



**BANGLADESH TECHNICAL EDUCATION BOARD**

**Agargaon, Sher-E-Bangla Nagar**

**Dhaka-1207.**

**04-YEAR DIPLOMA IN ENGINEERING CURRICULUM  
COURSE STRUCTURE & SYLLABUS  
(PROBIDHAN-2022)**

**GRAPHIC DESIGN TECHNOLOGY**

**TECHNOLOGY CODE: 96**

**4<sup>TH</sup> SEMESTER**

**(Effective from 2022-2023 Academic Sessions)**

## DIPLOMA IN ENGINEERING CURRICULUM COURSE STRUCTURE

(PROBIDHAN-2022)

**TECHNOLOGY NAME: GRAPHIC DESIGN TECHNOLOGY (96)**

(4<sup>TH</sup> SEMESTER)

Sl. No.	Subject		Period Per Week		Credit	Marks Distribution						Grand Total
						Theory Assessment			Practical Assessment			
	Code	Name	Theory	Practical		Continuous	Final	Total	Continuous	Final	Total	
1	25841	Accounting	2	-	2	40	60	100	-	-	-	100
2	29041	Environmental Studies	2	3	3	40	60	100	25	25	50	150
3	29541	Screen Printing	2	6	4	40	60	100	50	50	100	200
4	29542	Safety and Maintenance	2	3	3	40	60	100	25	25	50	150
5	29641	Image Carrier Preparation	2	3	3	40	60	100	25	25	50	150
6	29642	Graphic Design-II	2	3	3	40	60	100	25	25	50	150
7	29643	Video and Sound Editing	2	3	3	40	60	100	25	25	50	150
<b>Total</b>			<b>14</b>	<b>21</b>	<b>21</b>	<b>280</b>	<b>420</b>	<b>700</b>	<b>175</b>	<b>175</b>	<b>350</b>	<b>1,050</b>
<b>Total Period</b>			<b>35</b>									
<b>Theory: Practical (Ratio)</b>			<b>40.0%</b>	<b>60.0%</b>								

Subject code	Subject Name	Period per week		Credit
25841	Accounting	T	P	C
		2	0	2

<b>Rationale</b>	All diploma graduate will work in any institution or organization or will be an employer this subject knowledgeable skill and attitude will health the studies to make appropriate decision for their professional life. This subject will cover the topics like information technology, Evaluation of an organization, journal entry system, cash book analysis and Income Tax.
<b>Learning Outcome (Theoretical)</b>	<p>After undergoing the subject, student will be able to:</p> <ul style="list-style-type: none"> <li>▪ Describe accounting concept</li> <li>▪ Describe transaction analysis</li> <li>▪ Describe accounting entry system.</li> <li>▪ Explain the accounts of debit and credit</li> <li>▪ Interpret the journal entry system.</li> <li>▪ Evaluate the balance of ledger.</li> <li>▪ Describe the cash book analysis.</li> <li>▪ Evaluate of trial balance</li> <li>▪ Explain the financial statement</li> <li>▪ Describe income tax assesment.</li> </ul>

## Detailed Syllabus (Theory)

Unit	Topics with contents	Class (1 Period)	Final Marks
1.	<b>CONCEPT OF ACCOUNTING</b> 1.1 Define accounting. 1.2 State the objectives of accounting. 1.3 State the advantages of accounting. 1.4 State the necessity and scope of accounting.	2	3
2.	<b>TRANSACTION ANALYSIS</b> 2.1 Define transaction. 2.2 Define business transaction. 2.3 Describe the Characteristics of Transaction. 2.4 Discuss the different types of Transaction.	2	3
3.	<b>ENTRY SYSTEM OF ACCOUNTING</b> 3.1 Define single and double entry system. 3.2 Discuss the principles of double entry system. 3.3 Justify whether double entry system is an improvement over the single-entry system. 3.4 Distinguish between single entry and double entry system of accounting	1	3
4.	<b>CONCEPT OF ACCOUNTS</b> 4.1 Define accounts. 4.2 State the objectives of accounts. 4.3 Illustrate different type of accounts. 4.4 State the golden rules of accounting. 4.5 State the rules for debit and credit in each class of accounts. 4.6 Define accounting cycle.	2	3
5.	<b>JOURNAL ENTRY SYSTEM</b> 5.1 Define journal. 5.2 State the objective of journal. 5.3 Mention the various names of journal. 5.4 Prepare the form of journal entry system. 5.5 Solve the problem related journal entry system.	4	10
6.	<b>LEDGER</b> 6.1 Define ledger 6.2 Interpret the form of ledger 6.3 Distinguish between journal and ledger 6.4 Explain "ledger is called the king of all books of accounts" 6.5 Prepare ledger from given transaction	2	3
7.	<b>CASH BOOK ANALYSIS</b> 7.1 Define cash book. 7.2 Classify cash book. 7.3 Explain cash book as both journal and ledger. 7.4 Explain the different types of discount. 7.5 Prepare different types of cash books from given transactions showing balances.	4	10
8.	<b>TRIAL BALANCE ANALYSIS</b> 8.1 Define trial balance. 8.2 State the objective of a trial balance. 8.3 Mention the reasons for non-agreement of trial balance. 8.4 Prepare trial balance from given balance.	3	3
9.	<b>FINAL ACCOUNTS</b>	10	20

	9.1 State the components of final accounts 9.2 Distinguish between trial balance and balance sheet 9.4 List the items to be posted in the trading account profit and loss account and the balance sheet 9.5 Prepare trading account profit and loss account and balance sheet from the given trial balance and other information		
<b>10.</b>	<b>INCOME TAX</b> 10.1 Define income tax. 10.2 State the objective of income tax. 10.3 Classify of assesses. 10.4 State the Taxable income of assesses. 10.5 Describe the Tax rebate. 10.6 Describe ther Income tax year, assessment year and National Board of Revenue (NBR).	<b>2</b>	<b>2</b>
	<b>Total</b>	<b>32</b>	<b>60</b>

### REFERENCE BOOKS

<b>SL</b>	<b>Book Name</b>	<b>Writer Name</b>
1.	Book-Keeping & Accounting	Prof. Gazi Abdus Salam
2.	Principles of Accounting	Hafiz uddin
3.	Cost Accounting	Prof. Asimuddin Mondol
4.	হিসাবরক্ষন ও হিসাববিজ্ঞান	পরেশ মন্ডল
5.	উচ্চ মাধ্যমিক হিসাববিজ্ঞান	হক ও হোসাইন
6.	আয়কর	ওয়ালীউল্লাহ

Subject Code	Subject Name	Period per Week		Credit
29061	Environmental Studies	T	P	C
		2	3	3

<b>Rationale</b>	<p>The need for sustainable environmental development is critical for the future of the world and mankind. The excess demand of natural resources is creating obstacles to sustain life on earth. The continuing problems of pollution have made everyone aware of environmental issues. Different industrial sectors have direct impact on the environment and are responsible for air, water, soil, noise, marine, nuclear, and biological pollution. The knowledge of environmental studies is the prerequisite for the control of these pollutions. In this present scenario, fundamental knowledge of environmental studies is necessary for a Diploma in Engineering Course to understand the root causes of pollution and enable them to control industrial pollution through maintaining the raw materials, processes, and technology.</p> <p>The subject covers the basic knowledge about key environmental issues, different types of pollution, their effects, control measures, and remedies in their respective fields. This will enable them to be responsible professionals and contribute to sustainable development for the benefit of all.</p> <p>This module is designed with hands on practical approach which includes practical activity to identify common pollutants and data collection for resource consumption.</p>
<b>Learning Outcome (Theoretical)</b>	<p><b>After undergoing the subject, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe the environment and environmental pollution.</li> <li>2. Explain ecology and ecosystems.</li> <li>3. Identify major environmental risks and challenges. related to industrial operation, production, and agriculture.</li> <li>4. Identify ways to mitigate negative effects on the environment.</li> <li>5. State Legislative measures and requirements to protect the environment.</li> </ol>
<b>Learning Outcome (Practical)</b>	<p><b>After undergoing the subject, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Analyze the water and wastewater quality parameters.</li> <li>2. Demonstrate the air quality measures.</li> <li>3. Estimate the noise level and acoustic zone mapping.</li> <li>4. Collect data for resource consumption and waste generation.</li> <li>5. Observe operations of an Effluent water treatment plant (ETP).</li> </ol>

## Detailed Syllabus (Theory)

Unit	Topics with Contents	Class (1 Period)	Final Marks
1	<p><b>INTRODUCTION TO ENVIRONMENTAL STUDIES</b></p> <p>1.1 Define nature, environment &amp; environmental studies.            1.2 Mention the components of the environment.            1.3 Define pollution, pollutant &amp; contaminant.            1.4 Classify different types of pollution.            1.5 Differentiate between natural and man-made environments.            1.6 Define climate change.            1.7 Mention the impact of climate change.</p>	2	4
2	<p><b>ECOLOGY &amp; ECOSYSTEM</b></p> <p>2.1 Define ecology &amp; eco-system.            2.2 Illustrate the water cycle.            2.3 Illustrate the carbon cycle.            2.4 Illustrate the nitrogen cycle.            2.5 Illustrate the oxygen cycle.            2.6 Define food chains and food webs.            2.7 Define Biodiversity, biomass, bioconcentration and bio magnification.            2.8 Describe Terrestrial and Aquatic ecosystem.            2.9 Define ecologically critical area (ECA), threatened species, endanger species, extinct species, and exotic species.            2.10 List the ecologically critical areas of Bangladesh.</p>	2	4
3	<p><b>GLOBAL AND NATIONAL ENVIRONMENTAL ISSUES</b></p> <p>3.1. Define Greenhouse effect, global warming &amp; Ozone depleting substances (ODS).            3.2. Mention the causes of global warming.            3.3. List the greenhouse gases.            3.4. State the contribution of greenhouse gases to the greenhouse effect.            3.5. Discuss the effects of global warming on the environment and human life.            3.6. Define acid rain and impact on the environment.            3.7. Describe the importance of the ozone layer and the effects of ozone depletion.            3.8. Mention different types of natural disaster.            3.9. Discuss the Flood, Cyclone &amp; Earthquake disaster management system of Bangladesh.</p>	3	6
4	<p><b>WATER AND WASTEWATER MANAGEMENT</b></p> <p>4.1 Define water pollution, water pollutants and pollution sources.            4.2 Mention the sources of water pollution.            4.3 Mention the quality standards of drinking water and wastewater.            4.4 Define wastewater management.            4.5 Explain effluents, influent and methods of effluent treatment.            4.6 Draw different schematic diagrams of effluent treatment methods.            4.7 Explain the effects of water pollution on human health and the</p>	5	10

