PART – I
FINAL
CURRICULAR STRUCTURE
AND
SYLLABI OF
FULL–TIME DIPLOMA COURSES IN
Printing technology, Photography, Multimedia Technology& Architechture
W.E.F. 2013-14

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION

(A Statutory Body under West Bengal Act XXI of 1995)

"Kolkata Karigori Bhavan", 2nd Floor, 110 S. N. Banerjee Road, Kolkata – 700013

Sl. No.	Subject	Credits	Periods			Evaluation Scheme					Semester-I
	Branch Diploma in Printing Technology										
				L	Tu	Pr	Internal Scheme			ESE	PR	Total Marks
							TA	CT	Total			
1	**Communication Skill**	3	2	2		10	20	30	70		100
2	**Basic Physics**	3	2		2	10	20	30	70	50	150
3	**Basic Chemistry**	3	2		2	10	20	30	70	50	150
4	**Mathematics**	5	4	1		10	20	30	70		100
5	**Basic Engineering for Printing**	4	3	1		10	20	30	70	100	100
6	**Technical Drawing**	4	2		3	5	10	15	35	50	100
7	**Computer Fundamentals**	2	1		3					50	50
8	Workshop Practice (Printing)	2			3					50	50
9	Total	26	16	4	13	55	110	165	385	250	800

STUDENT CONTACT HOURS PER WEEK:33 hrs Theory and Practical Period of 60 Minutes each.   L- Lecture, TU- Tutorials, PR- Practical, TA- Teachers Assessment, CT- Class Test, ESE- End Semester Exam.

	WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION										
	TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN PRINTING TECHNOLOGY COURSES										
	COURSE NAME: PRINTING TECHNOLOGY										
	DURATION OF COURSE: 6SEMESTERS										
	SEMESTER: SECOND										
	BRANCH: Printing Technology										
SR. NO.	SUBJECT	CREDITS	PERIODS			EVALUATION SCHEME					
			L	TU	PR	INTERNAL SCHEME			ESE	PR	Total Marks
						TA	CT	Total			
1	**Business Economics & Accountancy**	**3**	**4**	-	-	**10**	**20**	**30**	**70**	-	**100**
2	**Applied Physics**	**3**	**2**	-	**2**	**5**	**10**	**15**	**35**	**50**	**100**
3	**Applied Chemistry**	**3**	**2**	-	**2**	**5**	**10**	**15**	**35**	**50**	**100**
4	**Engineering Mathematics**	**4**	**3**	**1**	-	**10**	**20**	**30**	**70**	-	**100**
5	Basic Printing	4	3			10	20	30	70		100
6	**Engineering Drawing**	**3**	**1**	-	**3**	**5**	**10**	**15**	**35**	**100**	**150**
7	Workshop Practice (printing)	2			6					100	100
8	**Development of Life Skill -I**	**3**	**1**	-	**3**	-	-	-	-	**50**	**50**
	Total:	**25**	**16**	**1**	**16**	**45**	**90**	**135**	**315**	**350**	**800**

STUDENT CONTACT HOURS PER WEEK:33 hrs
Theory and Practical Period of 60 Minutes each.
L- Lecture, TU- Tutorials, PR- Practical, TA- Teachers Assessment, CT- Class Test, ESE- End Semester Exam.

Sl. No.	Subject	Credits	Periods			Evaluation Scheme			ESE	PR	Total Marks
			L	Tu	Pr	Internal Scheme					
						TA	CT	Total			
1	**Communication Skill**	3	2	2		10	20	30	70		100
2	**Basic Physics**	3	2		2	10	20	30	70	50	150
3	**Basic Chemistry**	3	2		2	10	20	30	70	50	150
4	**Mathematics**	5	4	1		10	20	30	70		100
5	**Basic Photography-I**	4	3	1		10	20	30	70	100	100
6	**Technical Drawing**	4	2		3	5	10	15	35	50	100
7	**Computer Fundamentals**	2	1		3					50	50
8	Workshop Practice (Photography)	2			3					50	50
9	Total	26	16	4	13	55	110	165	385	250	800

