

**Printing Technology - Semester I**

Sl No.	Category of courses	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Basic Science	Mathematics-I	2	1	0	3	3	100
2	Basic Science	Applied Physics-I	2	1	0	3	3	100
3	Basic Science	Applied Chemistry	2	1	0	3	3	100
4	Humanities & Social Science	Communication Skills in English	2	0	0	2	2	100
5	Engg. Science	Engineering Graphics	0	0	3	3	1.5	100
6	Engg. Science	Printing Engineering Workshop Practice	0	0	3	3	1.5	100
7	Basic Science	Applied Physics-I Lab	0	0	2	2	1	100
8	Basic Science	Applied Chemistry Lab	0	0	2	2	1	100
9	Humanities & Social Science	Sports and Yoga	0	0	2	2	1	100
10	Humanities & Social Science	Communication Skills in English Lab	0	0	2	2	1	100
<b>Total Credits and Marks</b>							<b>18</b>	<b>1000</b>

**Printing Technology - Semester II**

Sl No.	Category of courses	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Basic Science	Mathematics II	3	1	0	4	4	100
2	Basic Science	Applied Physics II	2	1	0	3	3	100
3	Engg. Science	Introduction to IT Systems	2	0	0	2	2	100
4	Engg. Science	Basic Engineering for Printing	2	1	0	3	3	100
5	Engg. Science	Material Science for Printing	2	1	0	3	3	100
6	Basic Science	Applied Physics II Lab	0	0	2	2	1	100
7	Engg. Science	Introduction to IT Systems Lab	0	0	4	4	2	100
8	Engg. Science	Basic Engineering for Printing Lab	0	0	2	2	1	100
9	Engg. Science	Material Science for Printing Lab	0	0	2	2	1	100
10	Audit	Environmental Science	2	0	0	2	0	100
<b>Total Credits and Marks</b>							<b>20</b>	<b>1000</b>

Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 2 hrs./ week	Internal examination: 20
Tutorial: 1 hr./week	Assessment: 10
Practical:	End semester examination: 70
Credit: 3	

**Name of the course: Basic engineering for Printing**

**Aim:**

The aim of teaching “Basic Engineering for Printing” is to acquaint the students with various printing techniques and highlight the area where rapid changes are deeply involved in the area of Graphic Communication.

**Course Outcomes:**

1. Identify the different types of Print media and its printing methodology
2. Describe the various essential consumables that are required in the printing industry
3. Describe the process of making an artwork manually and digitally
4. Describe the stencil preparation process by different methods in screen printing
5. Describe the different power transmission methods that are present in any Printing Machine

**Pre-requisite:** NIL

**Contents:**

UNIT	CONTENT DETAILS	HOURS/ UNIT	MARKS
<b>Unit 1: Introduction to Printing</b>	<ul style="list-style-type: none"> <li>• Definition of Printing</li> <li>• Basic elements required in printing</li> <li>• Different communication through Printing medium (Books, Magazine, Newspaper, Brochure, Packaging, other Printed media)</li> <li>• Production process of Printing</li> <li>• Idea of Pre-press, Press &amp; Post press</li> <li>• Utility of Multimedia in Printing</li> </ul>	3	5
<b>Unit 2: History of Printing</b>	<ul style="list-style-type: none"> <li>• Movable types</li> <li>• Anatomy of types</li> <li>• Materials used for typesetting</li> <li>• Nomenclature of Type</li> <li>• Concept of Layout</li> <li>• Equipment and Tools required in a composing room</li> <li>• Concept of preparing the Block (Basic)</li> <li>• Materials used for Block making</li> </ul>	6	10
<b>Unit 3: Classification of Printing</b>	<ul style="list-style-type: none"> <li>• Classification of Printing- Printing with Master &amp; Masterless printing</li> <li>• Basic Principles of conventional Printing-</li> </ul>	7	10

<b>Processes</b>	<p>Relief Printing (Letterpress &amp; Flexography), Recess Printing (Intaglio &amp; Gravure), Lithography, Screen Printing</p> <ul style="list-style-type: none"> <li>• Basic Principle of Masterless Printing – Electrophotography, Ionography, Magnetography, Inkjet Printing, Thermography.</li> <li>• Choose the appropriate print process based on job specification, Timescale, quality, Run length &amp; Cost</li> </ul>		
<b>Unit 4: Materials of Printing</b>	<ul style="list-style-type: none"> <li>• Types of Substrates- Brief idea about different types of paper &amp; their Standard sizes, Different types of plastics and other substrates</li> <li>• Different types of Chemicals used in Printing Industry - Ink, Toners, coating &amp; others</li> <li>• Types of Film &amp; their usage</li> <li>• Different types of Metals used in different image carriers &amp; different parts of printing machines</li> <li>• Different non-metals used in Printing industry</li> </ul>	7	10
<b>Unit 5: Introduction to Process Camera</b>	<ul style="list-style-type: none"> <li>• Different types of process camera &amp; their different parts</li> <li>• Different types of Lens used in Film making</li> <li>• Different types of illuminants used in Printing</li> <li>• Introduction to a Line job &amp; Halftone job</li> </ul>	6	10
<b>Unit 6: Introduction to Artwork Preparation</b>	<ul style="list-style-type: none"> <li>• Purpose of artwork preparation</li> <li>• Conventional Artwork Making process</li> <li>• Introduction to Desktop Publishing</li> <li>• Usage of different software for artwork preparation</li> </ul>	3	5
<b>Unit 7: Stencil Preparation of Screen Printing</b>	<ul style="list-style-type: none"> <li>• Different tools used in Screen Printing – Screen fabric, Frame, Squeegee, emulsion, masking tape or filler, Screen coater, Screen clamps, screen ink etc.</li> <li>• Selection of a good quality screen</li> <li>• Preparation of Stencil by Direct Method, Indirect Method, Combination of Direct-Indirect Method, Capillary Method</li> <li>• Application of screen printing</li> </ul>	7	10
<b>Unit 8: Introduction to Printing Machines</b>	<ul style="list-style-type: none"> <li>• Concept of Machines</li> <li>• Different parts of a machine - Mechanical Drive for power transmission, Electrical Drive, Pneumatic Drive &amp; their components</li> <li>• Functions of drives</li> </ul>	6	10

**Suggested Books:**

1. **Handbook of Print Media**- Helmut Kipphan, Springer
2. **Lithographers Manual**- Raymond N Blair, GATF
3. **The Print and Production manual**- Sean Smyth, Pira International
4. **Handbook of Printing Processes** – Deborah Stevenson, GATF
5. **The complete book on Printing Technology**- NIIR Board Author
6. **Screen Process Printing**- Stephens John, Blueprint
7. **Screen Printing Primer**- N Paparone & J Dillion, GATF
8. **Maintaining Printing Equipment**, Herschel L. apfelberg, GATF

## Material Science for Printing

Duration: 15 weeks

Semester: 2<sup>nd</sup>

LTP: 2+1+0

Credit: 3

Aim: To make students acquainted with all the physicochemical processes that require monitoring and close control in different printing processes for good quality printing and the effect such processes have on the quality of print production so that they may estimate the root cause analysis in case of problems arising out of such processes.

Course Outcomes:

1. Determine problems arising out of colloidal and surface properties of substrates and consumables and apply specific methods to eliminate such problems
2. Measure the physical parameters of consumables used in print production to maintain optimum values for each parameter and determine the suitability of consumables for the specific print production method
3. Determine the root cause of problems arising during print production pertaining to consumable and apply specific methods to solve
4. Identify opportunities to apply 3D printing technology for time and cost savings
5. Prepare SOPs aligned with the codified standards for chemical handling and waste disposal to ensure health and environmental safety

Pre-requisite: Elementary knowledge of Atomic structure, Chemical Bonding, Polymer, pH, Hardness of Water and Surface Tension

Unit	Topic	Content	Hrs/unit	Marks
1	Colloid	1.1 Definition 1.2 Classification 1.3 Properties 1.4 Stability 1.5 Differences between the two classes of colloids 1.6 Differences between sol, emulsion and gel 1.7 Different types of emulsion and their applications in printing processes 1.8 Thixotropic gel- characteristics and use in offset printing 1.9 Suitability of colloids as sensitised plate and film coatings, desensitizing materials, printing inks and adhesives	4	5
2	Polymer	2.1 Introduction to organic compounds in the printing industry 2.2 Properties and uses of natural polymers used in the printing industry 2.3 Properties and uses of synthetic polymers used in the printing industry	5	10

		<p>2.4 Surface treatment of polymeric materials for subsequent printing</p> <p>2.5 Properties of vulcanized rubber</p> <p>2.6 Synthetic rubbers used in flexographic plate making</p> <p>2.7 Properties of rubber blankets used in offset presses</p> <p>2.8 Properties of materials used to make inking and dampening rollers – desirable hardness, problems arising from incorrect hardness</p> <p>2.9 Introduction to photopolymers – their properties</p> <p>2.10 Application of photopolymers in image carriers</p>		
3	Surface Tension	<p>4.1 Cohesive and adhesive forces</p> <p>4.2 Surface tension and surface energy</p> <p>4.3 Angle of contact</p> <p>4.4 Surface tension and angle of contact</p> <p>4.5 Surface tension and wetting</p> <p>4.6 Surfactant and Wetting agents</p> <p>4.6 Wetting of ink pigments by ink vehicle</p> <p>4.7 Wetting of non-image area of lithographic plate by fountain solution</p> <p>4.8 Wetting of printing substrates by printing inks</p> <p>4.9 Wetting of adherends by adhesives during lamination of printed products</p>	5	10
4	Rheology	<p>4.1 Definition, unit and instruments used to measure viscosity of different printing inks</p> <p>4.2 Desirable viscosity ranges of printing inks for different printing processes</p> <p>4.3 Relation between viscosity and temperature</p> <p>4.4 Problems encountered on using very high viscosity inks in sheet fed and offset printing process</p> <p>4.5 Problems encountered on using very low viscosity inks in web fed offset printing process</p> <p>4.6 Viscosity of adhesives used in laminating printed materials</p> <p>4.7 Definition, unit and importance of tack</p> <p>4.8 Problems encountered due to non-optimal tack of inks</p> <p>4.9 Measurement of tack</p> <p>4.10 Meaning of flow for printing inks</p> <p>4.11 Classification of fluids based on their rheological behaviour</p> <p>4.12 Requirement of specific rheological properties for different printing inks, coatings and chemicals</p>	6	10
5	Water in the printing industry	<p>5.1 pH scale, range of acidity and alkalinity, pH of fountain solutions, optimum range required, problems encountered when pH is higher or lower than the optimum range, Optimum pH of water, fountain solution, printing inks, problems encountered when pH is higher or lower than the optimum range, pH of paper, problems encountered when pH is higher or lower than the optimum range, pH of adhesives used in laminating printed materials, optimum value required, problems encountered when pH is higher or lower than the optimum value</p>	15	20

		<p>5.2 Definition, unit and instrument used to measure conductivity of water/solution, Optimum conductivity of water used in the printing industry, Causes of high conductivity of water, Necessity of measurement of conductivity of water in the printing industry</p> <p>5.3 Total hardness of water, Problems of using very hard water in the printing industry, Problems of using very soft water in the printing industry, Removal of hardness from water by ion-exchange process</p> <p>5.4 Functions of fountain solution, Composition of fountain solution Characteristics of fountain Solution - hardness, pH, conductivity, temperature, Dosage of fountain solution, Problems due to improper formulation, Printing problems due to over-dosage of fountain solution, Printing problems due to under-dosage of fountain solution</p>		
6	Materials for Additive Manufacturing	<p>6.1 Historical factors that have shaped manufacturing over the centuries</p> <p>6.2 current and emerging 3D printing applications in a variety of industries</p> <p>6.3 Definitions of terms used in AM</p> <p>6.4 Difference between Additive and Subtractive Manufacturing</p> <p>6.5 Basic material introduction including composites</p> <p>6.6 Liquid based systems: Stereo lithography apparatus (SLA), Solid Ground curing (SGC)</p> <p>6.7 Solid based systems: Laminated object manufacturing(LOM), Fused Deposition Modeling (FDM)</p> <p>6.8 Powder Based Systems: Selective laser sintering (SLS), Three dimensional printing (3DP)</p>	5	10
7	Safety, Health and Environment	<p>7.1 Sources of air, water, soil and noise pollution in the printing industry</p> <p>7.2 Classification of hazardous substances used in the printing industry –their use and safety precautions to be taken</p> <p>7.3 Information obtained from Material Safety Data Sheet</p> <p>7.4 Wastes generated in the printing industry- biogredable, bio-undegradable solids, liquid and gas emission</p> <p>7.5 3R's of Waste management</p> <p>7.6 ISO 14001:2004 (PDCA management approach)</p>	5	5

Examination scheme:

Internal assessment: 20

Teacher's assessment: 10

End semester examination: 70

Text Books:

Name of author	Title of Book	Name of
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		Publisher
Tulika Das	Chemistry in Printing, 2 <sup>nd</sup> edition	Barnana Prakashani, 2011

Reference Books:

<b>Name of Author</b>	<b>Title of the Book</b>	<b>Name of the Publisher</b>
N.R.Elred & T. Scarlet	Chemistry for the Graphic Arts	GATF, 1992
R. Blair, Editor-in-Chief, M.D. Thomas Ed	The Lithographer's Manual	GATF, Inc., 1988
F. Pateman and L.C. Young	Printing Science	Sir Isaac Pitman and Sons Ltd., 1963
P.J. Hartsuch	Chemistry of Lithography	Lithographic Technical Foundation Inc., 1961
Editors Zhang, Jing, and Yeon-Gil Jung	Additive manufacturing: materials, processes, quantifications and applications	Butterworth-Heinemann, 2018.
K. T. Narayanan	Safety, Health and Environment Handbook	McGraw-Hill Education, 2015.

