discipline whose activities consist in projecting visual communications intended to transmit specific messages to social groups, with specific objectives. Therefore, it is an interdisciplinary branch of design whose foundations and objectives revolve around the definition of problems and the determination of objectives for decision-making, through creativity, innovation and lateral thinking along with digital tools, transforming them for proper interpretation. This activity helps in the optimization of graphic communications. It is also known as visual communication design, visual design or editorial design.

The role of the graphic designer in the communication process is that of encoder or interpreter of the message. She works on the interpretation, ordering and presentation of visual messages. The design work always starts from a client's demand, a demand that ends up being established linguistically, either orally or in writing, that is, that graphic design transforms a linguistic message into a graphic manifestation.

Graphic design has, as a field of application, different areas of knowledge focused on any visual communication system. For example, it can be applied in advertising strategies, or it can also be applied in the aviation world. In this sense, in some countries graphic design is related as only associated with the production of sketches and drawings, this is incorrect, since visual communication is a small part of a huge range of types and classes where it can be applied.

Given the rapid and massive growth in information sharing, the demand for experienced designers is greater than ever, particularly because of the development of new technologies and the need to pay attention to human factors beyond the competence of the engineers who develop them.

## **Rationale**

Well-designed pieces of graphic design enable its creators to boost up sales, establishing its name and earning goodwill in the market, and thereby maximizing the profitable base of the business. A well-crafted design of graphics seeks to attract the attention of a large amount of people. Without a good design the company may not be able to highlight its product and increase its customer-base on the site which ultimately affects the business and profitability of the company.

## **Aims**

- Equip learners with a set of transferable formal and conceptual tools for “making and communicating”

- Make the learner skilled enough to fulfill the industry requirement
- Give the learners enough knowledge, skills, and courage to startup their own business
- Develop skills, promote personal business and entrepreneurship

## Objectives

- Familiarize the students with basic principles and fundamentals in visuals art and design.
- Able to create effective and innovative designs to convey desire idea.
- Develop basics skills using tools and theory using in design process.
- Understand creative process, develop techniques and method of creative problem solving.
- Create communication solutions that address audience and context by recognizing the human factors that determine design decisions.

### Grade-X

Learning Themes and Student's Learning Outcomes Knowledge, Skills and Attitudes					
Chapter 01					
InPage					
T= 03, P= 06, Total=09					
Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to InPage	The student will be able to: <ul style="list-style-type: none"> <li>• Define InPage</li> <li>• Describe purpose of InPage</li> <li>• Define Home Screen</li> <li>• Describe the menu bar, property bar, status bar</li> </ul>	<ul style="list-style-type: none"> <li>• Create a page with default setting</li> </ul>	02 Periods(T) 01 Periods(P)	Computer and its accessories, software	Lab
Basic Concepts of InPage	<ul style="list-style-type: none"> <li>• use of Nastalik truetype font.</li> <li>• use of arabic and decorative font</li> <li>• knowing font sizes &amp; text alignments</li> <li>• understand mixing urdu, arabic, farsi, sindhi and english in the same document</li> <li>• define typography and using type in in-page</li> <li>• import &amp; exports for different file extensions</li> </ul>	<ul style="list-style-type: none"> <li>• Write an application to HOD for sick leave in Urdu.</li> <li>• Prepare a document having tables, bullets, images, columns, etc. as per requirement</li> </ul>	01 Periods(T) 05 Periods(P)	Computer and its accessories, software	Lab
Chapter 02					
Production and Printing					
T = 10, P = 16, Total = 30					
Content	Students Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to Production and Printing	The student will be able to: <ul style="list-style-type: none"> <li>• define production and printing</li> <li>• understand printing requirements</li> <li>• define how to prepare files for printing</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare a brochure for printing using CMYK mode.</li> <li>• Design a letterhead for a company.</li> </ul>	01 Periods(T) 04 Periods(P)	Computer and its accessories, software	Lab

	<ul style="list-style-type: none"> <li>Learn about resolution.</li> <li>describe color management setting, image proofing on screen</li> </ul>				
Color Setting for printing	<ul style="list-style-type: none"> <li>differentiate CMYK and RGB</li> <li>convert image to CMYK for commercial printing</li> <li>convert image to different formats</li> </ul>	<ul style="list-style-type: none"> <li>Prepare PS file for printing and for uploading on social media as per required color mode.</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Papers in Printing Process	<ul style="list-style-type: none"> <li>Define types of papers.</li> <li>Size of paper for different print media.</li> <li>Learn about paper weightage used for different print media.</li> <li>Learn about color printing papers (mate, glossy).</li> </ul>	<ul style="list-style-type: none"> <li>Explore different type of papers in nearby market.</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Portfolio	<ul style="list-style-type: none"> <li>Learn about portfolio</li> <li>Learn about branding</li> </ul>	<ul style="list-style-type: none"> <li>Design branding collaterals as per requirement</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab

## Chapter 03 Adobe Photoshop-II

T = 12, P = 21, Total = 33

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Mask and channels	Student will be able to: <ul style="list-style-type: none"> <li>understand working with masks and channels</li> <li>understand quick mask</li> <li>define manipulation of images with puppet warp, vanishing point</li> <li>define alpha channel to create a shadow</li> </ul>	<ul style="list-style-type: none"> <li>Manipulate an image using mask and channels.</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Color theory	<ul style="list-style-type: none"> <li>define primary, secondary, and tertiary colors</li> <li>understand color harmony</li> <li>understand color combinations and meaning of colors</li> <li>understand RGB vs CMYK</li> </ul>	<ul style="list-style-type: none"> <li>Make a group presentation on types of colors with Pictorial representation</li> </ul>	02 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Typography	<ul style="list-style-type: none"> <li>understand complete typography techniques according to products and industry requirements</li> <li>define major classifications of typefaces</li> <li>understand clipping mask from type.</li> <li>define warping print type, type on a path, paragraph of type, type on a rectangle and vertical text.</li> <li>enlist characteristics of the various families of typefaces</li> <li>identify the anatomical aspects of type.</li> </ul>	<ul style="list-style-type: none"> <li>Write a paragraph on school</li> <li>Type your name on different shapes.</li> <li>Type on an image by using clipping mask.</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Vector drawing technique	<ul style="list-style-type: none"> <li>understand bitmap image and vector graphics</li> <li>define path and pen tool</li> <li>understand use of custom shapes and importing a smart object.</li> <li>understand color and depth to a shape using layer style</li> </ul>	<ul style="list-style-type: none"> <li>Draw shapes with pen tool</li> </ul>	01 Periods(T) 03 Periods(P)	Computer and its accessories, software	Lab

UI Designing	<ul style="list-style-type: none"> <li>Know Game, mobile, and website UI designing</li> <li>Understand Different side scrolling parallax images</li> <li>Understand 2D game art and icons.</li> <li>Understand website navigation bar, slider sizes, and product images etc. creation</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	01 Periods(T) 02 Periods(P)		
Advance Compositing	<ul style="list-style-type: none"> <li>learn about low and high resolution</li> <li>understand layer arrangement, smart filters, painting a layer, adding a background, using the history panel to undo edits and upscaling low-resolution images.</li> </ul>	<ul style="list-style-type: none"> <li>Painting a layer using smart filters, and add a background in it.</li> <li>Upscale a low-resolution image into high resolution.</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Editing video and Gifs	<ul style="list-style-type: none"> <li>understand about timeline panel, creating new video project and animate text with key frame.</li> <li>learn effects, transitions, audio effects, muting unwanted audio and rendering video.</li> <li>recognize about gif timeline</li> </ul>	<ul style="list-style-type: none"> <li>Create a video, apply text animation and sav as GIF.</li> </ul>	02 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Preparing files for web	<ul style="list-style-type: none"> <li>understand layer groups to create button graphics</li> <li>comprehend automation of multistep task</li> <li>know designing with artboards</li> </ul>	<ul style="list-style-type: none"> <li>Design a web layout for your school.</li> </ul>	01 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Infographics	<ul style="list-style-type: none"> <li>define infographics</li> <li>understand text and image manipulation</li> <li>learn to exhibit the idea in different ways.</li> </ul>	<ul style="list-style-type: none"> <li>Design a CV using infographic concepts.</li> </ul>	02 Periods(T) 03 Periods(P)	Computer and its accessories, software	Lab