	environment. 4.8 Discuss the importance of water conservation.		
5	<b>AIR POLLUTION, ENERGY AND CARBON FOOTPRINT</b>  5.1 Describe the sources, production, and consumption of energy. 5.2 Describe air pollution and sources of air pollution. 5.3 Define Carbon Footprint. 5.4 Define GHG emission and contribution to the greenhouse effect. 5.5 Discuss the effects of energy consumption on Climate Change. 5.6 Explain the concept of energy efficiency. 5.7 Discuss Carbon Footprint calculation methods. 5.8 Discuss the importance of reducing Carbon Footprint. 5.9 Discuss the effect of air pollution on human health, vegetation, and animals.	5	8
6	<b>NOISE POLLUTION</b>  6.1 Define sound & sound wave. 6.2 Mention the scale of measuring sound intensity. 6.3 Define sound pressure & sound power. 6.4 Describe the sound intensity and loudness. 6.5 Define noise pollution. 6.6 Mention the sources of noise pollution. 6.7 Mention the effect of noise pollution on human health. 6.8 Explain the methods for noise prevention in the industry.	2	4
7	<b>SOIL POLLUTION</b>  7.1. Define soil pollution and soil degradation. 7.2. Classify different types of soil pollution. 7.3. Mention the sources of soil pollution. 7.4. List the main pollutants in soil. 7.5. Describe the impacts of soil pollution on the food chain and ecosystem. 7.6. Describe the methods of soil pollution controlling. 7.7. List the agro-ecological zones of Bangladesh.	2	4
8	<b>SOLID WASTE MANAGEMENT</b>  8.1 Define solid waste. 8.2 Identify the sources of solid waste. 8.3 Categorize different types of solid waste. 8.4 Discuss the solid waste collection methods. 8.5 Describe 3R and 4R methods of solid waste management. 8.6 Describe the potential method of disposal of solid waste. 8.7 Mention the waste management strategies in Bangladesh. 8.8 Discuss the impact of solid waste on environment and human health.	3	6
9	<b>CHEMICAL MANAGEMENT</b>  9.1 Define Chemical hazard. 9.2. Discuss different types of chemical hazard and toxicity. 9.3 State the benefits of chemical management. 9.4 Describe basic concepts of chemical segregation and storage. 9.5. Describe chemical label and safety data sheet (SDS) 9.6. Discuss different hazard pictogram and safety signs. 9.7 Describe chemical pesticides.	4	7



	9.8. Describe the mitigation and control measures of chemical exposure.		
10	<p><b>REGULATORY ISSUES OF ENVIRONMENT</b></p> <p>10.1 Mention environmental act &amp; legislations prescribed for air, noise, water, soil &amp; wildlife protection in Bangladesh.</p> <p>10.2 Discuss International protocols and agreements related to environmental issues.</p> <p>10.3 Define environmental impact assessment (EIA).</p> <p>10.4 Describe the environmental framework in Bangladesh.</p> <p>10.5 Describe environmental conservation act 1995 in Bangladesh.</p> <p>10.6 Describe the environment conservation rule 1997 in Bangladesh.</p> <p>10.7 Discuss the steps required to obtain Environmental Clearance certificate in Bangladesh.</p>	<b>4</b>	<b>7</b>
	<b>Total</b>	<b>32</b>	<b>60</b>

### Detailed Syllabus (Practical)

Sl.	Experiment name with procedure	Class (3 Period)	Total Marks
1	<p><b>Determine physical water quality of water sample.</b></p> <p>1.1 Measure temperature, color, odor &amp; taste.</p> <p>1.2 Measure turbidity of water.</p> <p>1.3 Measure total suspended solids (TSS) present in water sample.</p> <p>1.4 Maintain the record of performed job.</p>	1	5
2	<p><b>Determine chemical water quality of water sample.</b></p> <p>2.1 Measure pH level in water sample.</p> <p>2.2 Measure Hardness in water sample.</p> <p>2.3 Maintain the record of performed job.</p>	1	5
3	<p><b>Measure total dissolved solids (TDS) present in water sample.</b></p> <p>3.2 Prepare TDS meter &amp; necessary accessories.</p> <p>3.2 Read the value of TDS meter.</p> <p>3.3 Maintain the record of performed job.</p>	1	5
4	<p><b>Determine Iron (Fe) &amp; Arsenic (As) level in water sample.</b></p> <p>4.1 Prepare Iron &amp; Arsenic test kit bottles.</p> <p>4.2 Measure Iron (Fe) level in water sample.</p> <p>4.3 Measure Arsenic level in water sample.</p> <p>4.4 Maintain the record of performed job.</p>	1	5
5	<p><b>Determine dissolved oxygen (DO), Chemical oxygen demand (COD), biochemical oxygen demand (BOD) in wastewater sample.</b></p> <p>5.1 Prepare DO meter and necessary accessories.</p> <p>5.2 Measure dissolved oxygen (DO) level present in water.</p> <p>5.3 Measure biochemical oxygen demand (BOD) in water.</p> <p>5.4 Prepare required apparatus for Chemical oxygen demand (COD) test.</p> <p>5.5 Prepare reagents for COD test.</p> <p>5.6 Observe COD test readings and calculate result.</p>	1	5

	5.7 Maintain the record of performed job.		
6	<b>Measure Air Quality</b> 6.1 Prepare air quality meter and necessary accessories. 6.2 Measure air quality, CO <sub>2</sub> level in the air. 6.3 Maintain the record of performed job.	1	5
7	<b>Control of air dust by cyclone separator</b> 7.1 Prepare cyclone separator. 7.2 Observe the reading of cyclone separator. 7.3 Remove the dust from cyclone separator. 7.4 Maintain the record of performed job.	1	5
8	<b>Measurement of noise level in different places</b> 8.1 Prepare noise meter. 8.2 Observe the reading of noise level meter. 8.3 Measure the noise level in different working area. 8.4 Maintain the record of performed job.	1	5
9	<b>Calculate Energy consumption.</b> 9.1 Collect the data. 9.2 Compute energy consumption in KWH. 9.3 Maintain the record of performed job.	1	5
10	<b>Perform a field visit on Effluent treatment plant (ETP)</b> 10.1 Observe the ETP plant. 10.2 Collect the relative data. 10.3 Prepare the diagram of observed ETP plant. 10.4 Maintain the record of performed job.	1	5
	<b>Total</b>	<b>10</b>	<b>50</b>

### Necessary Resources (Tools, equipment's, and Machinery):

Sl	Item Name	Quantity
01	Turbidity meter	5 set
02	P <sup>H</sup> meter	5 set
03	TDS meter	5 set
04	Noise Level Meter	5 set
05	DO meter	5 set
06	Cyclone Separator(high sampler)	5 set
07	Iron & Arsenic test kit box	5 set
08	Incubator	1 set
09	Water Bath	1 set
10	Glassware	5 set
11	Thermometer	5 set
12	Ultraviolet–visible Spectrophotometer	1 set
13	Energy meter	1 set
14	Bill or data for electricity bill, gas bill, liquid gas bill, gasoline bill	5 sets for each class
15	AMP meter	5 set
16	High volume sampler	1 set
17	Oven	1 set
18	Measurement scales up to 4 digits	5 set
19	COD reactor	5 sets
20	Chemicals reagents and stabilizing chemicals	2 liters

21	Hardness meter	5 sets
22	Hardness kit box	5 sets
23	Filter paper	10 packets
24	Air Quality meter	5 sets

### **Recommended Books:**

SI	Book Name	Writer Name	Publisher Name & Edition
01	Pollution control in process industries	S. P. Mahajan	McGraw Hill Education 2017
02	Environmental Policy and Public Health: Air Pollution, Global Climate Change, and Wilderness	William N. Rom	Jossey-Bass
03	Air pollution Fundamentals of Air Pollution, Fourth Edition	Daniel A. Vallero	Elsevier Publications
04	Industrial Noise Control	Bruce Fader	John Wiley & Sons
05	পরিবেশ দূষণ (১ম ও ২য় খণ্ড)	আবদুল মালেক ভূইয়া	
06	পরিবেশ দূষণ	গৌতম পাল	
07	Sustainability Indicators	By Simon Bell, Stephen Morse	Routledge, London, 2001.
08	Down to Earth. Applying Business Principles to Environmental Management.	F. L. Reinhardt	Harvard Business School, Boston 2000, ISBN 1-57851-192-5.
09	Industrial Wastewater Treatment.	Patwardhan	2nd revised edition. PHI Learning. ISBN:8120353323; 2017
10	Industrial Wastewater Treatment, Recycling and Reuse.	Ranade & Rhandari	Butterworth-Heinemann. ISBN: 9780080999685 2014
11	Energy, Resources and Environment	Alan Reddish and John Blunden	Hodder Education, 2 <sup>nd</sup> edition
12	Exploring Environmental Issues-An integrated approach	David D. Kemp	Routledge, London

### **Website References:**

SI	Web Link	Remarks
01	<a href="http://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/155eebe8_0092_4653_907d_421dc0890e6d/aian%20sonkolon%20fff-1-100.pdf">http://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/155eebe8_0092_4653_907d_421dc0890e6d/aian%20sonkolon%20fff-1-100.pdf</a>	
02	<a href="http://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/155eebe8_0092_4653_907d_421dc0890e6d/aian%20sonkolon%20fff-101-200.pdf">http://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/155eebe8_0092_4653_907d_421dc0890e6d/aian%20sonkolon%20fff-101-200.pdf</a>	
03	<a href="http://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/155eebe8_0092_4653_907d_421dc0890e6d/aian%20sonkolon%20fff-201-366.pdf">http://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/155eebe8_0092_4653_907d_421dc0890e6d/aian%20sonkolon%20fff-201-366.pdf</a>	
04	Environmental Protection Agency <a href="https://www.epa.gov/laws-regulations">https://www.epa.gov/laws-regulations</a>	
05	Woodard & AMP: Industrial Waste Treatment Handbook, 2nd Edition (2006) Chapters available for free download on <a href="https://www.sciencedirect.com/book/9780750679633/industrial-waste-treatment-handbook">https://www.sciencedirect.com/book/9780750679633/industrial-waste-treatment-handbook</a>	