Branch Diploma in Photography — Semester-I

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION

TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN Photography COURSES

COURSE NAME: Photography
DURATION OF COURSE: 6 SEMESTERS
SEMESTER: SECOND
BRANCH: Photography,

SR. NO.	SUBJECT	CREDITS	PERIODS			EVALUATION SCHEME			ESE	PR	Total Marks
			L	TU	PR	INTERNAL SCHEME					
						TA	CT	Total			
1	**Business Economics & Accountancy**	3	4	-	-	10	20	30	70	-	100
2	**Applied Physics**	3	2	-	2	5	10	15	35	50	100
3	**Applied Chemistry**	3	2	-	2	5	10	15	35	50	100
4	**Engineering Mathematics**	4	3	1	-	10	20	30	70	-	100
5	Basic Photography-II	4	3			10	20	30	70		100
6	**Engineering Drawing**	3	1	-	3	5	10	15	35	100	150
7	Workshop Practice (Photography)	2			6					100	100
8	**Development of Life Skill -I**	3	1	-	3	-	-	-	-	50	50
	Total:	25	16	1	16	45	90	135	315	350	800

STUDENT CONTACT HOURS PER WEEK:33 hrs
Theory and Practical Period of 60 Minutes each.
L- Lecture, TU- Tutorials, PR- Practical, TA- Teachers Assessment, CT- Class Test, ESE- End Semester Exam.

	Branch Diploma in Multimedia Technology									Semester-1

Sl. No.	Subject	Credits	Periods			Evaluation Scheme			ESE	PR	Total Marks
			L	Tu	Pr	Internal Scheme					
						TA	CT	Total			
1	**Communication Skill**	3	2	2		10	20	30	70		100
2	**Basic Physics**	3	2		2	10	20	30	70	50	150
3	**Basic Chemistry**	3	2		2	10	20	30	70	50	150
4	**Mathematics**	5	4	1		10	20	30	70		100
5	Multimedia Fundamentals	4	3	1		10	20	30	70		100
6	**Technical Drawing**	4	2		3	5	10	15	35	50	100
7	**Computer Fundamentals**	2	1		3					50	50
8	Workshop Practice (Multimedia)	2			3					50	50
9	Total	26	16	4	13	55	110	165	385	250	800

STUDENT CONTACT HOURS PER WEEK:33 hrs Theory and Practical Period of 60 Minutes each.
L- Lecture, TU- Tutorials, PR- Practical, TA- Teachers Assessment, CT- Class Test, ESE- End Semester Exam.

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION
TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN MULTIMEDIA TECHNOLOGY COURSES

COURSE NAME: **Multi Media Technology**
DURATION OF COURSE: 6 SEMESTERS
SEMESTER: SECOND
BRANCH: Multi Media Technology

SR. NO.	SUBJECT	CREDITS	PERIODS			EVALUATION SCHEME					
			L	TU	PR	INTERNAL SCHEME			ESE	PR	Total Marks
						TA	CT	Total			
1	**Business Economics & Accountancy**	3	4	-	-	10	20	30	70	-	100
2	**Applied Physics**	3	2	-	2	5	10	15	35	50	100
3	**Applied Chemistry**	3	2	-	2	5	10	15	35	50	100
4	**Engineering Mathematics**	4	3	1	-	10	20	30	70	-	100
5	Multimedia Development	4	3			10	20	30	70		100
7	**Engineering Drawing**	3	1	-	3	5	10	15	35	100	150
8	Workshop Practice (Multimedia)	4			6					100	100
9	**Development of Life Skill -I**	3	1	-	3	-	-	-	-	50	50
	Total:	25	16	1	16	45	90	135	315	350	800

STUDENT CONTACT HOURS PER WEEK:33 hrs
Theory and Practical Period of 60 Minutes each.
L- Lecture, TU- Tutorials, PR- Practical, TA- Teachers Assessment, CT- Class Test, ESE- End Semester Exam.