## Chapter 04 Adobe Illustrator-II

**T = 07, P = 24, Total = 30**

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Logo design and Golden ratio	The student will be able to: <ul style="list-style-type: none"> <li>understand basic logo concepts</li> <li>define logotypes</li> <li>describe golden ratio</li> </ul>	<ul style="list-style-type: none"> <li>Design a logo by using golden ratio</li> <li>Design a Monogram for your school</li> </ul>	02 Periods(T) 07 Periods(P)	Computer and its accessories, software	Lab
Vector and character design	<ul style="list-style-type: none"> <li>understand basic vector concept</li> <li>know vector tracing</li> <li>define flat character designing</li> </ul>	<ul style="list-style-type: none"> <li>Design a human character.</li> </ul>	02 Periods(T) 05 Periods(P)	Computer and its accessories, software	Lab
CC Libraries	<ul style="list-style-type: none"> <li>understand downloading assets from cc libraries</li> <li>learn installation of assets from cc libraries</li> </ul>	<ul style="list-style-type: none"> <li>Download and install brushes and font libraries.</li> </ul>	01 Periods(T) 05 Periods(P)	Computer and its accessories, software	Lab
Typography	<ul style="list-style-type: none"> <li>understand complete typography techniques according to products and industry requirements</li> <li>define major classifications of typefaces</li> <li>understand clipping mask from type.</li> <li>describe warping print type, type on a path, paragraph of type, type on a rectangle and vertical test.</li> <li>enlist characteristics of the various families of typefaces</li> <li>classify the anatomical aspects of type.</li> </ul>	<ul style="list-style-type: none"> <li>Write a paragraph on school and type on different shapes.</li> <li>Type on an image by using clipping mask.</li> </ul>	01 Periods(T) 05 Periods(P)	Computer and its accessories, software	Lab

Stationary Design	<ul style="list-style-type: none"> <li>define stationary components</li> <li>learn to design business card, brochure, letter head, and flyers etc.</li> <li>Export files in different formats</li> </ul>	<ul style="list-style-type: none"> <li>Design a complete Stationary for school.</li> <li>Design Business card, brochure, letter Head, and Flyer for a business</li> </ul>	01 Periods(T) 05 Periods(P)	Computer and its accessories, software	Lab
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### Chapter 05 Adobe XD-II

**T = 8, P = 15, Total = 23**

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Adobe XD Overview	The student will be able to: <ul style="list-style-type: none"> <li>Understand XD Interface</li> <li>Define artboard and grid usage</li> <li>Understand import and export content</li> </ul>	<ul style="list-style-type: none"> <li>Create multiple art boards to design UI kits</li> </ul>	02 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Advance Adobe XD	<ul style="list-style-type: none"> <li>Understand layouts, Designs, creation, and preview Using UI kits</li> <li>Define add and edit artboard</li> <li>Understand Grids to set columns and margins.</li> <li>Understand designing landing pages with XD and PS.</li> </ul>	<ul style="list-style-type: none"> <li>Design a Game UI with XD.</li> </ul>	02 Periods(T) 04 Periods(P)	Computer and its accessories, software	Lab
UI Designing	<ul style="list-style-type: none"> <li>Understand importing graphics, text and facts, multiple screen layouts for games, mobile and web Using grids repeatingelements</li> <li>Explain single interaction, content scrolling and record an interactive prototype.</li> <li>Describe export artboard and assets.</li> </ul>	<ul style="list-style-type: none"> <li>Design a Website UI with XD.</li> </ul>	02 Periods(T) 06 Periods(P)	Computer and its accessories, software	Lab
Responsive layout grid	<ul style="list-style-type: none"> <li>Describe purpose of layout grid</li> <li>Understand making of responsive layout in Adobe XD</li> <li>Export files in different formats</li> </ul>	<ul style="list-style-type: none"> <li>Design a responsive single layout using grids</li> </ul>	02 Periods(T) 03 Periods(P)	Computer and its accessories, software	Lab

### Chapter 06 Adobe InDesign-II

**T = 07, P = 12, Total = 19**

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Adobe InDesign Overview	The students will be able to: <ul style="list-style-type: none"> <li>define InDesign</li> <li>understand InDesign workspace</li> <li>understand pages panel</li> <li>describe paragraph styles, character styles and object styles</li> </ul>	<ul style="list-style-type: none"> <li>Design a 10 pages fashion magazine by using different style, text, and format</li> </ul>	01 Periods(T) 03 Periods(P)	Computer and its accessories, software	Lab
Working with Graphics	<ul style="list-style-type: none"> <li>define InDesign graphics, how to handle InDesign graphics</li> <li>define working and customizing the link panels, locate missing images, and adding graphic layout.</li> <li>define auto fitting, using adobe bridge to import graphics, multiple</li> </ul>	<ul style="list-style-type: none"> <li>Design a magazine by customizing the link panels, locate missing images, and adding graphic layout.</li> </ul>	02 Periods(T) 03 Periods(P)	Computer and its accessories, software	Lab