SUBJECT CODE	SUBJECT NAME	PERIOD PER WEEK		CREDIT
29541	Screen Printing	T	P	C
		2	6	4

<b>Rationale</b>	<p>Printing technology has great demand in every sphere of our life. Whatever we use in our daily life there must have some connections with printing. There are many types of printing technologies such as Letterpress printing, Screen printing, Offset printing, Gravure printing, and non-major printing process. The screen-printing process has some specialties with various uses on all types of substrate or media. It has demands in garments printing industries, ceramic industries, leather industries etc. The subject will enable the diploma engineers to acquire knowledge on gradual development of screen printing, to understand the equipment and tools used in screen printing process, to understand Raw materials and chemicals for used screen printing, to understand the mesh materials &amp; screen to Understand the direct &amp; indirect process for stencil making, to understand different screen-printing process and to understand printing ink and media of Printing.</p>
<b>Learning Outcome (Theoretical)</b>	<p><b>After undergoing the subject, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• Describe gradual development of screen printing.</li> <li>• Differentiate various types of printing process.</li> <li>• Explain Raw materials and chemicals for used screen printing.</li> <li>• Explain different types of the mesh materials &amp; screen.</li> <li>• Describe screen printing ink.</li> <li>• Describe screen printing stock/substrate.</li> </ul>
<b>Learning Outcome (Practical)</b>	<p><b>After undergoing the subject, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Apply different tools &amp; equipment's used in screen printing.</li> <li>2. Prepare different types of stencils for screen printing.</li> <li>3. Make ready the screen-printing press.</li> <li>4. Operate different types of screen-printing machine.</li> <li>5. Print on different substrate.</li> </ol>

## DETAILED SYLLABUS (THEORY)

Unit	Topics with Contents	Class (1 Period)	Final Marks
1	<p><b>HISTORY OF SCREEN PRINTING</b></p> <p>1.1 Describe the history of screen printing.</p> <p>1.2 Describe the major printing process.</p> <p>1.3 Define diamond suture.</p> <p>1.4 Describe the invention of screen-printing process.</p> <p>1.5 Describe the advantages and disadvantages of screen printing.</p>	<b>02</b>	<b>06</b>
2	<p><b>RAW MATERIALS AND TOOLS &amp; EQUIPMENTS FOR SCREEN PRINTING</b></p> <p>2.1 List the materials, Tools &amp; equipment used in screen printing.</p> <p>2.2 Describe screen printing stock and media or substrate</p> <p>2.3 Explain light sensitive film.</p> <p>2.4 List the chemicals for direct &amp; indirect stencil making process.</p> <p>2.5 List the chemicals for cleaning stencil.</p> <p>2.6 Describe the different types of element for light sensitive emulsion.</p> <p>2.7 Describe the different types of chemical to make hard emulsion.</p> <p>2.8 Describe the equipment for screen printing.</p> <p>2.9 Describe the instruments used in screen printing.</p>	<b>04</b>	<b>08</b>
3	<p><b>THE MESH MATERIALS &amp; SCREEN</b></p> <p>3.1 Define mesh materials, mesh count &amp; screen.</p> <p>3.2 Mention different types of mesh materials.</p> <p>3.3 Describe the characteristics of mesh materials.</p> <p>3.4 Describe the uses of mesh count.</p> <p>3.5 Explain the thread thickness for ink deposit.</p> <p>3.6 Mention the different meshes for various types of works.</p> <p>3.7 State different types of screen.</p> <p>3.8 Describe the characteristics of Organic Screen, Metallic Screen and phosphors braze Screen.</p> <p>3.9 Distinguish among Synthetic Screen, Polyamide cloth and Stainless-steel wire cloth.</p>	<b>04</b>	<b>09</b>
4	<p><b>THE DIRECT &amp; INDIRECT PROCESS FOR STENCIL MAKING</b></p> <p>4.1 Define the art work, illustration &amp; design.</p> <p>4.2 Describe the photographic emulsion for direct process.</p> <p>4.3 List different types of solution used indirect process.</p> <p>4.4 State the process of direct &amp; indirect stencil making.</p> <p>4.5 Describe the photo emulsion drying procedure.</p> <p>4.6. Explain the characteristics of direct &amp; indirect stencil process.</p> <p>4.7 Describe the method of correction of direct &amp; indirect stencil.</p> <p>4.8 Describe the computer to stencil process.</p> <p>4.9 Describe the various problems for direct &amp; indirect stencil making.</p>	<b>05</b>	<b>06</b>

5	<p><b>THE MANUAL, FLATBED &amp; CYLINDER PRESS OF SCREEN PRINTING.</b></p> <p>5.1 State the features of manual screen printing.  5.2 Describe the manual screen-printing process.  5.3 Compare among manual process, mechanical, semi-automatic and automatic process.  5.4 Mention different types of screen-printing bed.  5.5 Describe automatic flatbed screen printing process.  5.6 Describe the stencil attached process in mechanical screen printing.  5.7 Describe the reciprocating cylinder press.  5.8 Explain the operation principle of cylinder screen printing press.  5.9 Describe the uses of various uneven &amp; cylindrical rigid surfaces.  5.10 Compare different methods of screen printing in glass &amp; ceramic.</p>	05	09
6	<p><b>SCREEN PRINTING ON TEXTILE &amp; FABRICS</b></p> <p>6.1 Describe textile &amp; fabrics for screen printing.  6.2 Describe the manual and automatic process of screen printing on textile &amp; fabrics.  6.3 Describe the various types of foil used in screen printing.  6.4 Describe the printing process of heat transfer film, foil, paper &amp; board used in heat transfer method.</p>	02	04
7	<p><b>SPECIAL SCREEN PRINTING</b></p> <p>7.1 Define Flock printing.  7.2 Describe flock printing process.  7.3 Describe the various types of glitters used in screen printing.  7.4 Describe emboss screen printing process.  7.5 Describe 3D screen printing process.  7.6 Describe crack printing process.  7.7 Describe the Plastic soul printing.  7.8 Describe the reflective print process.  7.9 Describe the radium screen print process.  7.10 Describe HiDENSI screen printing process.</p>	03	06
8	<p><b>SCREEN PRINTING INKS</b></p> <p>8.1 Mention various types of ink.  8.2 Explain the characteristics of screen-printing ink.  8.3 State the uses of different types of screen-printing ink.  8.4 Describe the ingredients of screen-printing ink.  8.5 Describe the sublimation ink.  8.6 Describe the media or substrate for sublimation ink.  8.7 Describe advantage &amp; disadvantage of sublimation ink.  8.8 Describe the function of pantone color chart used in color mixing.  8.9 Describe Fastness to light, Hardness, Elasticity, Thermal conductivity, Adhesive straight, Opacity, Chemical resistant test of screen-printing ink;</p>	03	05

9	<b>THE DRYING PROCESS AND EQUIPMENT USED IN SCREEN PRINTING FINISHED GOODS</b> 9.1 Describe the importance of drying process in screen printing. 9.2 Describe the different types of drying process. 9.3 Distinguish between chemical process and absorption process. 9.4 Distinguish between UV and IR drying. 9.5 Mention the drying equipment used in screen printing. 9.6 Explain, drying rack, set drying, tunnel drying.	02	04
10	<b>THE POTENTIAL FOR FURTHER DEVELOPMENT AND ENVIRONMENTAL PROTECTION</b> 10.1 Describe the main focus of further development in the stencil making sector. 10.2 Describe the implication of screen-printing in health, safety and environment. 10.3 Describe the environmental protection hazard management in screen printing industry. 10.5 Describe the probable of screen printing for our national economy. 10.6 Explain the importance of screen printing to remove the unemployment in context of Bangladesh.	02	04
<b>Total</b>		<b>32</b>	<b>60</b>

### **DETAILED SYLLABUS (PRACTICAL)**

Sl.	Experiment Name	Class (3 Period)	Marks (Continuous)
1	<b>Identify the tools equipment used in screen printing.</b> 1.1 Identify the name of tools & equipment's in the experiments sheet. 1.3 Detect each tools & equipment's from the list. 1.4 Maintain the record of performed task.	2	3
2	<b>Prepare a wooden, steel and aluminum frame.</b> 2.1 Prepare the screen. 2.2 Prepare the tools & equipment's to attach the screen to the frame. 2.3 Maintain the record of performed task.	2	3
3	<b>Prepare the stencil by direct and indirect process.</b> 3.1 Prepare the frame for coating. 3.2 Apply the coating/film on to the screen. 3.3 Dry the coating/film. 3.4 Expose/transfer the coating. 3.5 Develop the coating/film. 3.6 Correct the stencil. 3.7 Maintain the record of performed task.	2	3
4	<b>Prepare the ink for color mixing.</b> 4.1 Arrange the different types of ink for mixing. 4.2 Prepare the different types of paste (rubber paste or	2	3