## Course: Basic Engineering for Printing Laboratory

Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks:
Teaching Scheme	Examination Scheme
Theory & Tutorial: NIL	Attendance & Teacher Assessment: 50% of Maximum marks
Pre-requisite knowledge: NIL	End semester examination: 50% of Maximum marks
Practical: 2hrs./week	Credit: 1

**Aim: To impart practical knowledge of the press-room and screen-printing lab.**

### **Outcomes:**

- 1. Identify, select, & use various tools, equipment & consumables in the pressroom**
- 2. Describe the different machines that are present in press-room and screen-printing laboratory**
- 3. Prepare a print sample by choosing different types of photo stencil in screen printing**
- 4. Demonstrate the process to care & maintain the tools & machines in the workshop**

### **Group A: Press Work**

1. Making chart / drawing of the machine room indicating the placement of various machines available in the workshop
2. Identify and describe the usage of tools & equipment which are essentially required in a press (Letterpress, Gravure, Offset, Flexography Method)
3. Familiarization with several important consumables that are required in any process of printing
4. Demonstration of flexography and gravure printing machine
5. Demonstration of Letterpress & Offset proofing machine
6. Demonstration of a single colour sheetfed offset machine

### **Group B: Screen Printing**

1. Identify and describe the usage of tools, equipment & consumables which are essentially required in a Screen Printing
2. Prepare a screen and coating for the photo-stencil
3. To prepare Photographic Stencil by Direct Method.
4. To prepare Photographic Stencil by Indirect Method.
5. To prepare Photographic Stencil by Direct-Indirect Method
6. To study the process of removing the photo stencil from the screen for reuse
7. Study the different problems related to stencil making and find remedies of such problems
8. Prepare a single colour print by using screen printing process by maintaining proper registration



## Material Science for Printing Lab

Duration: 16 weeks

Semester: 2<sup>nd</sup>

LTP: 0+0+2

Credit: 1

**Aim:** To make students acquainted with all the physical and chemical tests of materials used in different printing processes.

### Course Outcomes:

1. Determine the wettability of liquids on surfaces
2. Determine viscosity of fluids
3. Determine TDS, conductivity and pH of water
4. Determine correct TDS, conductivity and pH of dampening solution used in offset printing
5. Prepare CAD design of simple parts for fabrication using 3D printing machine
6. Determine the hazard that a chemical may cause to the health of human and environment from the MSDS

Experiment number	Name of the experiment
1	Demonstration of Tyndall effect in colloidal solutions
2	Determination of wettability of liquids by observing capillary action
3	Determination of wettability of some polymeric surfaces used as substrates in the printing industry by measuring the surface energy with dyne test liquid
4	Determination of viscosity of some solvents used in the printing industry using a ford cup No. 4 and study of the effect of temperature on viscosity
5	Determination of viscosity of some liquids used in the printing industry using falling bar viscometer
6	Determination of film forming ability of water with and without alcohol
7	Determination of pH of <ol style="list-style-type: none"><li>a) Water</li><li>b) fountain solution of different concentrations with pH paper, pH solution</li></ol>
8	Determination of conductivity of <ol style="list-style-type: none"><li>a) tap water</li></ol>

	b) fountain solutions of different concentrations
9	Determination of TDS of a) tap water b) fountain solutions of different concentrations
10	Prepare 3D CAD design for simple shapes for fabricating in a 3D printer
11	Analyse and list all materials present in a chemical from the Material Safety data Sheet of any hazardous chemical used in the printing industry

**PHOTOGRAPHY : Semester I**

Sl No.	Category of Courses	Code no.	Course Title	L	T	P
1	Basic Science		Mathematics-I	2	1	0
2	Basic Science		Applied Physics-I	2	1	0
3	Basic Science		Applied Chemistry	2	1	0
4	Humanities & Social Science		Communication Skills in English	2	0	0
5	Engg. Science		Engineering Graphics	0	0	3
6	Engg. Science		Workshop Practice on Still Photography	0	0	3
7	Basic Science		Applied Physics-I Lab	0	0	2
8	Basic Science		Applied Chemistry Lab	0	0	2
9	Humanities & Social Science		Sports and Yoga	0	0	2
10	Humanities & Social Science		Communication Skills in English Lab	0	0	2
<b>Total Credits</b>						

**PHOTOGRAPHY : Semester II**

Sl No.	Category of courses	Code no.	Course Title	L	T	P
1	Basic Science		Mathematics II	3	1	0
2	Basic Science		Applied Physics II	2	1	0
3	Engg. Science		Introduction to IT Systems	2	0	0
4	Engg. Science		Basic Photography I	2	1	0
5	Engg. Science		Basic Photography II	2	1	0
6	Basic Science		Applied Physics II Lab	0	0	2
7	Engg. Science		Introduction to IT Systems Lab	0	0	4
8	Engg. Science		Basic Photography I Lab	0	0	2
9	Engg. Science		Basic Photography II Lab	0	0	2
10	Audit		Environmental Science	2	0	0
<b>Total Credits</b>						

Contact Hours	Credit
3	3
3	3
3	3
2	2
3	1.5
3	1.5
2	1
2	1
2	1
2	1
	18

Contact Hours	Credit
4	4
3	3
2	2
3	3
3	3
2	1
4	2
2	1
2	1
2	0
	20

**Multimedia Technology - Semester I**

Sl No.	Category of courses	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Basic Science	Mathematics-I	2	1	0	3	3	100
2	Basic Science	Applied Physics-I	2	1	0	3	3	100
3	Basic Science	Applied Chemistry	2	1	0	3	3	100
4	Humanities & Social Science	Communication Skills in English	2	0	0	2	2	100
5	Engg. Science	Engineering Graphics	0	0	3	3	1.5	100
6	Engg. Science	Mulmedia Workshop Practice	0	0	3	3	1.5	100
7	Basic Science	Applied Physics-I Lab	0	0	2	2	1	100
8	Basic Science	Applied Chemistry Lab	0	0	2	2	1	100
9	Humanities & Social Science	Sports and Yoga	0	0	2	2	1	100
10	Humanities & Social Science	Communication Skills in English Lab	0	0	2	2	1	100
<b>Total Credits and Marks</b>							<b>18</b>	<b>1000</b>

**Multimedia Technology - Semester II**

Sl No.	Category of courses	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Basic Science	Mathematics II	3	1	0	4	4	100
2	Basic Science	Applied Physics II	2	1	0	3	3	100
3	Engg. Science	Introduction to IT Systems	2	0	0	2	2	100
4	Engg. Science	Multimedia Fundamentals	2	1	0	3	3	100
5	Engg. Science	Introduction to Graphics Design	2	1	0	3	3	100
6	Basic Science	Applied Physics II Lab	0	0	2	2	1	100
7	Engg. Science	Introduction to IT Systems Lab	0	0	4	4	2	100
8	Engg. Science	Multimedia Fundamentals Laboratory	0	0	2	2	1	100
9	Engg. Science	Introduction to Graphics Design Laboratory	0	0	2	2	1	100
10	Audit	Environmental Science	2	0	0	2	0	100
<b>Total Credits and Marks</b>							<b>20</b>	<b>1000</b>

## Syllabus for Introduction to Graphics Design

Name of the Course : MUTIMEDIA TECHNOLOGY, Name of the Subject: <b>Introduction to Graphics Design</b>	
Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 2 hrs./ week	Internal examination: 20
Tutorial: 1 hr./week	Assessment: 10
Practical:	End semester examination: 70
Credit: 3	
Aim:	
	To develop the basic knowledge of Graphics Design in the field of Multimedia.
Outcome:	
	Identify the characteristics of graphic design.
	Describe the various forms of visual art.
	Describe all elements of graphic design.
	Select an appropriate context to create unity in a design.
Pre-Requisite -	
	Basic Knowledge of hand drawing is required.
	Knowledge of graphic art software is expected..

Content Details		Hours/Unit	Marks
<b>Unit 1</b>	<b>Introduction to multimedia design</b>		
	<ul style="list-style-type: none"> <li>• What is Design</li> <li>• What is multimedia design</li> <li>• Principal of design</li> <li>• Brief history of design</li> </ul>	6	10
<b>Unit 2</b>	<b>Classification of Design</b>		
	<ul style="list-style-type: none"> <li>• Different types of design</li> <li>• Importance of graphics design in multimedia</li> <li>• Importance of graphics design in modern era ( advertisement design , logo design, awareness design , sign design)</li> </ul>	6	10
<b>Unit 3</b>	<b>Colours in Design</b>		
	<ul style="list-style-type: none"> <li>• What is color</li> <li>• Idea of primary &amp; secondary colors</li> <li>• Importance of color in making graphics design</li> <li>• Color in digital domain</li> <li>• Hue , saturation</li> </ul>	8	10
<b>Unit 4</b>	<b>Graphics Design in Advertisement</b>		

	<ul style="list-style-type: none"> <li>• Layout of printing advertisement</li> <li>• Idea of modern digital marketing</li> <li>• Role of graphic design in digital marketing</li> <li>• Making of animated gif file</li> </ul>	7	10
<b>Unit 5</b>	<b>Fonts &amp; Typography</b>		
	<ul style="list-style-type: none"> <li>• Different types of fonts and their uses</li> <li>• Significance of fonts in graphics design</li> <li>• A brief history of typography</li> </ul>	6	10
<b>Unit 6</b>	<b>Art of Graphics Design</b>		
	<ul style="list-style-type: none"> <li>• Theory of book cover design</li> <li>• The seven elements of a film poster design</li> </ul>	6	10
<b>Unit 7</b>	<b>Graphic Design for Print media</b>		
	<p>Basic idea of</p> <ul style="list-style-type: none"> <li>• Comics</li> <li>• Graphic Novel</li> <li>• Story Board making</li> </ul>	6	10

**Suggested Books:**

1. Visual Elements of Art and Design, Palmer, Frederic
2. Media Representation of Visual Arts and artists, University of Luton Press
3. Advertising Art & Production, J. Nath
4. Manual of Graphic Technique 2For Architects, Porter, Tom and Goodman Sue
5. Getting Started Multimedia Design, Adams Media;
6. Introduction to Graphic Design, Aaris Sherin



### **Syllabus for Introduction to Graphics Design Laboratory**

Name of the Course : MUTIMEDIA TECHNOLOGY, Name of the Subject: <b><u>Introduction to Graphics Design Laboratory</u></b>	
Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks:
Teaching Scheme	Examination Scheme
Theory & Tutorial: NIL	Attendance & Teacher Assessment: 50% of Maximum marks
Pre-requisite Knowledge: Required	End semester examination: 50% of Maximum marks
Practical: 2hrs./week	Credit: 1
Aim:	
	To impart the skill of Graphics Design in the field of Multimedia.
Outcome:	
	Categorize different tools for making graphics design.
	Create various forms of visual art.
	Create manual as well as digital graphics lay out design.
	Create basic lay out for website design.
Pre-Requisite -	
	Basic Knowledge of hand drawing is needed.
	Knowledge of graphic art software is expected..