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION
TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN Architecture COURSES
COURSE NAME: Architecture

DURATION OF COURSE: 6SEMESTERS

SEMESTER: SECOND

BRANCH: Architecture

SR. NO.	SUBJECT	CREDITS	PERIODS			EVALUATION SCHEME					
			L	TU	PR	INTERNAL SCHEME			ESE	PR	Total Marks
						TA	CT	Total			
1	Business Economics & Accountancy	3	4	-	-	10	20	30	70	-	100
2	Applied Physics	3	2	-	2	5	10	15	35	50	100
3	Applied Chemistry	3	2	-	2	5	10	15	35	50	100
4	Engineering Mathematics	4	3	1	-	10	20	30	70	-	100
5	Strength of Materials	2	2	1	-	5	10	15	35	-	50
6	Basic Design	2	-	-	3	-	-	-	-	50	50
7	Engineering Drawing	3	1	-	3	5	10	15	35	100	150
8	Delineation	2	-	-	3	-	-	-	-	100	100
9	Development of Life Skill-I	3	1	-	3	-	-	-	-	50	50
	Total:	25	15	2	16	40	80	120	280	400	800

STUDENT CONTACT HOURS PER WEEK:33 hrs

Theory and Practical Period of 60 Minutes each.

L- Lecture, TU- Tutorials, PR- Practical, TA- Teachers Assessment, CT- Class Test, ESE- End Semester Exam.

Name of the Course: **Basic Printing for Printing Technology Branch**			
Course Code:	Semester: Second		
Duration: 15 Weeks	Maximum Marks: 100		
Teaching Scheme	Examination Scheme		
Theory: 3 hrs/week	Internal Examination: 20		
Tutorial: 1 hrs/week	Assignment & Quiz: 10		
Practical: hrs/week	End Semester Exam:70		
Credit: 4			
Aim:			
The aim of teaching the paper like "Basic Printing" is to acquaint the students with various methods of processing and printing used in industry and to equip the students with the basic principles of technological changes taking place in different aspects connected to printing and Graphic Arts field			
Objective: The students will be able to			
1. understand different principles of PRINTING, processing techniques & Graphic Arts technology			
Pre-Requisite: NIL			
Contents:			
Group-A		**Hrs/unit**	**Marks**
Unit 1	**INTRODUCTION TO PRINTING** General definition in Printing, History of Printing – Basic elements required and their interrelationship – Major divisions and sub-divisions of various printing processes –NON-IMPACT & IMPACT (Relief, Planography, Intaglio & Silk-screen).	05	15
Unit 2	**COMPOSING TECHNIQUES** Introduction to composition techniques – History of movable types – Anatomy of types – Purpose of layout – Choosing of founts.	04	5
Unit 3	**METAL USED FOR TYPE CASTING** Purpose of Lead, Tin & Antimony in Alloys used for metal types. EQUIPMENT OF COMPOSING ROOM.	03	5
Group-B			
Unit 4	USE OF PAPER AS SUBSTRATE : ONLY NAMES & SIZES OF POPULAR PAPERS USED AS SUBSTRATES IN PRINTING	03	10
Unit 5	**PROCESS CAMERA** Use of process camera in pre-press and its different parts — Different types of process camera & their anatomy. Brief introduction of Convex & Concave lenses used in process camera for image formation Preparation of line negative (steps only). General understanding of retouching –reduction & intensification of silver. Equipment and chemicals used in retouching. Different types of illuminants – Their name, colour temperature and uses. Different types of illuminates – Their name, colour temperature and uses.	05	10
Group C			
Unit 6	**INTRODUCTION TO ARTWORK PREPARATION** Purpose – Different parts & its uses – Conventional Artwork	03	10

	Making – Typesetting – Introduction to Desk top Publishing.			
Unit 7	PRE-PRESS OPERATION: Graining. Different image carrier for different impact printing process. Egg albumen plate making process Metal print for the preparation of block (before etching)	05	5
Unit 8	INTRODUCTION TO DIFFERENT PRINTING PROCESS: History of lithography – Principles of Lithography Direct and Indirect method. Description of Letterpress and Flexography printing process Description of Letterpress and Flexography printing process. Description of GRAVURE PRINTING PROCESS, SILK SCREEN PRINTING PROCESS (OVERVIEW ONLY)	05	10