	<p>chemical, Flock gum, crack clear, emboss gum, plastic soul clear, radium paste, silicon).</p> <p>4.3 Mix the ink &amp; chemical according to the job.</p> <p>4.4 Maintain the record of performed task.</p>		
5	<p><b>Correct the registration point in the screen-printing table/machine.</b></p> <p>5.1 Prepare screen-printing table.</p> <p>5.2 Gum on the table/plate paper.</p> <p>5.3 Attached the plate paper on the printing table in the machine.</p> <p>5.4 Perform Registration the frame/table.</p> <p>5.5 Maintain the record of performed task.</p>	2	3
6	<p><b>Make ready the screen-printing machine for T- shirt, Shari and other garments products.</b></p> <p>6.1 Set up the screen in the station.</p> <p>6.2 Attach the plate paper on to the plate.</p> <p>6.3 Set up the squeezer.</p> <p>6.4 Apply ink on the stencil.</p> <p>6.5 Test the print.</p> <p>6.6 Checkup the test print.</p> <p>6.7 Start final printing.</p> <p>6.8 Maintain the record of performed task.</p>	2	3
7	<p><b>Perform 3D Printing</b></p> <p>7.1 Prepare 3D metal die.</p> <p>7.2 Prepare the media.</p> <p>7.3 Prepare silicon basic color.</p> <p>7.4 Prepare heat press machine.</p> <p>7.5 Apply silicon basic color.</p> <p>7.6 Checkup the test print.</p> <p>7.7 <b>Perform</b> final 3D printing.</p> <p>7.8 Maintain the record of performed task.</p>	2	3
8	<p><b>Perform Flock Printing</b></p> <p>8.1 Set up the table.</p> <p>8.2 Prepare the stencil.</p> <p>8.3 Prepare flock gum.</p> <p>8.4 Test the print on the Media.</p> <p>8.5 Spray flock on the media.</p> <p>8.6 Dry &amp; brush the flock.</p> <p>8.7 Cure the media.</p> <p>8.8 Perform final Flock printing.</p> <p>8.9 Maintain the record of performed task.</p>	2	3
9	<p><b>Perform Foil Printing.</b></p> <p>9.1 Set up the table.</p> <p>9.2 Prepare the stencil.</p> <p>9.3 Prepare &amp; print the gum on the media.</p> <p>9.4 Dry the gum slightly.</p> <p>9.5 Prepare the heat press machine.</p> <p>9.6 Prepare the foil for printing.</p> <p>9.7 Test print on the media.</p>	2	3



	9.8 <b>Perform</b> final Foil printing. 9.9 Maintain the record of performed task.		
10	<b>Perform Crack Print.</b> 10.1 Set up the table. 10.2 Prepare the stencil. 10.3 Set up the squeezer. 10.4 Print the crack clear. 10.5 Print with basic color (rubber paste). 10.6 Checkup the test print. 10.7 <b>Perform</b> final foil printing. 10.8 Maintain the record of performed task.	2	3
11	<b>Perform Glitters Print.</b> 11.1 Prepare the table. 11.2 Prepare the stencil. 11.3 Set up the squeezer. 11.4 Prepare the glitters paste. 11.5 Checkup the test print. 11.6 <b>Perform</b> final glitters printing. 11.7 Maintain the record of performed task.	2	3
12	<b>Perform Plasti soul Print</b> 12.1 Prepare the table. 12.2 Prepare the stencil. 12.3 Set up the squeezer. 12.4 Prepare the Plasti soul clear paste with basic color. 12.5 Checkup the test print. 12.6 <b>Perform</b> final Plasti soul printing. 12.7 Maintain the record of performed task.	2	3
13	<b>Perform Emboss Print</b> 13.1 Prepare the table. 13.2 Prepare the stencil. 13.3 Set up the squeezer. 13.4 Prepare the rubber clear. 13.5 Prepare heat press 13.6 Checkup the test print. 13.7 <b>Perform</b> final emboss printing. 13.8 Maintain the record of performed task.	2	3
14	<b>Perform Reflective Print</b> 14.1 Prepare the table. 14.2 Prepare the reflective paper. 14.3 Prepare the Design. 14.4 Prepare heat press. 14.5 Checkup the test print. 14.6 <b>Perform</b> final reflective printing. 14.7 Maintain the record of performed task.	2	3
15	<b>Perform Radium Print</b> 15.1 Prepare the table. 15.2 Prepare the Stencil. 15.3 Prepare the rubber clear. 15.4 Print with rubber paste with basic color.	2	2

	15.5 Print with rubber paste with radium powder. 15.6 Checkup the test print. 15.7 <b>Perform</b> final radium printing. 15.8 Maintain the record of performed task.		
16	<b>Perform Hidensi Printing</b> 16.1 Prepare the table. 16.2 Prepare the Stencil. 16.3 Prepare the Hidensi clear. 16.4 Print with Hidensi clear frequently. 16.5 Print with basic color frequently. 16.6 Checkup the test print. 16.7 <b>Perform</b> final hidensi printing. 16.8 Maintain the record of performed task.	1	2
17	<b>Perform Ceramics Printing.</b> 17.1 Prepare design. 17.2 Print the design on the sublimation paper. 17.3 Prepare heat press machine. 17.4 Print on the glass or ceramic product. 17.5 Checkup the test print. 17.6 <b>Perform</b> final Ceramics printing. 17.7 Maintain the record of performed task.	1	2
	Total	32	50

### **NECESSARY RESOURCES (TOOLS, EQUIPMENT'S AND MACHINERY):**

<b>SI</b>	<b>Item Name</b>	<b>Quantity</b>
01	Process Camera	01 set
02	Negative film and positive film	5 set
03	Eye Glass / Magnifier	5 set
04	Brush (.2", .5" etc.)	5 set
05	Light Table	1 set
06	Hand gloves	25 set
07	Goggles	5 set
08	Apron	25 set
09	Pencil, Marker	05 Set
10	Geometrical measurement box	5 set
11	Scissors, Anti cutter, Scale	5 set

### **RECOMMENDED BOOKS:**

<b>SI</b>	<b>Book Name</b>	<b>Writer Name</b>	<b>Publisher Name &amp; Edition</b>
01	Handbook of print media	Helmut Kipphan	Heidelberg
02	Screen Printing 1 & 2	Sayef Sahriar Zahidee	BTEB
03	Screen Printing (Complete Water Base	Robert Adam & Carol Robertson	Thames & Hudson Ltd.

	Process.)		
04	Screen Printing	Mohammad Aslam Khan	Akther Hossain Khan

**WEBSITE REFERENCES:**

<b>Sl</b>	<b>Web Link</b>	<b>Remarks</b>
01	<a href="http://printwiki.org">http://printwiki.org</a>	Search here
02	<a href="https://www.slideshare.net/search?utf8=%E2%9C%93&amp;searchfrom=header&amp;q=screen+printing">https://www.slideshare.net/search?utf8=%E2%9C%93&amp;searchfrom=header&amp;q=screen+printing</a>	Search here
03	<a href="https://www.screenprinting.com/blogs/news/how-to-start-water-based-printing">https://www.screenprinting.com/blogs/news/how-to-start-water-based-printing</a>	

SUBJECT CODE	SUBJECT NAME	PERIOD PER WEEK		CREDIT
29542	SAFETY AND MAINTENANCE	T	P	C
		2	3	3

<b>Rationale</b>	<p>Printing technology is a demand driven technology in this world. Whatever we use in our daily life there are some connection with printing. Safety and maintenance subject will play a very vital role for diploma engineering students and also for printing industrialist. During any machine operation safety is first. And timely maintenance will keep the machine smooth, increase performance and productivity. The subject will assist the diploma engineers to develop Knowledge, skill and attitude regarding maintenance and safety concern, accident and prevention, fires and their prevention, first aid, lubricant and lubricating devices, maintenance tools, equipment and consumables, press overhauling, safety training and accident reporting, safety and health in the printing industry.</p>
<b>Learning Outcome (Theoretical)</b>	<p><b>After undergoing the subject, students will be able to</b></p> <ul style="list-style-type: none"> <li>• State the causes of accidents in the printing industry and prevention.</li> <li>• Describe fires and their prevention.</li> <li>• Describe first aid.</li> <li>• Define lubricant and lubricating devices.</li> <li>• State machine maintenance in printing industry.</li> <li>• Define maintenance tools, equipment and consumable materials.</li> <li>• Describe maintenance workshop machineries.</li> <li>• Describe machine overhauling process.</li> <li>• Define safety training and accident reporting.</li> <li>• Describe occupational safety and health.</li> </ul>
<b>Learning Outcome (Practical)</b>	<p><b>After undergoing the subject, students will be able to</b></p> <ol style="list-style-type: none"> <li>1. Perform lubricating the printing machine.</li> <li>2. Identify the maintenance tools and equipment.</li> <li>3. Maintenance printing machineries.</li> <li>4. Perform various first aid procedures.</li> <li>5. Use and maintain different types of fire extinguishers.</li> <li>6. Overhaul various types of machine.</li> <li>7. Perform safety training and accident reporting.</li> <li>8. Determine occupational safety and health.</li> </ol>

## DETAILED SYLLABUS (THEORY)

Unit	Topics with Contents	Class (1 Period)	Final Marks
1	<p><b>CAUSES OF ACCIDENTS IN PRINTING INDUSTRY AND PREVENTION</b></p> <p>1.1 Define safety and accident.            1.2 Explain the causes of accident in printing industry.            1.3 Describe accident prevention.            1.4 Mention personal protective system in printing industry.            1.5 Explain the effect of accident.</p>	04	07
2	<p><b>FIRES AND THEIR PREVENTION</b></p> <p>2.1 Define various types of fire.            2.2 Describe the causes of fire.            2.3 Describe the prevention of fire.            2.4 Define firefighting equipment.            2.5 Explain automatic sprinkler system.            2.6 State effect of fire in printing industry.            2.7 Explain the doable in case of fire.</p>	03	06
3	<p><b>FIRST AID</b></p> <p>3.1 Define first aid.            3.2 List the first aid kit.            3.3 Explain the necessity of first aid.            3.4 Describe various first aid procedures.            3.5 Explain the use of first aid materials.</p>	02	05
4	<p><b>LUBRICANT AND LUBRICATING DEVICES</b></p> <p>4.1 Define lubricant.            4.2 Describe types of lubricant.            4.3 Explain the characteristics of lubricants.            4.4 Define lubricant chart.            4.5 Define central lubrication system.            4.6 Explain the lubricating schedule for various printing machine.            4.7 Define gear and bearing.            4.7 Describe various types of gear and bearing used in printing machine.</p>	04	07
5	<p><b>MACHINE MAINTENANCE IN PRINTING INDUSTRY</b></p> <p>5.1 Define maintenance.            5.2 Define the term maintenance system.            5.3 Distinguish between maintenance and overhauling.            5.4 Describe the function maintenance team.            5.5 Describe the needs of planned maintenance.            5.6 Describe the preventive maintenance of various units in offset printing machine.</p>	03	05
6	<p><b>MAINTENANCE TOOLS, EQUIPMENT AND CONSUMABLE MATERIALS</b></p> <p>6.1 Define tools.            6.2 Define the equipment.            6.3 Define consumable materials.            6.4 List the tools and equipment for maintenance.            6.5 Explain the function of tools, equipment and consumable materials.</p>	03	05