Content Details		Hours/Unit
<b>Unit 1</b>	<b>Manual Layout Desiging</b>	
	<ul style="list-style-type: none"> <li>• Understanding the basics of drawing,</li> <li>• Basics of Geometric and organic shapes,</li> <li>• Basics of Geometric 3D form</li> <li>• Colour -wheel making ( with paper, board , color)</li> <li>• Freehand practice of different types of fonts</li> </ul>	4
<b>Unit 2</b>	<b>Manual Layout design</b>	
	<ul style="list-style-type: none"> <li>• Logo design</li> <li>• Big size Hoarding Advertisement layout design</li> <li>• Car &amp; vehicle body-part design layout</li> <li>• Packing of fountain designs(different type of cold drinks bottle , glass, packages design )</li> </ul>	4
<b>Unit 3</b>	<b>Manual Layout design</b>	
	<ul style="list-style-type: none"> <li>• Advertisement design on paper ( with the help of color, ink, paper cutting or photo cutting)</li> <li>• Table calendar design on paper (with the help of color , ink , paper cutting or photo cutting)</li> <li>• Book cover layout design</li> </ul>	4

	<ul style="list-style-type: none"> <li>• Film, web –series , documentary posters layout design</li> </ul>	
<b>Unit 4</b>	<b>Digital Layout design</b>	
	<ul style="list-style-type: none"> <li>• Logo design</li> <li>• Big size Hoarding Advertisement layout design</li> <li>• Car &amp; vehicle body -part design layout</li> <li>• Packing of fountain designs (different type of cold drinks bottle, glass, packages design )</li> <li>• Magazine cover design</li> </ul>	6
<b>Unit 5</b>	<b>Digital Layout design</b>	
	<ul style="list-style-type: none"> <li>• Advertisement design on paper with the help of color, ink, paper cutting or photo cutting)</li> <li>• Table calendar design on paper (with the help of color , ink , paper cutting or photo cutting)</li> <li>• Book cover layout design</li> <li>• Film, web –series , documentary posters layout design</li> </ul>	6
<b>Unit 6</b>	<b>Design for social media</b>	
	<ul style="list-style-type: none"> <li>• Loop advertisement design for website</li> <li>• Loop advertisement design for social media</li> <li>• Website landing page design</li> </ul>	6

Suggested Books:

1. The Elements of Graphic Design
2. Type: A Visual History of Typefaces and Graphic Styles
3. The Art of Color, Johannes Itten
4. A Graphic Design Student's Guide to Freelance, Ben Hannam
5. Getting Started Multimedia Design, Adams Media;
6. Introduction to Graphic Design, Aaris Sherin



## Syllabus for Multimedia Fundamentals

Name of the Course : MUTIMEDIA TECHNOLOGY, Name of the Subject: <b>Multimedia Fundamentals</b>	
Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 2 hrs./ week	Internal examination: 20
Tutorial: 1 hr./week	Assessment: 10
Practical:	End semester examination: 70
Credit: 3	
Aim:	
	To develop the basic knowledge in all components of Multimedia.
Outcome:	
	Define Multimedia and related terms.
	Classify different types of multimedia components.
	Describe the working procedure of 2D & 3D animation
	Describe the pipeline of multimedia production.
Pre-Requisite -	
	Basic Knowledge of digital media and related terms should be known.
	Knowledge of basic Computer hardware & software is expected..

Content Details		Hours/Unit	Marks
<b>Unit 1</b>	<b>Introduction to multimedia</b>		
	<ul style="list-style-type: none"> <li>• What is Multimedia</li> <li>• Components of Multimedia</li> <li>• Hardware and software specifications of Multimedia Personal Computer</li> <li>• Classification of software</li> <li>• Internet system</li> <li>• Multimedia Accessories</li> <li>• Multimedia products</li> <li>• Product formats</li> </ul>	9	15
<b>Unit 2</b>	<b>Types of multimedia</b>		
	<ul style="list-style-type: none"> <li>• Linear and Non-linear Multimedia</li> <li>• Interactive and Non-interactive Multimedia-</li> <li>• Multimedia Applications</li> <li>• Advantages &amp; Disadvantages of Multimedia.</li> </ul>	6	10
<b>Unit 3</b>	<b>Multimedia building block: text &amp; graphics</b>		
	<ul style="list-style-type: none"> <li>• Text in Multimedia</li> <li>• Script &amp; Flowchart in Multimedia</li> <li>• Storyboard in Multimedia</li> <li>• Concept of Graphics</li> </ul>	6	10

	<ul style="list-style-type: none"> <li>• Importance of Graphics in Multimedia</li> <li>• Classification of Graphics</li> <li>• Graphics file formats.</li> </ul>		
<b>Unit 4</b>	<b>Multimedia building block : audio &amp; video</b>		
	<ul style="list-style-type: none"> <li>• Concept of Audio</li> <li>• Importance of Audio in Multimedia presentation</li> <li>• Audio Editing</li> <li>• Audio File Formats</li> <li>• Application of Audio in Multimedia</li> <li>• Concept of Video</li> <li>• Importance of Video in Multimedia presentation</li> <li>• Video Editing</li> <li>• Video File Formats</li> <li>• Application of Video in Multimedia</li> </ul>	9	15
<b>Unit 5</b>	<b>Multimedia building block : animation &amp; special effects</b>		
	<ul style="list-style-type: none"> <li>• Animation</li> <li>• 2D &amp; 3D Animation</li> <li>• Classification of Animation</li> <li>• Benefit of using Animation in multimedia</li> <li>• Application of Animation in Multimedia</li> <li>• Special Effects</li> <li>• Types of Special Effects</li> <li>• Application of Special Effects in Multimedia.</li> </ul>	7	10
<b>Unit 6</b>	<b>Multimedia authoring system</b>		
	<ul style="list-style-type: none"> <li>• Multimedia Authoring</li> <li>• Features of Multimedia Authoring</li> <li>• Interactive Presentation</li> <li>• Terms related to Multimedia Authoring</li> <li>• Authoring Tool</li> </ul>	5	5
<b>Unit 7</b>	<b>Multimedia production</b>		
	<ul style="list-style-type: none"> <li>• Multimedia Production</li> <li>• Stages of Multimedia Production</li> <li>• Multimedia Production Team .</li> </ul>	3	5

**Suggested Books:**

- 1 Multimedia – An Introduction, John Villamil-Casanova, Louis Molina
- 2 Multimedia Magic, Gokul. S, BPB Publication
- 3 Multimedia in Practice - Technology & Applications , Judith Jeffcoate , Prentice Hall
- 4 Illustrated World of Multimedia, Anil Madaan , Dreamland Publication
- 5 The McGraw-Hill Multimedia Handbook, Jessica Keys, McGraw-Hill Inc
- 6 Multimedia Computing, Communications and Applications, Ralf Steinmetz & Klara Nahrstedt ,



## Syllabus for Multimedia Fundamentals Laboratory

Name of the Course : MUTIMEDIA TECHNOLOGY, Name of the Subject: <b>Multimedia Fundamentals Laboratory</b>	
Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks:
Teaching Scheme	Examination Scheme
Theory & Tutorial: NIL	Attendance & Teacher Assessment: 50% of Maximum marks
Pre-requisite Knowledge: Required	End semester examination: 50% of Maximum marks
Practical: 2hrs./week	Credit: 1
<b>Aim:</b>	
	To acquaint students with basic skills in drawing with the help of Graphic designing tools.
	To make ready the students for creating Professional Design.
<b>Outcome:</b>	
	Identify different tools to design basic Graphic Arts .
	Create Graphic Arts for layout design.
	Categorize different designs made by raster & vector graphics tools.
	Create Professional layout design for office , Print media & Website.
<b>Pre-Requisite -</b>	
	Knowledge of basic Computer hardware & software is expected.

Content Details		Hours/Unit
Unit 1	<b>Painting with Adobe Photoshop</b>	
	<ul style="list-style-type: none"> <li>• Painting with Brush tool, Pencil tool, Color replacement tool, Mixer brush tool.</li> <li>• Blur tool, Sharpen tool, Smudge tool</li> <li>• Dodge tool, Burn tool &amp; Sponge tool</li> </ul>	4
Unit 2	<b>Photography with Adobe Photoshop</b>	
	<ul style="list-style-type: none"> <li>• Spot Healing Brush tool, Healing Brush tool, Patch tool, Content aware move tool, Red eye tool</li> <li>• History Brush tool, Art History Brush tool, Eraser tool , Background eraser tool &amp; Magic Eraser tool.</li> </ul>	4
Unit 3	<b>Drawing with Adobe Illustrator</b>	
	<ul style="list-style-type: none"> <li>• Drawing with Pen tool, Anchor Point tool &amp; Curvature tool</li> <li>• Drawing with Pen brush tool, Block Brush tool &amp; Pencil tool</li> </ul>	4
Unit 4	<b>Single &amp; Multi page design with Adobe Illustrator</b>	
	<ul style="list-style-type: none"> <li>• Office stationary design in Adobe Illustrator</li> <li>• Flyers design in Adobe Illustrator</li> </ul>	4

	<ul style="list-style-type: none"> <li>• Brochure design in Adobe Illustrator</li> </ul>	
Unit 5	<b>All tools &amp; their uses in Corel Draw</b>	
	<ul style="list-style-type: none"> <li>• Rectangle and Ellipse Tools,</li> <li>• Common Shapes, Text Tool, Dimensions and Connector Tools</li> <li>• Drop Shadow and Contour Tools, Blending and Distort Tools</li> <li>• Envelop and Block Shadow Tools, Transparency, Eyedropper</li> <li>• Tools, Interactive fill Tool, Smart fill Tool, Mesh fill tool</li> </ul>	4
Unit 6	<b>Logo making &amp; Layout design in Corel darw</b>	
	<ul style="list-style-type: none"> <li>• Making of Vertical Business card , Banner , T- shirt design</li> <li>• Logo Design</li> <li>• Greetings card design</li> </ul>	4
Unit 7	<b>Professional Design Making</b>	
	<ul style="list-style-type: none"> <li>• New logo with office stationary</li> <li>• Three-fold Brochure design</li> <li>• Social media post design</li> <li>• Print media advertisement design</li> </ul>	6

Suggested Books:

1. Adobe Illustrator Classroom in a Book.
2. Adobe illustrator cc for graphics designers to vectorize everything.
3. Adobe Photoshop Classroom In A Book (2020)
4. Adobe Photoshop CC Classroom in a Book
5. The Photoshop Workbook: Professional Retouching and Compositing Tips, Tricks, and Techniques .
6. Corel draw 2020 - Training Book with many Exercises
7. Corel Draw Training Guide, Satish Jain
8. Getting Started Multimedia Design, Adams Media;
9. Introduction to Graphic Design, Aaris Sherin

**CURRICULAR STRUCTURE FOR PART-I (1st YEAR) OF THE  
FULL-TIME DIPLOMA COURSES IN MODERN OFFICE PRACTICE & MANAGEMENT**

**MODERN OFFICE PRACTICE & MANAGEMENT : Semester I**

Sl No.	Category of Courses	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Management	Principles of Management	2	1	0	3	3	100
2	Management	Business Mathematics	2	1	0	3	3	100
3	Management	Behavioral Principles	2	1	0	3	3	100
4	Humanities & Social Science	Communication in English	2	0	0	2	2	100
5	Humanities & Social Science	Stenography	2	1	0	3	2	100
6	Humanities & Social Science	Documentation & Reprography Practice Shop	0	0	3	3	1	100
7	Humanities & Social Science	Stenography & Key Board Practice Shop I	0	0	2	2	1	100
8	Humanities & Social Science	Computer Fundamentals Lab	0	0	2	2	1	100
9	Humanities & Social Science	Sports and Yoga	0	0	2	2	1	100
10	Humanities & Social Science	Communication in English Lab	0	0	2	2	1	100
<b>Total Credits and Marks</b>							<b>18</b>	<b>1000</b>

**MODERN OFFICE PRACTICE & MANAGEMENT : Semester II**

Sl No.	Category of courses	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Humanities & Social Science	Business Economics	2	1	0	3	3	100
2	Humanities & Social Science	Basic Accountancy	2	1	0	3	3	100
3	Engg. Science	Introduction to IT Systems	2	0	0	2	2	100
4	Management	Business Statistics - I	2	1	0	3	3	100
5	Humanities & Social Science	Conversational English - I	2	1	0	3	3	100
6	Management	Office Organization & Methods	2	0	0	2	2	100
7	Engg. Science	Introduction to IT Systems Lab	0	0	4	4	2	100
8	Humanities & Social Science	Stenography & Key Board Practice Shop II	0	0	2	2	1	100
9	Humanities & Social Science	Conversational English – I Lab	0	0	2	2	1	100
10	Audit	Environmental Science	2	0	0	2	0	100
<b>Total Credits and Marks</b>							<b>20</b>	<b>1000</b>

Syllabus for the following subjects will be same as other Engineering Trade.