	graphics using mini bridge, object style, wrapping text, clipping path and alpha channels				
Working with tables	<ul style="list-style-type: none"> <li>understand to import PS file</li> <li>understand table creation, copy/paste information into tables, converting text to table and table to text.</li> <li>understand formation of row/column, and borders</li> <li>know formation of cells, text alignment, merging cells, and header cells.</li> <li>comprehend working with tables in story editors.</li> </ul>	<ul style="list-style-type: none"> <li>Design a table of content for a book.</li> </ul>	02 Periods(T) 04 Periods(P)	Computer and its accessories, software	Lab
Color documents	<ul style="list-style-type: none"> <li>comprehend coloring to frame and text, live corner effects, new swatch creation, and tint reduction</li> <li>explain gradient (radial/ linear)</li> <li>know use of eyedropper tool to copy frame attribute</li> <li>Export files in different formats</li> </ul>	<ul style="list-style-type: none"> <li>Make a colorful magazine keeping in mind color harmony</li> </ul>	02 Periods(T) 04 Periods(P)	Computer and its accessories, software	Lab

## Chapter 7 Freelancing

**T= 04, P= 11, Total=15**

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
Introduction to freelancing	The student will be able to: <ul style="list-style-type: none"> <li>define freelancing</li> <li>describe importance of freelancing</li> <li>enlist top freelancers worldwide in graphic designing and media production</li> </ul>	<ul style="list-style-type: none"> <li>Prepare a list of top Freelancers worldwide in graphic designing and media production</li> </ul>	02 Periods(T) 02 Periods(P)	Computer and its accessories, software	Lab
Types of Freelancing	<ul style="list-style-type: none"> <li>define offline freelancing</li> <li>define online freelancing</li> <li>describe platforms of freelancing</li> </ul>	<ul style="list-style-type: none"> <li>Presentation on types of freelancing</li> </ul>	02 Periods(T) 03 Periods(P)	Computer and its accessories, software	Lab
Portfolio	<ul style="list-style-type: none"> <li>Understand about portfolio</li> <li>Know about creating Facebook pages/ Instagram account/ Bedance profile / Flickr profile</li> </ul>	<ul style="list-style-type: none"> <li>Visit the profiles of top-rated freelancer</li> </ul>			
Freelancing Profiles	<ul style="list-style-type: none"> <li>Learn about creating profile on different freelancing platforms</li> <li>Understand gig creation in Fiverr</li> <li>Understand Niche selection</li> <li>Understand the process of bidding</li> </ul>	<ul style="list-style-type: none"> <li>Presentation on freelancing profile Creation on different freelancing platform</li> <li>Create gigs on Fiverr</li> <li>Create Fiverr / Upwork profiles under observation of teacher.</li> </ul>	02 Periods(T) 04 Periods(P)	Computer and its accessories, software	Lab

## Chapter 08 Entrepreneurship

**T = 09, P =10, Total =19**

Content	Students' Learning Outcome	Activities/Practical	Duration	Tools	Workplace
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Introduction to Entrepreneurship	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>define entrepreneurship</li> <li>know key concepts of entrepreneurship</li> <li>understand main component of entrepreneurship</li> <li>learn types of entrepreneurship</li> </ul>	<ul style="list-style-type: none"> <li>Group discussion on entrepreneurship</li> </ul>	<p>03 Periods (T) 03 Periods (P)</p>	<p>Multimedia Presentation and virtual exposure</p>	<p>Classroom</p>
Feasibility and Business Plan	<ul style="list-style-type: none"> <li>know how to identify business opportunity.</li> <li>know how to develop feasibility and business Plan for startup.</li> <li>prepare a business plan.</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Design a business plan keeping in view skills of cosmetology</li> </ul>	<p>03 Periods (T) 04 Periods (P)</p>		<p>Classroom</p>
Marketing and Marketing Mix	<ul style="list-style-type: none"> <li>learn about concept of marketing and marketing mix</li> <li>understand 6 P's of marketing</li> <li>calculate costing and pricing</li> </ul>	<ul style="list-style-type: none"> <li>Develop a marketing strategy for your business model developed in previous activity</li> </ul>	<p>03 Periods (T) 03 Periods (P)</p>	<p>Multimedia and White Board</p>	<p>Classroom</p>

## 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)

## Curriculum Review and Validation Committee

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