	6.6 Describe the necessity of tools, equipment and consumables.		
7	<b>MAINTENANCE WORKSHOP MACHINERIES</b> 7.1 Define built in maintenance system of latest printing machine. 7.2 Describe the maintenance of offset printing machine. 7.3 Describe the maintenance of CtP system. 7.4 Describe the maintenance of digital printing machine. 7.5 Describe the maintenance of digital fabric printing machine. 7.6 Describe the maintenance of 3D printing machine.	03	06
8	<b>OVERHAUL THE MACHINERIES IN PRINTING INDUSTRY</b> 8.1 Define overhauling. 8.2 Describe the needs of overhauling. 8.3 Explain the overhauling process of offset printing machine. 8.4 Explain the overhauling process of plate exposure and processor. 8.5 Explain the overhauling process of digital printing press. 8.6 Explain the overhauling process of digital fabric printing press. 8.7 Explain the overhauling process of 3d printing machine.	03	06
9	<b>SAFETY TRAINING AND ACCIDENT REPORTING</b> 9.1 Define safety training. 9.2 Explain the effect of posturing, meeting, booklet, film, video slides regarding safety concern. 9.3 Outline the importance of accident investigation. 9.4 Mention the important points of accident investigation. 9.5 Explain the methods of recording and reporting accidents. 9.6 Outline the importance of recording and reporting accidents.	04	06
10	<b>SAFETY AND HEALTH IN THE PRINTING INDUSTRY</b> 10.1 Describe occupational health. 10.2 Explain skin disease in press. 10.3 Define industrial health science. 10.4 Describe the necessity of industrial health. 10.5 Define personal hygiene. 10.6 Explain the needs of personal hygiene.	03	04
	<b>Total</b>	<b>32</b>	<b>60</b>

### **DETAILED SYLLABUS (PRACTICAL)**

Sl.	Experiment Name	Class (3 Period)	Marks (Continuous)
1	<b>Lubricate an offset printing machine.</b> 1.1 Follow OSH Practice. 1.2 Collect lubricating devices (oil can, grease gun, oil gun etc.) 1.3 Arrange and install oil and grease. 1.4 Apply oil and grease as per machine manual. 1.5 Maintain the record of performed job.	3	6
2	<b>Prepare preventive maintenance schedule for offset press.</b> 2.1 Follow OSH Practice. 2.2 Collect machine manual and follow the instructions. 2.3 Make maintenance schedule as per instructions. 2.4 Maintain the record of performed job.	2	4

3	<b>Demonstrate opening and fitting of dampening roller bearing.</b> 3.1 Follow OSH Practice. 3.2 Open dampening roller bearing as per manual. 3.3 Clean and Grease the bearings. 3.4 Re-install the bearing on roller. 3.5 Fit the rollers appropriately as per manual. 3.6 Maintain the record of performed job.	3	5
4	<b>Perform dampening roller adjustment of offset press.</b> 4.1 Follow OSH Practice. 4.2 Open dampening roller as per manual. 4.3 Wash the roller with detergent and water properly. 4.4 Clean the water gently from rollers. 4.5 Install the roller again sequentially. 4.6 Maintain the record of performed job.	3	4
5	<b>Practice first aid on emergency patient before hospitalized.</b> 5.1 Follow OSH Practice. 5.2 Inspect the patient to analyze the problems. 5.3 Collect the first aid box. 5.4 Apply appropriate medication to resolve the problems. 5.5 Ask the patient for the problems are decreased or not. 5.6 Hospitalized the patient immediately if needed. 5.7 Maintain the record of performed job.	3	3
6	<b>Maintenance a digital printing machine.</b> 6.1 Follow OSH Practice. 6.2 Analyze the maintenance criteria for digital printing machine. 6.3 Check and clean all the sensors with cleaning pad. 6.4 Clean the nozzles with cleaning solution and cleaning pad. 6.5 Check and clean all other units of digital printing machine. 6.5 Maintain the record of performed job.	2	3
<b>Total</b>		<b>16</b>	<b>25</b>

**NECESSARY RESOURCES (TOOLS, EQUIPMENT'S AND CONSUMABLE MATERIALS):**

SI	Item Name	Quantity
01	Engineering screw driver	05 set
02	Star point screw driver	05 set
03	Ball pin hammer	02 set
04	Grip pliers	02 set
05	Open end spanners set	02 set
06	Ring spanners set	02 set
07	Flat point chisel	02 set
08	File	02 set
09	Scraper, flat and short blade	02 set
10	Scraper, curved and medium blade	02 set
11	Socket wrench set	02 set

12	Feeler gauge	02 set
13	Allen key wrench set	02 set
14	Divider	02 set
15	Calipers	02 set
16	Vernier calipers	02 set
17	Thread gauge	02 set
18	Set square	02 set
19	Metal scale	02 set
20	Electric drill machine	01 set
21	Drill bit set	20 set
22	Pipe thread cutter	02 set
23	Hand operated rotary pump	01 set
24	Bearing puller set	02 set
25	Grinding stone	02 pcs
26	Hand trolley	02 pcs
27	Rubber gasket	10 pcs
28	Emery cloth	10 pcs
29	Grinding or lapping paste or compound	02 kg
30	Sealing compound	02 kg
31	Ant seizing compound	01 container
32	Adhesive or glue	01 container
33	Putty	02 kg
34	Teflon tape	10 pcs
35	Packing	10 pcs
36	Kerosene, petrol, thinner	01 container each
37	Wire brush	02 pcs
38	Washers	100 pcs
39	Shim (Copper/stainless steel)	10 pcs
40	Rust remaining spray	01 container
41	Hand gloves	20 pair
42	Grease	02 kg
43	Lubricant	05 kg
44	Rag	As per need
45	Ropes	As per need
46	Nuts, Bolts, Screws	100 pcs each
47	Wooden logs	05 pcs from various size
48	Polythene sheet or roll	01 roll
49	First Aid Box	01 pc
50	First aid materials and instruments	As per requirements
51	Medicines for first aid	As per requirements



**RECOMMENDED BOOKS:**

SI	Book Name	Writer Name	Publisher Name & Edition
01	সেফটি অ্যান্ড প্রেস মেইনটেইন্যান্স	Md. Abdul Mannan	BTEB
02	Handbook of print media	Helmut Kipphan	Heidelberg

**WEBSITE REFERENCES:**

SI	Web Link	Remarks
01	<a href="http://www.youtube.com/Printing machine maintenance">www.youtube.com/Printing machine maintenance</a>	Search here with topics
02	<a href="http://www.google.com/">www.google.com/</a> Safety and press maintenance	Search here with topics
03	<a href="https://cutt.ly/Y6ucw9G">https://cutt.ly/Y6ucw9G</a>	PDF Book (Press Maintenance Troubleshooting and Pressroom Safety Manual)
04	<a href="https://cutt.ly/56uvIAf">https://cutt.ly/56uvIAf</a>	PDF Book (Press Machine Safety Guide)
05	<a href="https://cutt.ly/56uv1Qg">https://cutt.ly/56uv1Qg</a>	PDF Book (Operation and Maintenance Manual with sphere parts)

SUBJECT CODE	SUBJECT NAME	PERIOD PER WEEK		CREDIT
		T	P	C
29641	Image Carrier Preparation	2	3	3

<b>Rationale</b>	<p>Printing technology has great demand in every sphere of our life. Whatever we use in our daily life there must have some connections with printing. There are many types of printing technologies such as Letterpress printing, Screen printing, Offset printing, Gravure printing, and non-major printing process. Different types of image career are used in different printing processes. These type of image caarriers have individual characteristics. Students will gather knowledge about image preparation, image preparation for conventional relief printing, image preparation for modern relief printing, image preparation for conventional planographic printing, image preparation for modern planographic printing, image preparation for intaglio printing, image preparation for screen printing, problem solution &amp; remedies of image preparation.</p>
<b>Learning Outcome (Theoretical)</b>	<p><b>After undergoing the subject, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• Describe image preparation.</li> <li>• Differentiate among various types image career.</li> <li>• Explain Raw materials and chemicals used in different image careers.</li> <li>• Explain image preparation for planographic printing.</li> <li>• Describe image preparation for intaglio printing.</li> <li>• Explain image preparation for screen printing.</li> <li>• Describe problem solution &amp; remedies of different types of image career.</li> </ul>
<b>Learning Outcome (Practical)</b>	<p><b>After undergoing the subject, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Apply different tools &amp; equipment's used in screen printing.</li> <li>2. Prepare different types of stencils for screen printing.</li> <li>3. Make ready the screen-printing press.</li> <li>4. Operate different types of screen-printing machine.</li> <li>5. Print on different substrate.</li> </ol>

## DETAILED SYLLABUS (THEORY)

Unit	Topics with Contents	Class (1 Period)	Final Marks
1	<b>IMAGE PREPARATION</b> 1.1 Define image preparation. 1.2 Describe various types of image carrier. 1.3 Define film, tracing, negative & positive. 1.4 Describe the different light sources for exposing positive & negative. 1.5 Describe different metal used in image preparation.	04	06
2	<b>IMAGE PREPARATION FOR CONVENTIONAL RELIEF PRINTING.</b> 2.1 Define block & type forma. 2.2 Mention the name of raw materials & equipment's used to prepare block making. 2.3 Describe line block & half tone block. 2.4 Explain letter press block making process. 2.5 Describe various types of flexo plates. 2.6 Describe Processing method of rubber & photopolymer plates. 2.7 Distinguish between Sheet photopolymer & Liquid photopolymer Plate. 2.8 Differentiate between rubber & photopolymer plates. 2.9 Describe the storage system & handling of used & unused plates.	04	07
3	<b>IMAGE PREPARATION FOR MODERN RELIEF PRINTING.</b> 3.1 Describe the characteristics of digital flexo plate. 3.2 Define full HD flexo. 3.3 Explain the use of Digital Imager (DI). 3.4 Describe Thick Plate, Digital Sheet-Solvent and Liquid Photopolymer. 3.5 Explain Thin Plate, Digital Sheet-Solvent and Digital Sheet-Thermal Plates. 3.6 Describe Digital Sheet-Thermal and Liquid Photopolymer Plates. 3.7 Describe different types of images used in digital flexo plate making. 3.8 Describe different types of lasers used in digital flexo plate making.	04	07
4	<b>IMAGE PREPARATION FOR CONVENTIONAL PLANOGRAPHIC PRINTING.</b> 4.1 Mention the name of raw materials & equipment's used to prepare lithographic plate. 4.2 Describe photomechanical principle. 4.3 Describe types of lithographic plate. 4.4 Define lithographic plate & Ps Plate. 4.5 Explain the graining process of conventional offset plate. 4.6 Describe the preparing method of coating solution & its	05	08