- 1) 1st sem : Sports & Yoga ,
- 2) 2nd Sem : i) Introduction to IT System  
ii) Introduction to IT System Lab  
iii) Environmental Science

Name of the Course: <b>Business Economics</b>		
Course Code:	Semester: Second	
Duration: Seventeen weeks	Maximum Marks: 100	
Teaching Scheme	Examination Scheme	
Theory: 2 hrs./week	Mid Semester Exam.: 20 Marks	
Tutorial: 1 hr./week	Attendance & Teacher's Assessment: 20 Marks	
Practical: Nil hrs./week	End Semester Exam.: 60 Marks	
Credit: 3		
<b>Aim:</b> The Students will be able to: <ol style="list-style-type: none"> <li>Understand some basic economic principles applied in business</li> <li>Analyze logically the interrelationships among economic ideas</li> <li>Solve economic problems using mathematics as a tool</li> <li>Derive results using mathematical formula</li> <li>Apply decision rules to select best alternative</li> <li>Relate theory to real life observations</li> <li>Make judgment in case of choice problems</li> </ol>		
<b>Course Objective:</b> The students are likely to acquire the following skills at the end of the course: <ol style="list-style-type: none"> <li>Critical thinking skill</li> <li>Mathematical problem solving skill</li> <li>Theorizing skill</li> <li>Decision making skill</li> <li>Computing skill</li> </ol>		
Pre-Requisite: <ol style="list-style-type: none"> <li>Elementary knowledge about Co-ordinate Geometry</li> <li>Basic knowledge in Algebra and Differential Calculus</li> </ol>		
Unit: 1 - <b>Economics and Its Relation with Engineering</b>	Allocation and effective utilization of scarce Resources; PPF, Opportunity cost; Rationality, Costs and benefits; Circular flow of income in two sectors.	Period: 3
	Theory of demand and Supply Demand function; Law of demand ; Determinants and exceptions to the law of demand; Price elasticity of demand and its importance; Determinants of elasticity; Income elasticity of demand; Cross price elasticity of demand; Classification of goods on the basis of elasticities Determinants of price elasticity Supply function and its determinants Market mechanism; equilibrium and its stability  Application : a) Calculating elasticity from linear demand equation; b) solving linear demand and supply equations c) Shifts of demand and supply curves d) Techniques of demand forecasting – Trend Analysis	Period: 10
Unit: 2 - <b>Theory of Production, Cost and Markets</b>	<i>Theory of Production and Costs</i> Production function-short run & long run; Short run-theory of production; Long run-Return to scale; Theory of costs-short run and long run cost curves Economic Concept of profit; Application: a) Cobb-Douglas production function b) Maximization of profit /output from linear demand function and quadratic or cubic cost functions;	Period: 8
	<i>Markets</i> Basic features of- (a) Perfectly Competitive Market (b) Monopolistic Competition (c) Oligopoly and (d) Monopoly, Relevant examples from Indian economy	Period: 5
Unit: 3 - <b>Investment Planning and Problems of Indian Economy</b>	3.1 <i>Investment Planning</i> Concept of investment Evaluating Capital Projects (a) Payback Period Method	Period : 3

	(b) NetPresentValueMethod (c) InternalRateofReturnMethod Application:Solvingnumericalproblems	
	3.2EconomicConceptsandissuesintheContextofIndianEconomy Mixed Economyand relevanceof planning;Globalization; GrossDomesticProduct and its growth;Inflation; Business Cycleandreal estatebusiness in India;ForeignDirectInvestment;	Period: 6
Unit: 4 - <b>Money and Banking</b>	Barter system – double coincidence of wants; Money & Functions of money; Types of money, money creation & money multiplier; Role of the Central bank and commercial banks in money creation. Demand for money – Transaction demand & Speculative demand for money.	Period: 8
TotalPeriods:		30

**Reference: Books:**

- 1 Economics by Samuelson& Nordhaus, Sixteenth Edition
- 2 Principlesof Economics by Mankiw,GregoryN., SixthEdition
- 3 IndianEconomy:Problemof Development andPlanning by A.N.Agarwal,
- 4 Bharat-erArthaniti (BengaliVersion) by RaneshRoy
- 5 AdhunikArthaniti by HaridasAcharya
- 6 Introduction toMathematical Economics by Archibald&Lipsey, 12<sup>th</sup>Edition



<b>Name of the Subject: Business Statistics I</b>		
<b>Course Code: 212(S)</b>	<b>Semester: Second</b>	
<b>Duration: Seventeen weeks</b>	<b>Marks: 100</b>	
<b>Teaching Scheme:</b>	<b>Examination Scheme:</b>	
Theory: 2 hrs./week	Mid Semester Exam.: 20 Marks	
Tutorial: 1 hr./week	Attendance & Teacher's Assessment: 20 Marks	
Practical: Nil hrs./week	End Semester Exam.: 60 Marks	
Credit: 3		
<b>Course Objective:</b> The Students will be able to: Develop a proper understanding of Statistical applications in business and management. Interpret and use statistical, graphical and algebraic techniques in relevant areas.		
<b>Course outcome:</b> CO1. Understand basic concepts regarding collection, classification & tabulation of data CO2. Acquire basic concepts on frequency distribution – continuous and discrete CO3. Analyze data using different types of statistical diagrams and graphs CO4. Understand the application of Central tendency of data CO5. Calculate and interpret Mean, Median, & Mode CO6. Calculate and interpret various types of dispersions CO7. Understand basic concepts of Sampling technique		
<b>Detail Course Content</b>		
<b>Group-A</b>		
<b>Unit: 1 - Introduction to Statistics</b>	Introduction, Origin and Definition Function and limitations Statistical survey	<b>Periods: 2</b>
<b>Unit: 2 - Collection of Data</b>	Primary and secondary data Sources of secondary data Method of collection of secondary data Authenticity of data	<b>Periods: 2</b>
<b>Unit : 3 - Classification and Tabulation of Data</b>	Types of classification Formation of discrete frequency distribution and continuous frequency distribution Tabulation of data, rules of tabulation Types of tables, simple and complex	<b>Periods: 4</b>
<b>Unit : 4 - Diagrammatic and Graphical Representation</b>	Types of diagram Techniques for constructing graphs Graphs of frequency distribution, histogram, frequency polygon, ogive, bar chart, pie chart	<b>Periods: 8</b>
<b>Group B</b>		
<b>Unit : 5 - Measures of Central Tendency</b>	Introduction, definition of average: Requisites Types of average - Arithmetic mean (simple & weighted) Median Mode Limitation of an average Simple problems	<b>Periods: 19</b>
<b>Unit : 6 - Measures of Dispersion</b>	Introduction. Object of measuring dispersion Methods of studying dispersion Range - Quartile deviation – Mean deviation - Standard deviation – Variance Lorenz curve	<b>Periods: 10</b>
<b>Group-C</b>		
<b>Unit : 7 - Sampling &amp; Probability</b>	Census and samples Method of sampling Merits and limitations of Sampling Probability – Definition & Classical Theory	<b>Periods: 10</b>
Internal Assessment: 8	Total Periods: 51	

### EXAMINATION SCHEME

Internal Examination: Marks–20  
Final Examination: Marks–70

Marks on Attendance: 05  
Teacher's Assessment: 05

Group	Unit	Objective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	
A	1,2,3	8	Any Twenty	1	20x1=20
B	4,5	10			
C	6,7	10			

Group	Unit	Subjective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	
A	1,2,3	3	Any Five Taking At Least One from each Group	10	5x10=50
B	4,5	4			
C	6,7	3			

*Note 1: Teacher's assessment will be based on performance on given assignments & quizzes.*

*Note 2: Assignments may be given on all the topics covered on the syllabus.*

**Reference: Books:**

1. Statistical Methods by N.G. Das (Vol - I) – M Das & Co
2. Business Statistics by S. P. Gupta & M. P. Gupta
3. Introduction to Statistics by C.B. Gupta
4. Business Statistics by Mr. R. S. Bharadwaj, pub: Excel Book
5. Business Statistics by Ken Black, pub: Tata Macgraw Hill
6. Business Statistics by V. K. Kapoor, pub: S. Chand

<b>Name of the Subject : Conversational English I</b>		
<b>Course Code: 213(S)</b>	<b>Semester: Second</b>	
<b>Duration: Seventeen weeks</b>	<b>Marks:100</b>	
<b>Teaching Scheme:</b>	<b>Examination Scheme:</b>	
Theory: 2 hrs./week	Mid Semester Exam.:20 Marks	
Tutorial: 1 hr./week	Quizzes, viva voce, assignment: 10 Marks	
Practical: Nil hrs./week	Attendance & Teacher's Assessment : 10 Marks	
Credit: 3	End Semester Exam.:60 Marks	
<b>Course Objective:</b>		
The Students will be able to:		
1 Acquire phonetic skills required for oral communication		
2 Develop power of communication through composition		
3 Enhance writing skill		
These objectives will help in enriching the required knowledge and skill essential for office activities.		
<b>Course outcome:</b>		
CO1. The meta-analysis revealed that systematic phonics instruction produces significant benefits for students having difficulty in learning to read.		
CO2. It will help in engaging students in composing and communicating ideas using speech, writing and visuals in an active learning environment.		
CO3. Enhancement will help the student to explain herself, improve communication skills and increase knowledge, creativity and imagination		
Students will strengthen their ability to write academic papers, essays and summaries using the process approach		
<b>Detail Course Content</b>		
<b>Group - A</b>		
<b>Unit:1- Phonetics</b>	1.1 The speech mechanism 1.2 Speech sounds: Vowels and Consonants 1.3 Phonetic symbols 1.4 Classification of English consonants-Consonant cluster in English 1.5 The Syllable 1.6 Accent-Accent and Rhythm in connected speech 1.7 Intonation 1.9 Indian English: Features that affect the intelligibility - Suggestions for improving the efficiency.	<b>Periods:8</b>
<b>Unit:2 - Listening Skill</b>	2.1 Meaning & Concept 2.2 Hearing Vs Listening 2.3 Active Listening 2.4 Types of listening 2.5 Skills associated with listening 2.6 Benefits of developing good listening skill 2.7 Barriers of listening	<b>Periods:8</b>
<b>Unit : 3 - Role Play</b>	Introduction 3.1 What is Role Play 3.2 Voice Characteristics 3.2 Non-verbal communication 3.3 Methods for correcting mistakes 3.4 English-speaking skills Personality & attitude 3.6 Methodology	<b>Periods:8</b>
<b>Unit : 4 - Telephone Skill</b>	4.1 Introduction 4.2 About telephone skills 4.3 Common rules for calling & receiving calls 4.4 Telephonic Interviews Skills and tips for Telephonic interviews 4.6 Basic telephonic etiquette	<b>Periods:8</b>

<b>Group – B</b>		
<b>Unit : 5 - Writing Skill</b>	5.1 Writing using a variety of simple & complex sentences and a range of SUBORDINATE & CO-ORDINATE CLAUSE Softime, place, manner, reasons, relation, result etc. 5.2 Knowledge to construct a coherent and cohesive text, using a range of COHESIVE DEVICES dealing with consequences, addition, concession, apposition, agreement, contrast. 5.3 Producing for realizing arrange of LANGUAGE FUNCTIONS such as expression, requirements, opinions, comment, attitude, point of view, confirmation, apology, want/need, information, complaints, reasons, justification. 5.4 DIRECTING: Instructing, Persuading, Advising 5.5 DESCRIBING: Actions, Events, People, Objects 5.6 NARRATING: A sequence of events, processes 5.7 REPORTING: Description, Comment, Interviews, Decisions FILLING up different types of FORMS. 5.9 DRAFTING & RE-DRAFTING to spot errors & slips and connect them	<b>Periods:13</b>
<b>Contact Periods:45</b>	<b>Internal Assessment:6</b>	<b>Total Periods:51</b>

### EXAMINATION SCHEME

#### 1. Evaluation Scheme (AICTE, P-7)

##### a. For Theory Courses

- i. The weightage of Internal Assessment is 40% and for End Semester Examination is 60%.
- ii. The student has to obtain at least 40% marks individually both in internal assessment and end semester examination to pass

#### Propose (Council level) Marks Distribution: Full Marks = 100

Internal Assessment			End Semester Exam.	
Sl. No	Type	Marks	Question Type	Marks
1	Mid Semester Tests (Two best out of three)	10x2=20	Objective type questions carrying 1 mark for 20 questions(Qs) out of 25 Qs throughout the syllabus	1x20=20
2	Quizzes, viva-voce, Assignments	10	Question carrying 2 marks for 5 Qs out of 8Qs (at least 1Q from each unit )	2x5=10
3	Class Attendance *	10	Qs carrying 6 marks for 5 Qs (Subjective type) out of 8 Qs (at least 1Q from each unit)	6x5=30
	<b>Total</b>	<b>40</b>		<b>60</b>

Each unit of a course should focus one course objective and course outcome (Co)

#### \* Allotment of attendance marks as follows

Class Attendance (in %)	Marks to be awarded for class attendance
80% and above	10.0
75% to below 80%	8.0
70% to below 75%	6.0
65% to below 70%	4.0
60% to below 65%	2.0

#### **Reference: Books:**

1. Effective Technical Communication - M Ashraf Rizvi - McGraw Hill Education ( India) Private Limited
2. Communication Skills – Sanjoy Kumar & PuspLata - Oxford University Press
3. A Manual for English Language Communication Skills – D Sudharani - Pearson

<b>Name of the Subject : Office Organization and Methods</b>		
<b>Course Code: 214(S)</b>	<b>Semester: Second</b>	
<b>Duration: Seventeen weeks</b>	<b>Marks:100</b>	
<b>Teaching Scheme:</b>	<b>Examination Scheme:</b>	
<b>Theory: 2 hrs./week</b>	Mid Semester Exam.:20 Marks	
<b>Tutorial: Nil hrs./week</b>	Attendance & Teacher's Assessment: 10 + 10 Marks	
<b>Practical: Nil hrs./week</b>	End Semester Exam.:60 Marks	
<b>Credit: 2</b>		
<b>Course Objective:</b> To help the students to: 1. Understand basic functions and importance of modern office 2. Design various types of office forms 3. Understand the importance of filing and indexing 4. Derive a thorough idea of emergency services and welfare services provided in a modern office		
<b>Course Outcomes:</b> On completion of this course, the students will: CO1. be able to explain Office functions CO2. be able to demonstrate Office organization CO3. acquire knowledge about Office interior. CO4. get an idea about office forms CO5. get acquainted with mail handling system CO6. be able to demonstrate filing system CO7. be able to handle emergency services like, communication, transport, accommodation CO8. be able to provide hospitality to the guest & visitors.		
<b>Detail Course Content</b>		
<b>Unit:1 - Introduction</b>	1.1 Importance and functions of Modern Office 1.2 Definition of Office 1.3 Departments 1.4 Centralization of functions 1.5 Decentralization of functions.	<b>Periods:3</b>
<b>Unit:2 - Office Organization</b>	2.1 Organization definitions 2.2 Need and importance of organizations 2.3 Organizational charts and titles 2.4 Organizing an office.	<b>Periods:3</b>
<b>Unit : 3 - Office Layout &amp; Interior Decoration</b>	3.1 Objectives 3.2 Principles of office layout 3.3 Physical environment 3.4 Furnishings and interior decoration. 3.5 Office furniture 3.6 Different types of furniture, their relevance & uses 3.7 Office illumination	<b>Periods:6</b>
<b>Unit : 4 - Office Methods &amp; Operations</b>	4.1 Office forms and control 4.2 Stationary and control 4.3 Handling inward and outward mails 4.4 Office communication	<b>Periods:5</b>
<b>Unit : 5 - Filing &amp; Indexing</b>	5.1 Essentials and importance of filing 5.2 Classification of files 5.3 Methods of filing and indexing 5.4 Centralized and decentralized filling 5.5 Modern filing systems.	<b>Periods:7</b>
<b>Unit : 6 - Utilities &amp; Services</b>	6.1 Emergency services (communication, transport, accommodation) 6.2 Services to guests and visitors 6.3 Welfare services 6.4 Housekeeping and external beautification 6.5 Security measures	<b>Periods:6</b>
<b>Contact Periods : 30</b>	<b>Internal Assessment : 4</b>	<b>Total Periods : 34</b>

## EXAMINATION SCHEME

Internal Examination: Marks–20  
Final Examination: Marks–60

Marks on Attendance: 10  
Teacher's Assessment: 10

Sl No	Internal assessment		End Semester Exam	
	Type	Marks	Question Type	Marks
1	Mid Semester Tests (Two best out of three)	10x2=20	Objective type questions carrying 1 mark for 20 questions(Qs) out of 25 Qs throughout the syllabus	1x20=20
2	Quizzes, viva-voce, Assignments	10	Question carrying 2 marks for 5 Qs out of 8 Qs ( at least 1Q from each unit)	2x5=10
3	Class Attendance	10	Qs carrying 6 marks for 5 Qs (Subjective type) out of 8 Qs ( at least 1Q from each unit)	6x5=30
	<b>Total</b>	<b>40</b>		<b>60</b>

*Note1:Teacher's assessment will be based on performance on given assignments & quizzes.*

*Note2: Assignments may be given on all the topics covered on the syllabus.*

### **Reference: Books:**

1. Office Management Principles and Practice by Prasanta K. Ghosh, Sultan Chand & Sons
2. Modern Office Management by S. Chan, R.S.N Pillai Bagavathi
3. Principles of Office Management by R.C. Bhatia, Lotus Press

<b>Name of the Subject : Stenography &amp; Keyboard Practice Shop-II</b>		
<b>Course Code:</b>	<b>Semester:</b> Second	
<b>Duration:</b> Seventeen weeks	<b>Marks:</b> 100	
<b>Teaching Scheme:</b>	<b>Examination Scheme:</b>	
Theory: Nil hrs./week	Internal Practical Exam :60 Marks	
Tutorial: Nil hrs./week	External Practical Exam : 40Marks	
Practical: 2 hrs./week		
Credit:1		
<b>Course Objective:</b>		
To help the students to attain the higher speed of typing and make them capable of taking dictation		
<b>Course Outcome:</b>		
On completion students will be able to		
CO1.take dictation at a speed of 80 wpm		
CO2.capable of typing at a speed of 40wpm		
<b>Detail Course Content</b>		
<b>Unit:1 - Recapitulation of Consonant Sign</b>	1.1 Intensive drill in consonant signs	<b>Periods : 4</b>
<b>Unit:2 - Recapitulation of Vowel Sounds</b>	2.1 Application of Vowel sounds	<b>Periods : 4</b>
<b>Unit : 3 - Speed Practice</b>	3.1 Attaining speed of 60 wpm.	<b>Periods : 9</b>
<b>Unit : 4 - Speed Practice</b>	4.1 Attaining speed of 80 wpm.	<b>Periods : 9</b>
<b>Unit : 5 - Key Board Practice</b>	5.1 Attaining a Speed of 40	<b>Periods : 8</b>
<b>Contact Periods:34</b>	<b>Internal Assessment: Continuous</b>	<b>Total Periods :34</b>

**Examination Scheme.**

**Marks Distribution: Full Marks =100**

Internal assessment			End Semester Exam	
Sl No	Type	Marks	Question Type	Marks
1	Dictation	20	Dictation on the day of exam (by External Evaluator)	20
2	Class performance	10	Lab record etc. (by External Evaluator)	10
3	Attendance*	10	Viva-voce (by External Evaluator)	10
	Viva-voce	20		
	<b>Total</b>	<b>60</b>		<b>40</b>

**Reference: Books:**

1. Shorthand Instructor & Key by Sir, Isaac Pitman

<b>Name of the Subject : Conversational English Lab I</b>		
<b>Course Code:</b>	<b>Semester:</b> Second	
<b>Duration:</b> Seventeen weeks	<b>Marks:100</b>	
<b>Teaching Scheme:</b>	<b>Examination Scheme:</b>	
Theory: Nil hrs./week	Internal Practical Exam : 50 Marks	
Tutorial: Nil hrs./week	External Practical Exam : 50 Marks	
Practical: 2 hrs./week		
Credit: 1		
<b>Course Objective:</b>		
The Students will be able to:		
<ol style="list-style-type: none"> <li>1. Use correct pronunciation and intonation skills</li> <li>2. Acquire appropriate verbal and nonverbal communication and interaction skills and strategies such as listening, comprehension, turn-taking, eye-contact.</li> </ol>		
These objectives will help in enriching the required knowledge and skill essential for career building,		
<b>Course Outcome:</b>		
CO1. Demonstrate increased competence by identifying, explaining and applying effective communication skills in official presentations		
<b>Detail Course Content</b>		
<b>Unit:1 - Developing Phonetic Skills</b>	Intensive drilling in phonetic skills Accent and intonation.	<b>Periods: 8</b>
<b>Unit:2 - Developing Listening Skills</b>	Developing listening skills with the help of audio-video aids, listening must lead to speaking and writing. The Following sub-skills should be developed: —  2.1 The ability to listen to formal & informal speech and understand- (a) standard Indian pronunciation; (b) with some difficulty the pronunciation of foreigners; (c) the meanings of words, phrases and idioms used; (d) the mood, attitude and purpose of the speakers.  2.2 The ability to identify- (a) the discourse manner; (b) the register; (c) key words and specific information; (d) the sequence of the message.	<b>Periods: 10</b>
<b>Unit : 3 - Developing Conversational Skills</b>	Will develop different forms of conversation, formal or informal in different situations, like — (a) Greetings, salutations; (b) Asking the way; (c) In the Post Office; (d) Catching a train; (e) Booking a room at a hotel; a) At the bank; b) Making a telephone call; c) Making an apology; d) Asking the time - time expression; e) At the police station; f) An interview and an interviewee; g) Receiving and seeing off a guest.	<b>Periods: 12</b>
<b>Contact Periods: 34</b>		
<b>Internal Assessment:4</b>		
<b>Total Periods :85</b>		

**CURRICULUM STRUCTURE | INTERIOR DECORATION**  
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**Second semester**

Sl.No	Category of course	Code No	Course Title	Hours per week			Credits	Marks
				L	T	P		
1	Basic Science	BS102	Mathematics-II	3	1	0	4	100
2	Basic Science	BS104	Applied Physics-II	2	1	0	3	100
3	Engineering Science	ES102	Introduction to IT System	2	0	0	2	100
4	Programme Core Course	IDPC102	Interior Design Fundamentals-I	3	0	0	3	100
5	Engineering Science	ES106	Engineering Mechanics	2	1	0	3	100
6	Basic Science	BS106	Applied Physics-II Lab	0	0	2	1	100
7	Engineering Science	ES108	Introduction to IT System Lab	0	0	4	2	100
8	Programme Core Course	IDPC104	Interior Delineation	0	0	2	1	100
9	Engineering Science	ES112	Engineering Mechanics Lab	0	0	2	1	100
10	Audit	AU102	Environmental Science	2	0	0	0	100
				14	3	10		
<b>TOTAL</b>				<b>27</b>			<b>20</b>	<b>1000</b>

**Total Contact Periods per week -27**

**CURRICULUM STRUCTURE | INTERIOR DECORATION**  
**West Bengal State Council of Technical and Vocational Education and Skill Development**  
**Third Semester**