	<p>characteristics.</p> <p>4.7 Define plate surface chemistry.</p> <p>4.8 Define oleophilic and hydrophilic area of offset plate.</p> <p>4.9 Describe the necessity of desensitization of offset plate.</p>		
5	<p><b>IMAGE PREPARATION FOR MODERN PLANOGRAPHIC PRINTING.</b></p> <p>5.1 Describe auto plate exposure &amp; processor.</p> <p>5.2 Define principle of CtP</p> <p>5.3 Describe operation method of CtP.</p> <p>5.4 Explain the processing method of Digitally Imaged Plates (Di &amp; Laser).</p> <p>5.5 Discuss the processing method of Laser-Edge CtP &amp; x-CtP Plates.</p> <p>5.6 Explain the processing method of Thermal Plates.</p> <p>5.7 Describe the processing method of Inkjet CtP Metal Plates</p> <p>5.8 Explain the method of Dry offset plate preparation.</p> <p>5.9 Describe the importance of maintenance of image area and non-image area of offset plate.</p>	04	08
6	<p><b>IMAGE PREPARATION FOR INTAGLIO PRINTING</b></p> <p>6.1 Describe the materials &amp; equipments used for Gravure image preparation.</p> <p>6.2 Explain the basic structure of Gravure Cylinder.</p> <p>6.3 Discuss the function of steel, copper, Chrome &amp; other metals used in gravure cylinder.</p> <p>6.4 Discusses the electroplating of gravure cylinder.</p> <p>6.5 Explain the conventional etching, electromechanical engraving &amp; laser engraving of gravure cylinder.</p> <p>6.6 Describe gravure cylinder making process.</p> <p>6.7 Define De-Chrome and Re-Chrome.</p> <p>6.8 Describe storage, handling and changing of Gravure cylinders.</p>	04	08
7	<p><b>IMAGE PREPARATION FOR SCREEN PRINTING.</b></p> <p>7.1 Define the image Carrier of Screen Printing</p> <p>7.2 List the Raw Materials, tools &amp; equipment's use in screen printing stencil making.</p> <p>7.3 Discuss the various types of Stencil making (Direct &amp; Indirect) process.</p> <p>7.4 Explain the CtS process.</p> <p>7.5 Discuss the correction method of stencil.</p>	04	08
8	<p><b>PROBLEM SOLUTION &amp; REMEDIES OF IMAGE PREPARATION.</b></p> <p>8.1 Explain the problems &amp; remedies of offset plate.</p> <p>8.2 Describe the problems &amp; remedies of Computer to Plate(CtP).</p> <p>8.3 Discuss the problems &amp; remedies arised in flexo plate making.</p> <p>8.4 Describe problems &amp; remedies in Computer to Cylinder(CtC) process.</p> <p>8.5 Explain problems &amp; remedies of (Computer to Stencil(CtS).</p>	03	08
	<b>Total</b>	<b>32</b>	<b>60</b>

## DETAILED SYLLABUS (PRACTICAL)

Sl.	Experiment Name	Class (3 Period)	Marks (Continuous)
1	<p><b>Make a relief plate.</b></p> <p>1.1 Identify the raw materials, tools &amp; equipment's in the experiments sheet.</p> <p>1.2 Detect each raw materials, tools &amp; equipment's from the list.</p> <p>1.3 Prepare negative, positive &amp; metal sheet.</p> <p>1.4 Prepare the metal plate.</p> <p>1.5 Finish the relief plate making job.</p> <p>1.6 Record the job.</p>	5	7
2	<p><b>Make a flexo plate.</b></p> <p>2.1 Identify the raw materials, tools &amp; equipment's in the experiments sheet.</p> <p>2.2 Detect each raw materials, tools &amp; equipment's from the list.</p> <p>2.3 Prepare negative, positive, rubber &amp; photopolymer sheet.</p> <p>2.4 Prepare the rubber &amp; photopolymer plate.</p> <p>2.5 Finish the flexo plate making job.</p> <p>2.6 Record the job.</p>	5	7
3	<p><b>Prepare the stencil by direct and indirect process.</b></p> <p>3.1 Prepare the frame for coating.</p> <p>3.2 Apply the coating/film on to the screen.</p> <p>3.3 Dry the coating/film.</p> <p>3.4 Expose/transfer the coating.</p> <p>3.5 Develop the coating/film.</p> <p>3.6 Correct the stencil.</p> <p>3.7 Maintain the record of performed task.</p>	6	10
4	<p><b>Prepare conventional Offset plate.</b></p> <p>4.1 Identify the raw materials, tools &amp; equipment's in the experiments sheet.</p> <p>4.2 Detect each raw materials, tools &amp; equipment's from the list.</p> <p>4.3 Prepare positive &amp; metal sheet.</p> <p>4.3 Exposing, deveopling &amp; finishing.</p> <p>4.4 Maintain the record of performed task.</p>	5	8
5	<p><b>Prepare modern offset plate.</b></p> <p>5.1 Prepare PS or thermal plate.</p> <p>5.2 Prepare CtP.</p> <p>5.3 Process the plate.</p> <p>5.4 Maintain the record of performed task.</p>	6	10
6	<p><b>Prepare intaglio image career.</b></p> <p>6.1 Identify the raw materials, tools &amp; equipment's in the experiments sheet.</p> <p>6.2 Detect each raw materials, tools &amp; equipment's from</p>	5	8

	the list. 6.3 Prepare cylinder for plate making. 6.4 Complete the plate making process. 6.5 Maintain the record of performed task.		
	<b>Total</b>	<b>32</b>	<b>50</b>

**NECESSARY RESOURCES (TOOLS, EQUIPMENT'S AND MACHINERY):**

<b>SI</b>	<b>Item Name</b>	<b>Quantity</b>
01	Process Camera	01 set
02	Negative film and positive film	5 set
03	Eye Glass / Magnifier	5 set
04	Brush (.2", .5" etc.)	5 set
05	Light Table .	1 set
06	Hand gloves.	25 set
07	Goggles.	5 set
08	Apron.	25 set
09	Pencil, Marker, liner pen, transferent tape.	05 Set
10	Geometrical measurement box	5 set
11	Scissors, Anti cutter, Scale	5 set
12	Zinc Sheet	5 set
13	Fish glue enamel	1kg
14	Cold enamel	1kg
15	Aluminium sheet	1kg
16	Amonium bi chromet/ di chromet	1kg
17	Selac	1kg
18	Dragon powder	1kg
19	Marvel	20kg
20	Sand	20kg
21	Brush	5 set
22	Image remover	5 can
23	Plate Cleaner	5 can
24	Nitric Acid	1kg
25	Sulfuric Acid	1kg
26	Mesh	100 meter.
27	Structure of gravure cylider	5 set
28	Exposer machine for ps plate	1 set
29	Exposer machine for Duplo plate	1 set
30	Exposer machine for stencil	1 set
31	Exposer for gravure cylinder	1 set
32	CtP machine	1 set
33	CtC machine	1 set

34	CtS machine	1 set
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**RECOMMENDED BOOKS:**

SI	Book Name	Writer Name	Publisher Name & Edition
01	Handbook of print media	Helmut Kipphan	Heidelberg
02	Surface preparation	Mollah Mohammad Golam Mostofa	BTEB
03	Screen Printing (Complete Water Base Process.)	Robert Adam & Carol Robertson	Thames & Hudson Ltd.

**WEBSITE REFERENCES:**

SI	Web Link	Remarks
01	<a href="http://printwiki.org">http://printwiki.org</a>	Search here
02	<a href="https://www.slideshare.net">https://www.slideshare.net</a>	Search here
03	<a href="https://www.britannica.com/topic/printing-publishing/Offset-plate-making">https://www.britannica.com/topic/printing-publishing/Offset-plate-making</a>	Offset plate
04	<a href="https://www.britannica.com/art/engraving">https://www.britannica.com/art/engraving</a>	Gravure cylinder
05	<a href="https://blog.focuslabel.com/what-are-flexographic-printing-plates">https://blog.focuslabel.com/what-are-flexographic-printing-plates</a>	Flexo plate
06	<a href="https://mavat.ltd/wp-content/uploads/2019/10/Stencil-Making-Process.pdf">https://mavat.ltd/wp-content/uploads/2019/10/Stencil-Making-Process.pdf</a>	Stencil

Subject Code	Subject Name	Period per Week		Credit
29642	Graphic Design-2	T	P	C
		2	3	3

<b>Rationale</b>	Diploma in Engineering Level students are required to acquire the knowledge and skill on concept of typographical design, basic type styles and special formats , drawing basic shapes, drawing advance shapes, color & gradient, save and export file, brush and pattern, pathfinder & shape builder, align & distribution, output setting of illustrator program. It will also give more emphasis on practical aspect rather than theory in teaching learning approach.
<b>Learning Outcome (Theoretical)</b>	<p><b>At the end of the course the students will be able to:</b></p> <ul style="list-style-type: none"> <li>▪ Describe typographical design.</li> <li>▪ State basic type styles and special formats.</li> <li>▪ Explain drawing basic shapes.</li> <li>▪ Discuss drawing advance shapes.</li> <li>▪ Describe color &amp; gradient.</li> <li>▪ State save and export file.</li> <li>▪ Describe brush and pattern.</li> <li>▪ Describe pathfinder &amp; shape builder.</li> <li>▪ Explain align &amp; distribution.</li> <li>▪ Describe output setting of illustrator program.</li> </ul>
<b>Learning Outcome (Practical)</b>	<p><b>At the end of the course the students will be able to</b></p> <ul style="list-style-type: none"> <li>▪ Install illustrator software &amp; identify the interface</li> <li>▪ Design voucher</li> <li>▪ Design id card</li> <li>▪ Create logo</li> <li>▪ Create invitation card</li> <li>▪ Create book cover</li> <li>▪ Design inner pages</li> <li>▪ Design three folded brochure</li> <li>▪ Design leaflet</li> <li>▪ Design poster</li> </ul>