Sl.No	Category of course	Code No	Course Title	Hours per week			Credits	Marks
				L	T	P		
1	Pro. C.C.	IDPC201	Evolution of Interior Design -I	2	0	0	2	100
2	Pro. C.C.	IDPC203	Materials and Construction-I	2	0	0	2	100
3	Pro. C.C.	IDPC205	Interior Design Fundamentals-II	1	0	0	1	100
4	Pro. C.C.	IDPC207	Services-I	2	0	0	2	100
5	Pro. C.C.	IDPC209	Indian Art	1	0	0	1	100
6	Pro. C.C.	IDPC211	Introduction to Structure	2	1	0	3	100
7	Pro. C.C.	IDPC213	Space Planning	0	0	2	1	100
8	Pro. C.C.	IDPC215	Graphics-I(Lab)	0	0	4	2	100
9	Pro. C.C.	IDPC217	Interior Design & Drawing-I(Lab)	0	0	4	2	100
10	Pro. C.C.	IDPC219	Cad Lab-I(Lab)	0	0	4	2	100
11	Pro. C.C.	IDPC221	Market Study-I(Lab)	0	0	2	1	100
12	Summer Intern	SI201	Summer Internship after 2nd Semester	0	0	0	1	100
<b>TOTAL</b>				<b>27</b>			<b>20</b>	<b>1200</b>

**Total Contact Periods per week -27**

**PRO. C.C. - Programme Core Course**

**CURRICULUM STRUCTURE | INTERIOR DECORATION**  
**West Bengal State Council of Technical and Vocational Education and Skill Development**  
**Fourth Semester**

Sl.No.	Category of course	Code No.	Course Title	Hours per week			Credits	Marks
				L	T	P		
1	Pro. C. C.	IDPC202	Evolution of Interior Design -II	2	0	0	2	100
2	Pro. C. C.	IDPC204	Materials & Construction-II	2	0	0	2	100
3	Pro. C. C.	IDPC206	Services-II	2	0	0	2	100
4	Pro. C. C.	IDPC208	Interior Landscape	2	0	0	2	100
5	Pro. C. C.	IDPC210	Design & Drawing-A (6 hr. Exam)	1	0	0	1	100
6	Pro. C. C.	IDPC212	Graphics-(4 hr. Exam)	1	0	0	1	100
7	Pro. C. C.	IDPC214	Graphics-II(Lab)	0	0	4	2	100
8	Pro. C. C.	IDPC216	CAD Lab-II(Lab)	0	0	2	1	100
9	Pro. C. C.	IDPC218	Interior Design & Drawing-II (Lab)	0	0	4	2	100
10	Pro. C. C.	IDPC220	Interior Working Drawing-I(Lab)	0	0	4	2	100
11	Pro. C. C.	IDPC222	Market Study-II	0	0	2	1	100
12	Pro. C. C.	IDPC224	Interior Survey	0	0	2	1	100
13	Minor Project	PR202	Furniture Design	0	0	2	1	100
14	Mandatory Course	AU202	Essence of Indian/Bengal Knowledge and Tradition	2	0	0	0	100
<b>TOTAL</b>				<b>32</b>			<b>20</b>	<b>1400</b>

**Total Contact Periods per week-32**

**CURRICULUM STRUCTURE | INTERIOR DECORATION**

West Bengal State Council of Technical and Vocational Education and Skill Development

Fifth Semester

Sl.No.	Category of course	Code No.	Course Title	Hours per week			Credits	Marks
				L	T	P		
1	Pro. C. C.	IDPC301	Estimating, Specification and Costing	2	0	0	2	100
2	Pro. C. C.	IDPC303	Materials & Construction-III	2	0	0	2	100
3	Pro. C. C.	IDPC305	Services-III	2	0	0	2	100
4	Pro. C. C. (Lab)	IDPC307	Interior Design & Drawing-II(Lab)	0	0	6	3	100
5	Pro. C. C. (Lab)	IDPC309	Interior Working Drawing-II(Lab)	0	0	6	3	100
6	Pro. E. C.	IDPE301	Elective Subject-I A. Illumination B. Vaastu	2	0	0	2	100
7	Pro. E. C.	IDPE303	Elective Sessional-I	0	0	4	2	100
8	Major Project	PR302	Project Part-A	0	0	4	2	100
9	Summer Internship-II(6 weeks)after 4th Semester	SI301	Summer Internship	0	0	0	3	100
<b>TOTAL</b>				<b>28</b>			<b>21</b>	<b>900</b>

Total Contact Periods per week -28

PRO. E.C. - Programme Elective Course

**CURRICULUM STRUCTURE | INTERIOR DECORATION**  
**West Bengal State Council of Technical and Vocational Education and Skill Development**  
**Sixth Semester**

Sl.No.	Category of course	Code No.	Course Title	Hours per week			Credits	Marks
				L	T	P		
1	Pro. C. C.	IDPC302	Interior Maintenance	2	0	0	2	100
2	Pro. C. C.	IDPC304	Design & Drawing-B (6 hr. Exam)	1	0	0	1	100
3	Pro. E. C.	IDPE302	Elective Subject-II a. Interior of Heritage Structures b. Modular Design	3	0	0	3	100
4	Open Elective Course	IDOE302	(i)Low- Cost Technology (ii)Green Building & Energy Conservation	3	0	0	3	100
5	Humanities and Social Science	HS302	Entrepreneurship and Start-ups	3	1	0	4	100
6	Mandatory Course	AU 302	Indian Constitution	2	0	0	0	100
7	Pro. E. C.	IDPE304	Elective Sessional -II	0	0	6	3	100
8	Major Project	PR302	Project Part -B	0	0	8	4	100
9	Seminar	SE302	Seminar on thematic interior work	1	0	0	1	100
<b>TOTAL</b>				<b>30</b>			<b>21</b>	<b>900</b>

**Total Contact Periods per week -30**

**OE-Open Elective Course**

## INTERIOR DELINEATION

Course Code	IDPC104	Number of Credits	3
Course Title	Interior Delineation	Marks	100
Prerequisites	Nil	Periods per week	3
Course Category	Programme Core	Type	Sessional

### Objectives of the course

This course aims at building the skill of design ability based on theoretical understanding of design principles and elements. It provides strong sense of visual perception through ability of sketching. It also intends to make the students aware of rendering techniques of a presentation drawing to express the design appropriately.

### Course Contents:

Unit	Topic	No. of Sheets*	No. of weeks
I	Assignments on individual elements (e.g. point, line, form, texture and colour) and principles (e.g. balance, rhythm, contrast, proportion, harmony) of design.	2 Sheets	3
II	Assignment on making composition/s combining elements and principles of design using various media of presentation (texture, colour etc.) and application.	1 Sheet	2
III	Assignment on free-hand sketching (quick and detailed) on outdoor and indoor objects using various media like pencils, pens, paints (transparent and/or opaque colours)	3 Sheets	3
IV	Assignment on making model of a furniture or any indoor structure using linear members (e.g. match sticks, reeds, cane, coir etc.) to understand geometric form and model using clay to express sculptural effect	2 Items	2
V	Delineation and rendering of a residential indoor space comprising of materials of its structural components (wall, floor, ceiling, openings etc.) and layout of furniture and fixtures through orthographic projections (plan and indoor elevations) not less than 1:25 scale.	2 Sheets	5

\*Assignments may be carried out on A2 size drawing sheets (or equivalent A3 sheets) as per instructions of the teacher.

### Evaluation Scheme

<b>Internal Assessment</b>	60 Marks	Continuous internal assessment of 60 marks is to be carried out by the teachers throughout the semester. Out of 60 marks, 10 marks will be allotted for class performance and 10 marks for attendance. Remaining 40 marks will be allotted for assignments and viva-voce.
<b>External Assessment</b>	40 Marks	Assessment will be done at the end –semester examination. It will be based on assignments and viva-voce

**Suggested readings:**

1. Rendering with pen and ink By Robert.W.H.Gill/Thomos and Hudson)
2. An Introduction to Art Craft Technique Science and profession of Interior Design By Ahmed Abdullah Kasu/IqiraPub.Pvt. Ltd. Mumbai
3. Basics Freehand Drawing By Florian Afflerbach/Birkhäuser
4. Anatomy for Interior Designers By Julius Panero/Random House Incorporated, 1962
5. Basic drafting for interior designers By William Ernest Miller /Van Nostrand Reinhold Company

**Course outcomes:**

After completing this course, students will be able to:

1. Apply the knowledge of design theory in creating composition
2. Develop visual perception through sketching
3. Learn the use of various types of colour medium in rendering
4. Understand material properties and possibilities in creating structure
5. Present a well rendered drawing of interior design of a room

## INTERIOR DESIGN FUNDAMENTALS – I

Course Code	IDPC102	Number of Credits	3
Course Title	Interior Design Fundamentals-I	Marks	100
Prerequisites	Nil	Periods per week	3
Course Category	Programme Core	Type	Theoretical

### Objectives of the course:

This course aims that the students have the basic concept of interior design as a profession in the field of creative and utility based design. This course also aspires to enable the students to recognize and use basic design elements and principles to create design.

### Course Contents:

#### **Unit-I Introduction to Interior Design 2 weeks**

Concept of Interior Design, need for Interior Design, role of Interior Designers – theories and principles, materials and aesthetics, function and expression, area of application, professional utility

#### **Unit-II Factors Effecting Interior Design 1 week**

Location-Needs and Preferences-Availability of Materials-Financial Limit and Maintenance

#### **Unit-III Design theory 2 weeks**

Definition of Design, Purpose of Design, Comparison between designed and non-designed Objects, Appreciation of design criteria, Types of design-Structural and Decorative, Classification of decorative design-naturalistic- conventional- historic- geometric- biomorphic and abstract. Development of Design from motifs and pattern

#### **Unit-IV Elements of Design 5 weeks**

Design elements-Point, Line, Form, Texture and Colour, Point- Significance of point in space, Singularity-Eccentricity- Stable Composition-Unstable Composition, Line- Vertical-Horizontal-Diagonal-Curved-Wavy- Crooked, Their implication in creating mood of design, Form and Shape- Shape (2D)-Square-Rectangle- Triangle- Circle, Their visual impact on human mind. Form and shape (3D)- Concept of material , Colour - Additive Colour-Subtractive Colour-The Colour Wheel- Warm Colour, Cool Colour - Monochromatic Colour-Analogous Colour-Complimentary Colour-Split Complimentary-Double Complimentary Colour-Triad Colour-Tetrad Colour-Properties of Colour -Hues-TValue-Chroma, Texture - Fine - Coarse –Smooth- Rough-Sharp- Dull

#### **Unit-V Principles of Design Theory 5 weeks**

Balance: Both physical and visual balance. Symmetrical or formal balance, Asymmetrical or informal balance, Radial balance, Vertical balance, Horizontal balance Proportion and scale Golden Mean-

Modular Scale: Monumental scale - Human scale - Contrast-Rhythm: Types –Regular-Graduated-Random – Emphasis- Harmony: Definition- its significance in composition

### Evaluation Scheme

<b>Internal Assessment</b>	40 Marks	Attendance-10 Marks Mid semester examination-20 Marks (Best out of two assessments) Assignments-10 Marks
<b>External Assessment</b>	60 Marks	End semester examination-60 Marks Marks allotted for Objective Type Questions – 20 (1 mark per question) Marks allotted for Subjective Type Questions – 40 (8 Marks per question)

### Suggested readings:

1. An Introduction to Art Craft Technique Science and profession of Interior Design By Ahmed Abdullah Kasu / Iqaira Pub.Pvt. Ltd.Mumbai
2. Human Dimension and Interior Space: A Source Book of Design Reference Standards By Julius Panero,/ Martin Zelnik
3. The Fundamentals of Interior Design By Linda O'Shea, Chris Grimley, Mimi Love / Rockport
4. The Fundamentals of Interior Design By Simon Dodsworth, Stephen Anderson/ Bloomsbury Publishing

### Course outcomes:

After completing this course, students will be able to:

1. Define the role of interior designer in the professional field
2. Understand the meaning of design as a technique , not a mere pattern
3. Develop concept of aesthetic design
4. Recognize the elements of design and apply design fundamentals in practical uses.
5. Learn about external influences such as social, economic, climatic factors, etc. that affect interior design.

**WBSCTVE&SD Curriculum for full time Diploma in Architecture**

**FIRST YEAR CURRICULUM STRUCTURE  
(ARCHITECTURE)**

**SEMESTER -II**

**Curriculum for full time Diploma in Architecture**

**(With effect from 2020)**

<b>SEMESTER -II</b>									
Sl. No	Category of course	Code No	Course Title				Total Contact hrs/week	Credits	Marks
				L	T	P			
1	Basic Science	BS102	Mathematics-II	3	1	0	4	4	100
2	Engineering Science	ES102	Architectural Drawing-II(Lab)	1	0	4	5	3	100
3	Engineering Science	ES104	Architectural Measured Drawing(Lab)	0	0	3	3	2	100
4	Engineering Science	ES106	Engineering Mechanics	2	1	0	3	2	100
5	Engineering Science	ES108	Introduction to IT System (Lab)	0	0	2	2	1	100
6	Engineering Science	ES110	Architectural Basic Design(Lab)	1	0	4	5	3	100
7	Engineering Science	ES112	Architectural Delineation(Lab)	0	0	5	5	3	100
8	Audit Course	AU102	Environmental Science	2	0	0	2	0	100
Total							29	18	800

Course Code	:	ES102
Course Title	:	Architectural Drawing-II(Lab)
Number of Classes	:	5 (L:1,T:0,P:4)
Number of Credit	:	3
Prerequisites	:	NIL
Course offered in	:	Second Semester
Course duration	:	17 weeks
Course Category	:	ES
Full Marks	:	100
Marks Distribution	<p>Continuous internal assessment of 60 marks is to be carried out by the teacher throughout the semester.</p> <p><b>Distribution of marks:-Drawing Sheets &amp; Class performance-40, Viva-voce-10, Attendance-10.</b></p> <p>External assessment of 40 marks shall be held at the end of the second semester. <b>Distribution of marks:- Assignments on the day of exam(by External)-10,Drawing sheet-20, viva-voce-10</b></p>	

**Course Objectives:** On successful completion of the course, students will achieve basic drawing skills for development of solid geometry along with section and true shapes of solids, conversion of orthographic views and getting started with computer aided drafting.

<b>THEORY COURSE CONTENT</b>				
Unit No	Topic	Contents	Contact Hours	Marks
<b>Unit 1</b>	Section of Solids	<b>2.1</b> cube, prism, cylinder and cone resting on their base on horizontal plane. <b>2.2</b> Section plane inclined to one reference plane and perpendicular to other. <b>2.3</b> True shape of section.	L:04 P:16	10
<b>Unit 2</b>	Development of surfaces	Development of lateral surfaces of cube, prism, pyramids, cylinder and cone.	L:05 P:20	10
<b>Unit 3</b>	Conversion of pictorial views into orthographic views.	Conversion of pictorial views into orthographic views and vice-versa.(use First Angle Projection methods only)	L:03 P:12	10
<b>Unit 4</b>	Introduction to Auto CAD	<b>4.1</b> Getting Started- Starting Auto CAD, screen layout and toolbars, opening new and existing files, saving a file. <b>4.2</b> Basic drawing and editing commands-drawing lines, rectangles, circles, create text, dimension a drawing, insert hatch patterns, offset, trim, extend and other editing commands, plotting a drawing.	L:05 P:20	10
<b>Total</b>			<b>L:17 P:68</b>	<b>40</b>

<b>PRACTICAL COURSE CONTENT</b>				
Unit No	Topic	Contents	Sheet size	No of Sheets
<b>Unit 1</b>	Section of Solids	Three problems on different solids, one problem, and section plane inclined to H.P. and perpendicular to V.P. one problem, section plane inclined to V.P. and perpendicular to H.P. one problem, section plane perpendicular to one reference plane and parallel to another plane and true shape of the section.	A2	one
<b>Unit 2</b>	Development of surfaces	Three problems on development of surfaces of different objects.	A2	one
<b>Unit 3</b>	Conversion of pictorial views into orthographic views.	Two objects by First Angle projection method with section.	A2	one
<b>Unit 4</b>	Introduction to Auto CAD	Draw floor plans (any two rooms- e.g. bed room, kitchen, living room etc.) of a residential building with the help of Draw and Modify commands.	A2	one

**Course Outcome:**

- Students will develop basic graphic skills so as to enable them to use these skills in the preparation, interpretation and understanding of architectural design drawings.
- Students will develop an unambiguous and clear visualization with sound pictorial intelligence to interpret architectural drawings.
- Students will develop the basic skill to draw building drawing in computer by using Auto CAD

<b>Name of Text Books</b>			
Sl. No	Name of Author	Name of Book	Name of Publisher
1	N.D. Bhatt	Engineering Drawing	Charotkar Publishing House
2	K. Venugopal V.Prabhu Raja	Engineering Drawing & AutoCAD	New Age Publication
3	F.D.K Ching	Architectural Graphics	Wiley Publishers
4	F.D.K Ching	Design Drawing	Wiley Publishers
5	R.K. Dhawan	Engineering Drawing	S.Chand & Co
6	B. Agarwal C.M.Agarwal	Engineering Drawing	Tata McGraw Hill Education Pvt. Ltd
7	Pal & Bhattacharya	Computer aided Engineering Drawing	Viva Books
8	Dr S.N. Lal	Engineering Drawing with an introduction to Auto CAD	CENGAGE Learning India pvt. Ltd.

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Course Code	:	ES 104
Course Title	:	Architectural Measured Drawing. (Lab)
Number of classes	:	3 (L:0,T:0,P:3)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Second Semester
Course duration	:	17 weeks
Course Category	:	ES
Full Marks	:	100
Marks Distribution	<p>Continuous internal assessment of 60 marks is to be carried out by the teacher throughout the semester.</p> <p><b>Distribution of marks:-Drawing Sheets&amp; Class performance-40, Viva- voce-10, Attendance-10.</b></p> <p>External assessment of 40 marks shall be held at the end of the second semester. <b>Distribution of marks:- Assignments on the day of exam(by External)-10,Drawing sheet-20, viva-voce-10</b></p>	

**Course Objectives:** On successful completion of the course students will develop their skill in measure drawing of buildings by using different kinds of measuring and drawing equipment.

#### **Course Content:-**

#### **Unit 1: Measuring equipment**

Video representation of uses of different kinds of measuring equipment like measuring Tape, Laser Measure Tool, Adjustable Set Square, Camera, Survey equipment, Sketch book.

#### **Unit 2: Field Notes**

Video representation of different process to take field notes like experience the building by walking, photography, sketching, special features, digital notes and rough outline layout (scaled sketches with human figures)

#### **Unit 3: Measuring Structure**

Video representation of different techniques to measure a structure like running measurements and spot measurements.

#### **Unit 4: Equipment for hand drawing production**

Introduction to different types of scales like imperial scale, metric scale, Use of T- Square, Triangles, Triangular scale, compass in technical drawing production.

#### **Unit 5: Drawing Sheet Production**

Drawing sheet presentation process for building measure drawing using proper sheet size & orientation, drawing scale, sheet layout, text & fonts, labelling, dimensions, specifications, north line & notes, drawing title.

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## Unit 6: Measure Drawing-

Measure drawing of any of the space of the institution like Architectural drawing Studio/lecture class room/ smart class room/ office/ library/ lab./any other similar type of habitable space is to be done. **The measure drawing is to be done in group of 4 to 5 students in each group.**

**Measure drawing of staircase is compulsory for each group.** For each space horizontal and vertical field measurements have to be collected. Proper drawing sheets of the spaces should be produced consisting plan, elevation and skin section.

### Course Outcomes:

At the end of the course student will be able

1. To understand different types of measuring equipment and how these are applied.
2. To understand how field notes are documented while doing a measure drawing.
3. To understand different measurement types.
4. To understand what kind of equipments are used and how they are applied to produce a hand drawing.
5. To develop their ability of producing drawing sheets appropriately.
6. To develop their skill in measure drawing with practical experience.

### References/ suggested Learning Resources:

#### (a) Books:-

- Building Construction Volume I,II,III & IV (Metric Ed.)/J.K. MCKay & W.B.
- The Construction of Buildings Volume 1, 2, 3, 4 & 5 / R. Barry / English Language Book Society
- A Text Book of Materials & Construction/ TTTI 4
- A Text Book of Materials & Construction/ S.P. Aurora & S.P. Bindra
- Building Construction / Sushil Kumar/ Standard Publishers Distributers, Delhi
- Working Drawings Handbook by Styles Keith
- Architectural Details and Measured Drawings of Houses of Twenties ( Dover Architecture) by William A. Redford

#### (b) Website address:-

- <https://www.firstinarchitecture.co.uk>
- <https://www.smartdraw.com>
- <https://drawingacademy.com>
- <https://www.archisoup.com/architectural-scale>
- <http://www.lifeofanarchitect.com/as-built-drawing-adventure/>

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Course Code	:	ES110
Course Title	:	Architectural Basic Design(Lab)
Number of Classes	:	5 (L:1,T:0,P:4)
Number of Credit	:	3
Prerequisites	:	1. Student should draw basic geometric shapes and Solids. 2. Visualize three dimensional objects and draw Isometric Projections.
Course offered in	:	Second Semester
Course duration	:	17 weeks
Course Category	:	ES
Full Marks	:	100
Distribution of Marks	<p>Continuous internal assessment of 60 marks is to be carried out by the teacher throughout the semester.</p> <p><b>Distribution of marks:-Drawing Sheets&amp; Class performance-40, Viva- voce-10, Attendance-10.</b></p> <p>External assessment of 40 marks shall be held at the end of the second semester. <b>Distribution of marks:- Assignments on the day of exam(by External)-10,Drawing sheet-20, viva-voce-10</b></p>	

**Course Objectives:-** On successful completion of the course,

1. Students will developed the basic design skills so that the students can understand the basic Architectural design Drawing.
2. Understand the fundamentals of design principles.
3. Read and interpret design drawings.

UNIT	TOPIC	CONTACT PERIODS		NO OF SHEETS
		Lecturer	Sessional	
1	Introduction	2	0	0
2	Design fundamentals	5	22	3
3	Visual art	2	14	2
4	Study, Analysis, Design & Drawing	8	32	3
	Total	17	68	8

DETAIL COURSE CONTENT			
Unit No.	Topic	Contents	Number of sheets & sheet size
Unit 1	Introduction	1.1) Definition of Design. 1.2) Comparison between designed and non-designed objects. 1.3) Application of design criteria; Orientation of design (General) process.	_____
Unit 2	Design fundamentals	2.1) Introduction to the ELEMENTS OF DESIGN based on POINTS, LINES, PLANES, FORMS etc	ONE (A1 or A2)
		2.2) Introduction to the Principles of Design Based on SCALE, SYMMETRY, BALANCE, PROPORTION, RHYTHM etc.	_____
		2.3) TWO-DIMENSIONAL COMPOSITION of simple geometrical shapes based on Scale, Proportion, Symmetry and Balance.	ONE (A1 or A2)
		2.4) THREE-DIMENSIONAL COMPOSITION of simple geometrical forms (applying the basic structure of two-dimensional composition) based on Scale, Proportion, Symmetry, Balance and Solid & Voids.	ONE (A1 or A2)
Unit 3	Visual Art	3.1) GENERAL PRINCIPLES OF COLOUR based on its different qualities & schemes and their representation through a Colour-Wheel	ONE (A1 or A2)
		3.2) Visual properties of two-dimensional forms of both geometric and no geometric surfaces - Line, Shape, Form, Figure-ground relationship, Direction, Contrast. Visual textures and tonal variations - colour, contrast, brightness, hatch etc.	ONE (A1 or A2)
Unit 4	Study, Analysis, Design & Drawing	4.1) Elementary principles of Architectural Design on the basis of structure, function and aesthetics.	_____
		4.2) Structure- mechanics of load distribution, visual and conceptual EXAMPLE	_____
		4.3) Function-Anthropometrics, circulation, light, ventilation, , basic services and utilities. (SCALE – 1:20/25 )	ONE (A1 or A2)
		4.4) Aesthetics - composition, form, volume, mass, etc.	_____
		4.5) Design of small single storey structure (Example:- Bus Stand, Food Counter, Milk Counter, Guard Room, Street Food Stall, etc. ) and their A) Study and analysis B) Presentation of Architectural Designs (ALL PLANS,ELEVATION & SECTION)-(SCALE – 1:100/50)	TWO (A1 or A2)

## First Year Curriculum Structure (2<sup>nd</sup> semester Architecture, w.e.f.2020)

### Course Outcome:

At the end of the course student will be able to

- 1 Understanding and identify the fundamentals of design in respect of Architecture.
- 2 To develop concept of visual aspect of architectural design.
- 3 Understanding the principles of Architectural Design on the basis of structure, function and aesthetics.
- 4 To develop the architectural design of a small single storey structure using design principal.