## Detailed Syllabus (Theory)

Unit	Topics with contents	Class (1Period)	Final Marks
1.	<b>TYPOGRAPHICAL DESIGN (ILLUSTRATOR PROGRAM CS6/CC)</b> 1.1 Define typographical design. 1.2 Classify character. 1.3 Describe different type alignment. 1.4 Discuss different type case. 1.5 Explain the paragraph indent. 1.6 Explain different tab setting. 1.7 Discuss the procedure to collect various fonts from <a href="http://www.dafont.com">www.dafont.com</a> .	3	6
2.	<b>BASIC TYPE STYLES AND SPECIAL FORMATS OF ILLUSTRATOR PROGRAM</b> 2.1 Define type style and special formats. 2.2 Explain shadow, outline, 2D, 3D, superscript, subscript and emboss of type style. 2.2 Explain texture & color, drop cap and reverse type. 2.3 Define the display type. 2.4 Explain the uses of threaded type. 2.5 Explain the uses of Link type. 2.6 Define the text wrapping. 2.7 Define true type & post script font. 2.8 Describe Bijoy Unicode font. 2.9 Describe Avro Unicode font.	3	8
3	<b>DRAWING BASIC SHAPES USING ILLUSTRATOR PROGRAM</b> 3.1 Discuss various shapes of Illustrator program. 3.2 Discuss the constrain proportions of shape. 3.3 Explain the resizing & rotating shapes. 3.4 Discuss the clipping mask for shape. 3.5 Define line segment tools. 3.6 Discuss the scale tool.	3	6
4	<b>DRAWING ADVANCE SHAPES USING ILLUSTRATOR PROGRAM</b> 4.1 Discuss the drawing with pen tool. 4.2 Discuss the adjusting path segments. 4.3 Explain the various shapes using pen tool. 4.4 Discuss the drawing spirals, symbols, grids and guide.	3	4
5	<b>COLOR &amp; GRADIENT OF ILLUSTRATOR PROGRAM</b> 5.1 Define Color. 5.2 Discuss the fill, stroke & gradient Color. 5.3 Explain the spot, pantone and process color. 5.4 Explain the color mixing. 5.5 Explain the swatches palette. 5.6 Discuss swatch libraries. 5.7 Describe color picker. 5.8 Discuss black overprint.	3	6

6	<b>SAVE AND EXPORT FILE OF ILLUSTRATOR PROGRAM</b> 6.1 Explain save and export. 6.2 Discuss printing file format. 6.3 Explain PDF file setting. 6.4 Discuss the file extension. 6.5 State the missing file extension. 6.6 Discuss the exporting image /Object in other program.	3	6
7	<b>BRUSH AND PATTERN OF ILLUSTRATOR PROGRAM</b> 7.1 Discuss the brush. 7.2 Discuss calligraphy brush. 7.3 Explain border pattern. 7.4 Discuss the applying pattern brush. 7.5 Discuss the brush libraries. 7.6 Explain art brush effect in text.	3	6
8	<b>PATHFINDER &amp; SHAPE BUILDER OF ILLUSTRATOR PROGRAM</b> 8.1 Describe pathfinder option. 8.2 Discuss shape modes option. 8.3 Explain expand. 8.4 Discuss compound shape. 8.5 Discuss shape builder option.	3	6
9	<b>ALIGN &amp; DISTRIBUTION OF ILLUSTRATOR PROGRAM</b> 9.1 Describe alignment options. 9.2 Describe distribution options. 9.3 Discuss distribution spacing option. 9.4 State align to.	3	4
10	<b>OUTPUT SETTING OF ILLUSTRATOR PROGRAM</b> 10.1 Discuss the various paper sizes. 10.2 Discuss plate size. 10.3 Explain machine size. 10.4 Explain cutting, registration, gripper and folding mark. 10.5 Discuss the color separation preview. 10.6 Describe the overprint preview. 10.7 Discuss RIP. 10.8 State RGB to CMYK conversion process. 10.9 Explain create outline & expand.	5	8
	<b>Total</b>	<b>32</b>	<b>60</b>

### Detailed Syllabus (Practical)

Sl.	Experiment name with procedure	Class (3 Period)	Continuous Marks
1	<b>INSTALL ILLUSTRATOR SOFTWARE &amp; IDENTIFY THE INTERFACE</b> 1.1 Follow Occupational Safety & Health (OSH) practices. 1.2 Install illustrator software. 1.3 Identify software interface. 1.4 Clean & store tools & equipment. 1.5 Maintain the record of perform task.	1	2

2	<b>DESIGN VOUCHER</b> 2.1 Follow Occupational Safety & Health (OSH) practices. 2.2 Open software & setup document. 2.3 Create layout & drawing. 2.4 Add text. 2.5 Follow design principles. 2.6 Follow specification & sample copy. 2.7 Save in appropriate file format. 2.8 Clean & store tools & equipment. 2.9 Maintain the record of perform task.	2	3
3	<b>DESIGN ID CARD</b> 3.1 Follow Occupational Safety & Health (OSH) practices. 3.2 Open software & setup document. 3.3 Create layout & drawing. 3.4 Add text, image, signature & color. 3.5 Follow design principles. 3.6 Follow specification & sample copy. 3.7 Save in appropriate file format. 3.8 Clean & store tools & equipment. 3.9 Maintain the record of perform task.	2	2
4	<b>CREATE LOGO</b> 4.1 Follow Occupational Safety & Health (OSH) practices 4.2 Open software & setup document. 4.3 Create layout & drawing. 4.4 Add line, shapes, illustration, text & color. 4.5 Follow design principles. 4.6 Follow specification & sample copy. 4.7 Save in appropriate file format. 4.8 Clean & store tools & equipment. 4.9 Maintain the record of perform task.	1	2
5	<b>CREATE INVITATION CARD</b> 5.1 Follow Occupational Safety & Health (OSH) practices. 5.2 Open software & setup document. 5.3 Create layout & drawing. 5.4 Add text, image, logo, shapes & color. 5.5 Follow design principles. 5.6 Follow specification & sample copy. 5.7 Save in appropriate file format. 5.8 Clean & store tools & equipment. 5.9 Maintain the record of perform task.	2	3
6	<b>CREATE BOOK COVER</b> 6.1 Follow Occupational Safety & Health (OSH) practices. 6.2 Open software & setup document. 6.3 Create layout & drawing. 6.4 Add text, image, logo, illustration, shapes & color. 6.5 Follow design principles. 6.6 Follow specification & sample copy. 6.7 Save in appropriate file format. 6.8 Clean & store tools & equipment.	2	3

	6.9 Maintain the record of perform task.		
7	<b>DESIGN INNER PAGES</b> 7.1 Follow Occupational Safety & Health (OSH) practices. 7.2 Open software & setup document. 7.3 Create layout & drawing. 7.4 Add text, image, logo, illustration, shapes & color. 7.5 Maintain margin & setup page number. 7.6 Follow design principles. 7.7 Follow specification & sample copy. 7.8 Save in appropriate file format. 7.9 Clean & store tools & equipment. 7.10 Maintain the record of perform task.	1	2
8	<b>DESIGN THREE FOLDED BROCHURE</b> 8.1 Follow Occupational Safety & Health (OSH) practices. 8.2 Open software & setup document. 8.3 Create layout & drawing. 8.4 Add text, text wrap, image, logo, illustration, shapes & color. 8.5 Maintain margin & column. 8.6 Follow design principles. 8.7 Follow specification & sample copy. 8.8 Save in appropriate file format. 8.9 Clean & store tools & equipment. 8.10 Maintain the record of perform task.	2	2
9	<b>DESIGN LEAFLET</b> 9.1 Follow Occupational Safety & Health (OSH) practices. 9.2 Open software & setup document. 9.3 Create layout & drawing. 9.4 Add text, text wrap, image, logo, illustration, shapes & color. 9.5 Follow design principles. 9.6 Follow specification & sample copy. 9.7 Save in appropriate file format. 9.8 Clean & store tools & equipment. 9.9 Maintain the record of perform task.	1	3
10	<b>DESIGN POSTER</b> 10.1 Follow Occupational Safety & Health (OSH) practices. 10.2 Open software & setup document. 10.3 Create layout & drawing. 10.4 Add text, image, logo, illustration, shapes & color. 10.5 Follow design principles. 10.6 Follow specification & sample copy. 10.7 Save in appropriate file format. 10.8 Clean & store tools & equipment. 10.9 Maintain the record of perform task.	2	3
	<b>Total</b>	<b>16</b>	<b>25</b>

**Necessary Resources (Tools, equipment's and Machinery):**

<b>SI</b>	<b>Item Name</b>	<b>Quantity</b>
01	Computer	25 no's
02	Scanner	1 no's
03	Digital Camera	1 no's
04	Printer	1 no's

**Recommended Software:**

<b>SI</b>	<b>Name</b>	<b>Quantity</b>
01	Adobe Illustrator	As Necessary
02	Adobe Acrobat	As Necessary
03	Bijoy	As Necessary
04	Avro	As Necessary

**Recommended Books:**

<b>SI</b>	<b>Book Name</b>	<b>Writer Name</b>	<b>Publisher Name &amp; Edition</b>
01	Adobe Illustrator	Bappi Ashraf	Gankosh Publication
02	Basic Graphic Design-1	Md. Arifur Rahman	Saba Publication ( 2019)
03	Adobe Manual		Adobe Inc.