References Books		
Name of Author	Name of Book	Name of Publisher
FRANCIS D. K. CHING	ARCHITECTURE: FORM,SPACE & ORDER	WILEY
G. MUTHU SHOBA MOHAN	PRINCIPLES OF ARCHITECTURE	OXFORD
YATIN PANDYA	ELEMENTS OF SPACEMAKING	MAPIN
JULIUS PANERO & MARTIN ZELNIK	HUMAN DIMENSION & INTERIOR SPACE	WHITNEY
FRANCIS D. K. CHING	INTRODUCTION TO ARCHITECTURE	WILEY

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Course Code	:	ES 112
Course Title	:	Architectural Delineation(Lab)
Number of classes	:	5 (L:0,T:0,P:5)
Number of Credit	:	3
Prerequisites	:	NIL
Course offered in	:	Second Semester
Course duration	:	17 weeks
Course Category	:	ES
Full Marks	:	100
Marks Distribution	<p><b>For Group A Continuous Internal Assessment of 40 marks</b> is to be carried out by the teachers throughout Part I – Second Semester. <b>Distribution of marks:</b>  <b>Attendance : 10, Sheet: 25,Viva : 05</b></p> <p><b>For Group B continuous Internal Assessment of 20 marks</b> is to be carried out by the teachers throughout Part I – Second Semester. <b>Distribution of marks: 3D Models &amp; viva : 20</b></p> <p><b>External Assessment of 40 marks</b> shall be held at the end of the Part I-Second Semester <b>Distribution of marks: Sheets &amp;, Viva voce – 20.</b>  <b>Viva voce &amp; 3D models - 20</b></p>	

## First Year Curriculum Structure (2<sup>nd</sup> semester Architecture, w.e.f.2020)

**Course Objective:-** On completion of this course, the students will be in a position to understand and develop

1. Basic knowledge of Free hand sketches with shades and shadows & others visuals.
2. A sense of presentations & rendering of different architectural elements.
3. Comprehension and visualization of geometrical forms.
4. Basic knowledge & sense of human scale with respect to different architectural elements.

Detail Course Content			
<b>GROUP – A TWO – DIMENSIONAL DELINEATION</b>			<b>(45 Hrs)</b>
Module	Topic	Content	Number of sheets & sheet size
Module-1	Outdoor Sketching	To practice freehand drawing of a building along with sky, trees, cars, human figures etc. with shades & shadows and using colours in various media such as pencil, crayons, water colour, poster-colour etc.	ONE (A1/A2)
Module-2	Architectural presentation & rendering of Landscaping elements.	To practice presentation and rendering of TREES, HERBS, SHRUBS, GROUND COVERS, CONTOURS,	ONE (A1/A2)
Module-3	Architectural presentation & rendering of Cars	To practice presentation and rendering of both plans & elevations, in Black & White / in colour. (3 nos cars & 1 Bus) Parking layout plan of 6 nos of cars in different parking layout including turning radius & other details.	ONE (A1/A2)
Module-4	Architectural presentation & rendering of Human figure	To practice presentation and rendering of Human figure relevant with interior furniture following Anthropometry and Ergonomics. Both plans & elevations, in Black & White / in colour.	ONE (A1/A2)
Module-5	Rendering of Interior Spaces	To practice rendering of LIVING / DRAWING ROOM, DINING ROOM, BED ROOM etc, in Black & White / in colour. The plan, elevation and perspective are to be provided by the teacher-in-charge(s). Each Student is to take at least one type of interior space.	ONE (A1/A2)

**First Year Curriculum Structure (2<sup>nd</sup> semester Architecture, w.e.f.2020)**

<b>GROUP – B THREE – DIMENSIONAL DELINEATION ( 40 Hrs )</b>		
Module	Topic	Content
Module-7	Introduction	Names of Tools & Appliances and characteristics of materials used for architectural model making
Module-8	Architectural scale model of simple solids	To make architectural scale models of simple solid objects using mount-board/ sun board (scale- 1:50) Video representations of sectional view of different simple solid objects like sphere, cone, cylinder, cube, pyramid, prism etc by the teacher concerned for clear conception of solids.
Module-8	Architectural scale model of simple building.	To make architectural scale model of a simple building showing adjoining site landscaping (drawings to be provided by the teacher concerned), using mount-board / sun board. (Scale 1:50/1:100)

**Course Outcome:-**Students will develop basic rendering skills so as to enable them to use skill in the presentations of any architectural design drawings. By this skill any architectural design drawings will enhance its aesthetic beauty that attracts viewers. Also student should develop a clear visualization with sound knowledge of 3D objects handling and relationship of architectural spaces with human scales.

<b>References Books</b>		
Name of Author	Name of Book	Name of Publisher
FRANCIS D. K. CHING	RENDERING WITH PEN & INK	WILEY
FRANCIS D. K. CHING	ARCHITECTURAL GRAPHICS	WILEY
FRANK LOHAN	PEN & INK TECHNIQUES	DOVER PUBLICATION
W.GILL	RENDERING WITH PEN & INK	THAMES & HUDSON
FRANCIS D. K. CHING	ARCHITECTURE: FORM,SPACE & ORDER	WILEY

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**First Year Curriculum Structure (2<sup>nd</sup> semester Architecture, w.e.f.2020)**

## Curriculum for Diploma Courses in Engineering & Technology

<b>Course code</b>	:	<b>AU102</b>
<b>Course Title</b>	:	<b>Environmental Science</b>
<b>Number of credits</b>	:	<b>0(noncredit) L-2,T-0,P-0</b>
<b>Prerequisites</b>	:	<b>Madhyamik /10<sup>th</sup> pass</b>
<b>Course category</b>	:	<b>AU</b>

### Course Objectives:

Technicians working in the industries or elsewhere essentially require the knowledge of environmental science so as to enable them to work and produce most efficient, economical and eco-friendly finished products.

- Solve various engineering problems applying knowledge of ecosystem to produce eco-friendly products.
- Use relevant air and noise control method to solve domestic and industrial problems.
- Use relevant water and soil control method to solve domestic and industrial problems.
- To recognize relevant energy sources required for domestic and industrial applications.
- Solve local solid and e-waste problems.

### Course Content:

**Prerequisite:** Madhyamik/10<sup>th</sup> pass

<b>Content</b>		<b>Hrs./Unit</b>	<b>Marks</b>
<b>Unit-1 Ecosystem</b>	1.1 Structure of ecosystem, Biotic & Abiotic components.  1.2 Food chain and food web.  1.3 Aquatic (Lentic and Lotic) and terrestrial ecosystem,  1.4 Carbon, Nitrogen, Sulfur and Phosphorus cycle.	<b>3</b>	
<b>Unit-2 Air and Noise Pollution</b>	2.1 Definition of pollution and pollutant  2.2 Air Pollution: Sources (Natural and manmade)  2.3 Air Pollutants: Particulate pollutants (PM10 & PM2.5) –effects on Environment & lives and control (Bag filter, Cyclone separator, Electrostatic precipitator, Scrubber) Gaseous Pollutants- effects on Environment & lives and control (Absorption, Adsorption and Catalytic converter), National Ambient Air Quality Standards	<b>6</b>	

	<p>2.4 Environmental Issue: Global warming, Green House effect, Ozone layer depletion and Acid rain (Elementary idea only).</p> <p>2.4 Noise Pollution: Sources, Unit&amp; measuring devices, Effects, Prevention, Noise level of various zone as per Noise pollution (Regulation and control) rules 2000</p>		
<p><b>Unit-3 Water and Soil Pollution</b></p>	<p>3.1 Water Pollution: Sources</p> <p>3.2 Water Pollutants: Characteristics (Turbidity, pH, Total dissolved solid, Total suspended solid, Total solid, Fe,As and Fluoride, DO, BOD, COD - definition only), BIS water quality standard, Flow diagram of drinking water treatment.</p> <p>3.3 Wastewater Treatment: Primary (elementary idea of coagulation-flocculation and sedimentation) Secondary treatment (elementary idea of Activated Sludge treatment, Trickling filter and Bio-reactor), Tertiary treatment (Elementary idea of Membrane Separation Technology and Reverse osmosis), General standards for Discharge of Environmental Pollutants (Part – A only).</p> <p>3.4 Soil pollution: Causes (excessive use of fertilizer, pesticides and insecticides), Effects on Environment and lives.</p>	7	
<p><b>Unit-4 Renewable sources of Energy</b></p>	<p>4.1 Solar Energy: Basics of solar energy, elementary idea of Solar pond, Solar water heater, Solar drier, Solar stills.</p> <p>4.2 Biomass: Overview of Biomass as energy source. Flow diagram of Biogas production, storage and utilization of biogas.</p> <p>4.3 Wind Energy: Elementary ideaof wind energy &amp; environmental benefits.</p> <p>4.4 Other Energy Sources: Basic idea of Tidal energy, Geothermal energy.</p>	6	

<b>Unit-5 Solid Waste Management, ISO-14000 &amp; Environmental Management</b>	5.1 Municipal Solid Waste, Bio-medical waste and E-waste – Sources, characteristics, effects and method to manage like 4R (Reduce, Reuse, Recycle & Recover) principles, Composting, Sanitary landfill, Incineration.  5.2 Air(Prevention &Control of pollution) Act, Water (Prevention &Control of pollution) Act.  5.3 Role of Central and State Pollution Control Board and Bureau of Indian Standard  5.4 Basic idea of Carbon Credit, Carbon Footprint.  5.5 ISO 14000: Salient feature only.	<b>6</b>	
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## References:

### a) Suggested Learning Resources:

#### Books:

1. A text book of Environmental Studies- Dr. D.K. Asthana and Dr. Meera Asthana, S Chand publishers
2. Ecology and Environmental Studies- Santosh Kumar Garg, Khanna publishing house
3. A text book of Environmental Chemistry and Pollution Control- Dr. S.S. Dara and Dr. D.D. Mishra, S Chand publishers
4. A text book of Environmental studies for undergraduate courses-ErachBharucha,Universities press(India) Pvt.Ltd.
5. Environmental Science- Dr. Y K Singh, New Age International Publication
6. Fundamentals of Renewable energy sources – N S Rathore, Chetan B Khobragade andAsnaniBhawana, Himanshu Publication
7. Renewable energy sources and emerging technologies – D.P.Kothari, K.C.Singal, and Rakesh Ranjan, PHI Learning Pvt. Ltd.
8. Environmental Pollution Control and Engineering-C.S.Rao, New Age International Publication
9. Environmental Chemistry – A.K.De, New Age International Publication
10. Air Pollution – M N Rao and H V N Rao, Tata McGraw Hill
11. Basic Environmental Engineering & Elementary Biology – Dr M N Patra and R K Singha, Aryan Publishing House

### b) Open source software and Website address:

- 1) [www.eco.prayer.org](http://www.eco.prayer.org)
- 2) [www.teriin.org](http://www.teriin.org)
- 3) [www.cpcp.nic.in](http://www.cpcp.nic.in)
- 4) [www.indiaenvironmentportal.org.in](http://www.indiaenvironmentportal.org.in)
- 5) [www.conserve-energy-future.com](http://www.conserve-energy-future.com)

### Teachers should use the following strategies to archive the various outcomes of the course

- Different methods of teaching and media to be used to attain classroom attention
- Massive open online courses (MOOCs) may be used to teach various topics/subtopics.
- 15-20% of the topics which are relatively simpler of descriptive in nature should be given to the students for self learning and assess the development of competency through classroom presentation.
- Micro-project may be given to group of students for hand on experience.
- Encouraging students to visit to sites such as industry and research establishment around the institute.

### Course outcomes

At the end of the course student will be able to

1. Understand the ecosystem and terminology and solve various engineering problems applying ecosystem knowledge to produce eco-friendly product
2. Understand the suitable air, extent of noise pollution and control measures and acts.
3. Understand the water and soil pollution and control measures and acts.
4. Understand different renewable energy resources and efficient process of harvesting.
5. Understand solid waste management, ISO 14000 & Environmental Management

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Above syllabus is recommended by the syllabus subcommittee on the basis of resolution taken by the members being present in the meeting held on 14/03/2020 at North Calcutta Polytechnic, Kolkata.

Members' present-

- i. Dr. SailendraNath Mandal ---Expert
- ii. Dr. Ujjval Bhattacharyya --- Member
- iii. Dr. Supriyo Mukherjee ---- Member
- iv. Prolay Roy --- Convener