**Website References:**

<b>SI</b>	<b>Web Link</b>	<b>Remarks</b>
01	<a href="https://www.adobe.com/products/illustrator.html">https://www.adobe.com/products/illustrator.html</a>	
02	<a href="https://en.wikipedia.org/wiki/Adobe_Illustrator">https://en.wikipedia.org/wiki/Adobe_Illustrator</a>	

Subject Code	Subject Name	Period per Week		Credit
29643	Video and Sound Editing	T	P	C
		2	3	3

<b>Rationale</b>	Diploma in Engineering Level students are required to acquire the knowledge and skill on concept of basic video editing, workspace of video editing software, sequencing and real time editing, motion using still image & video, audio, video effect & transition, color theory & color balance in effect control, title & caption with alpha, sound technology, sound taking, rendering process. Have been given more emphasis on practical aspect rather than theory in teaching learning approach.
<b>Learning Outcome (Theoretical)</b>	<p><b>At the end of the course the students will be able to:</b></p> <ul style="list-style-type: none"> <li>▪ Describe basic video editing.</li> <li>▪ Introducing workspace of video editing software.</li> <li>▪ Explain sequencing and real time editing.</li> <li>▪ Discuss motion using still image &amp; video.</li> <li>▪ Describe audio, video effect &amp; transition.</li> <li>▪ State color theory &amp; color balance in effect control.</li> <li>▪ Describe title &amp; caption with alpha.</li> <li>▪ Describe sound technology.</li> <li>▪ Explain sound taking.</li> <li>▪ Describe rendering process.</li> </ul>
<b>Learning Outcome (Practical)</b>	<p><b>At the end of the course the students will be able to</b></p> <ul style="list-style-type: none"> <li>▪ Install video editing software &amp; identify the Interface.</li> <li>▪ Prepare a project settings and import video, Audio and GFX.</li> <li>▪ Edit video clip in time line with real time editing.</li> <li>▪ Create motion using still Image &amp; Video.</li> <li>▪ Apply audio, video effect &amp; transition.</li> <li>▪ Apply color theory &amp; color balance in effect control window.</li> <li>▪ Making title &amp; caption with alpha.</li> <li>▪ Apply sound technology &amp; prepare a project with audio clip.</li> <li>▪ Perform sound taking, voice over using in timeline.</li> <li>▪ Perform rendering process &amp; output in different format.</li> </ul>

## Detailed Syllabus (Theory)

Unit	Topics with contents	Class (1Period )	Final Marks
1.	<b>BASIC OF VIDEO EDITING</b> 1.1 Define video & video editing. 1.2 Describe the history of video editing. 1.3 Discuss various types of video editing. 1.4 Mention the field of application for video editing. 1.5 List hardware and software used in video editing.	3	8
2.	<b>WORKSPACE OF VIDEO EDITING SOFTWARE</b> 2.1 Define project setting. 2.2 Describe various windows in workspace. 2.3 Mention the various tools in tool box. 2.4 Describe the process of importing audio, video clips & GFX. 2.5 Mention the keyboard shortcuts customizing process.	3	8
3	<b>SEQUENCING AND REAL TIME EDITING</b> 3.1 Define sequencing. 3.2 Define real time editing. 3.3 Describe the process of adding video clips in the timeline. 3.4 Mention trimming process.	3	4
4	<b>MOTION USING STILL IMAGE &amp; VIDEO</b> 4.1 Define Motion. 4.2 Define key frame. 4.3 Discuss the Motion parameter.	3	4
5	<b>AUDIO, VIDEO EFFECT &amp; TRANSITION</b> 5.1 Define effect & transition. 5.2 List effects & transitions. 5.3 Describe making Chroma. 5.4 Explain making preset using template.	3	6
6	<b>COLOR THEORY &amp; COLOR BALANCE IN EFFECT CONTROL</b> 6.1 Define Color theory. 6.2 Mention color correction using video effect. 6.3 Define color balance. 6.4 Describe white level & black level. 6.5 List various color effect.	4	8

7	<b>TITLE &amp; CAPTION WITH ALPHA</b> 7.1 Define title. 7.2 Describe alpha. 7.3 Explain various option of title window. 7.4. Distinguish between crawl and scroll. 7.5 Describe animated title.	4	6
8	<b>SOUND TECHNOLOGY</b> 8.1 Define Sample rate. 8.2 Explain DB. 8.3 Discus about proper balance of sound. 8.4 Differentiate between analogue and digital sound.	3	6
9	<b>SOUND TAKING</b> 9.1 Define Microphone. 9.2 Compare among different microphone. 9.3 Describe audio mixer & other devices. 9.4 Define acoustic of sound proof.	3	4
10	<b>RENDERING PROCESS</b> 10.1 Define render. 10.2 Explain video & audio file formats. 10.3 Define compression. 10.4 Describe proper file extension. 10.5 Explain necessities to convert video file.	3	6
	<b>Total</b>	<b>32</b>	<b>60</b>

### Detailed Syllabus (Practical)

Sl.	Experiment name with procedure	Class (3 Period)	Continuous Marks
1	<b>INSTALL VIDEO EDITING SOFTWARE &amp; IDENTIFY THE INTERFACE</b> 1.1 Follow Occupational Safety & Health (OSH) practices. 1.2 Install video editing software. 1.3 Identify the interface. 1.4 Clean & store tools & equipment. 1.5 Maintain the record of perform task.	1	2
2	<b>PREPARE A PROJECT SETTINGS AND IMPORT VIDEO, AUDIO AND GFX</b> 2.1 Follow Occupational Safety & Health (OSH) practices. 2.2 Prepare project settings. 2.3 Import Video. 2.4 Import Audio.	2	3



	<p>2.5 Import GFX.</p> <p>2.6 Clean &amp; store tools &amp; equipment.</p> <p>2.7 Maintain the record of perform task.</p>		
3	<p><b>EDIT VIDEO CLIP IN TIME LINE WITH REAL TIME EDITING</b></p> <p>3.1 Follow Occupational Safety &amp; Health (OSH) practices.</p> <p>3.2 Edit video clip in time line with real time editing.</p> <p>3.3 Preview video clip.</p> <p>3.4 Clean &amp; store tools &amp; equipment.</p> <p>3.5 Maintain the record of perform task.</p>	2	2
4	<p><b>CREATE MOTION USING STILL IMAGE &amp; VIDEO</b></p> <p>4.1 Follow Occupational Safety &amp; Health (OSH) practices</p> <p>4.2 Identify the motion window.</p> <p>4.3 Add key frame.</p> <p>4.4 Edit key frame.</p> <p>4.5 Preview the motion.</p> <p>4.6 Clean &amp; store tools &amp; equipment.</p> <p>4.7 Maintain the record of perform task.</p>	1	2
5	<p><b>APPLY AUDIO, VIDEO EFFECT &amp; TRANSITION</b></p> <p>5.1 Follow Occupational Safety &amp; Health (OSH) practices.</p> <p>5.2 Apply Audio, Video effects.</p> <p>5.3 Apply Audio, Video Transition.</p> <p>5.4 Edit Audio, Video effects.</p> <p>5.5 Edit Audio, Video Transition.</p> <p>5.6 Clean &amp; store tools &amp; equipment.</p> <p>5.7 Maintain the record of perform task.</p>	2	3
6	<p><b>APPLY COLOR THEORY &amp; COLOR BALANCE IN EFFECT CONTROL</b></p> <p>6.1 Follow Occupational Safety &amp; Health (OSH) practices.</p> <p>6.2 Apply Color theory.</p> <p>6.3 Apply Color Balance.</p> <p>6.4 Customize color effects.</p> <p>6.5 Clean &amp; store tools &amp; equipment.</p> <p>6.6 Maintain the record of perform task.</p>	2	3
7	<p><b>MAKING TITLE &amp; CAPTION WITH ALPHA</b></p> <p>7.1 Follow Occupational Safety &amp; Health (OSH) practices.</p> <p>7.2 Create Title.</p> <p>7.3 Type content.</p> <p>7.4 Add Title in timeline.</p> <p>7.5 Edit Title.</p> <p>7.6 Animate Title using motion &amp; transition.</p> <p>7.7 Clean &amp; store tools &amp; equipment.</p> <p>7.8 Maintain the record of perform task.</p>	1	2
8	<p><b>APPLY SOUND TECHNOLOGY &amp; PREPARE A PROJECT WITH AUDIO CLIP</b></p> <p>8.1 Follow Occupational Safety &amp; Health (OSH) practices.</p> <p>8.2 Install audio editing software.</p> <p>8.3 Identify the interface.</p> <p>8.4 Add Audio in timeline.</p> <p>8.5 Use effects according to parameter.</p> <p>8.6 Audio correction using waveform.</p> <p>8.7 Clean &amp; store tools &amp; equipment.</p> <p>8.8 Maintain the record of perform task.</p>	2	2

9	<b>PERFORM SOUND TAKING, VOICE OVER USING IN TIMELINE</b> 9.1 Follow Occupational Safety & Health (OSH) practices. 9.2 Input Audio from different source. 9.3 Record voice in timeline. 9.4 Clean & store tools & equipment. 9.5 Maintain the record of perform task.	1	3
10	<b>PERFORM RENDERING PROCESS &amp; OUTPUT IN DIFFERENT FORMAT</b> 10.1 Follow Occupational Safety & Health (OSH) practices. 10.2 Identify the different video & audio file format. 10.3 Export Video as per requirement. 10.4 Clean & store tools & equipment. 10.5 Maintain the record of perform task.	2	3
<b>Total</b>		<b>16</b>	<b>25</b>

**Necessary Resources (Tools, equipment's and Machinery):**

SI	Item Name	Quantity
01	Computer	25 no's
02	Video Capture card	25 no's
03	Video Preview Monitor	25 no's
04	Audio Capture card	25 no's
05	Headphone & Microphone	25 no's
06	Audio Mixer	25 no's

**Recommended Software:**

SI	Name	Quantity
01	Adobe Premier Pro	As Necessary
02	Adobe Audition	As Necessary

**Recommended Books:**

SI	Book Name	Writer Name	Publisher Name & Edition
01	Digital Video Editing Fundamental	Wallace Jackson	Apress (April, 2016)
02	Adobe Manual		Adobe Inc.
03	Digital Audio Technology	Jam Maes	Routledge (August, 2013)

**Website References:**

SI	Web Link	Remarks
01	<a href="https://en.wikipedia.org/wiki/Video_editing">https://en.wikipedia.org/wiki/Video_editing</a>	
02	<a href="https://www.academia.edu/9640026/6_Digital_Audio_Technology">https://www.academia.edu/9640026/6_Digital_Audio_Technology</a>	