Suggested books

Name of Author	Title of the Book	Name of the Publisher
D L Stevenson	Handbook of Printing processes	GATF Publication
Ardhendu Chaudhuri	The Basic Art of Printing	GATF Publication
G A T F	Lithographers' Manual	GATF Publication
D L Stevenson,	Handbook of Printing processes	Oxford & IBH Publication.
J S Martle, Gordon L Monson	Photo mechanics and printing	GATF Publication
Ardhendu Chawdhuri	Printing Primers The basic art of printing	Galgotia Publication.
Biswanath Chakraborty,	Handbook of printing and packaging technology	

Syllabus for : Workshop Practice For Printing Technology

Name of the Course: Diploma in Printing Technology.	
Course Code:	**Semester: First &** Second (At least two groups should be completed in 1st semester and rest two from 2nd semester. Evaluation may be done by continuous assessment process and by External Examiner in end semester.)
Duration: : Seventeen weeks/Semester	**Maximum Marks: 150 (1st + 2nd)**
Teaching Scheme	**Examination Scheme: Continuous Evaluation**
Theory: Nil hrs./week	Mid Semester Exam.: Nil
Tutorial: Nil hrs./week	Attendance & Teacher's Assessment (at the end of 2nd Sem for both Sem 1 & 2) : **50 Marks(1st + 2nd)**
Practical: 3 hrs./week	End Semester Exam (at the end of 2nd Sem for both Sem 1 & 2) :**100 Marks (1st + 2nd) . So Total Marks 150 (50 + 100) for both Sem 1 & 2 will be given after 2nd Semester**
Credit: 3	
Aim: To impart practical knowledge in Work Shop related with course of study.	
Objective: Student will able to	

Sl. No.	
1.	Know basic Work Shop Processes.
2.	Read and interpret job drawings.
3.	Identify, select, & use of various tools & equipment.
4.	Operate, control different machines & equipment.
5.	Inspect the job for specified dimensions.
6.	Produce jobs as per specified dimensions.
7.	Adopt safety practices (tools, jobs & personal) while working on various machines.
8.	Acquaint with the chronological operational processes involving in the jobs.
9.	Care & maintenance of the tools & machines.

Pre-Requisite: Nil	
Sl. No.	
1.	
2.	

Contents : GROUP: A/B/C/D **TOTAL PERIODS: 90 (30 Weeks) + 12 (4 Weeks) = 102 (34 Weeks)**		Hrs./Unit	Marks

Group A: Typesetting & Composition

1. Familiarization with various tools & equipment in the concerned section.
2. Case Layout (English); Use of tools & equipment; Use of spacing materials   — How to compose straight matter.
3. Practice on composing stick and hand composing techniques.
4. Proving of composed matter, correction and reproving.
5. Demonstration of keyboard and casting unit of hot metal mechanical composing systems.
6. Demonstration of various cold composing systems.
7. Acquaintance with Desk top Publishing.

Group B: Reproduction Photography

1. Familiarization with various tools & equipment and furniture in the concerned section.
2. Preparation of lists / charts of various tools & equipment.
3. Acquaintance with lenses, prism & conventional glass screen for making halftone.
4. Preparation of Black & White line negatives / positives — practice on process camera: Scaling, Cropping, Illuminating.
5. Acquaintance with processing chemicals.
6. Acquaintance with different retouching materials.
7. Acquaintance with checking the negatives and correcting the same through photopaqueing, reducing, intensification.
8. Demonstration of various cameras, correction procedures of films.

Group C : Surface Preparation

1. Familiarization with various tools & equipment and furniture in the concerned section.
2. Preparation of lists / charts of various tools & equipment.
3. Preparation of egg albumen coating solution & plate making.
4. Preparation of plate making — Wipe on plate making.
5. Preparation of glue coating solution and line metal print on zinc.
6. Demonstration of various plate making and block making equipment.

Group D: Press Work

1. Familiarization with the different tools & equipment in the machine printing department for Letter press, Gravure, Flexography and Offset method
2. Making chart / drawing of the machine room indicating the placement of various machines available in the workshop
3. Making chart of tools & equipment (only names)
4. Familiarization with substrates, inks in the machine room
5. Printing in platen machine
6. Demonstration of flexography and gravure printing machines
7. Familiarization with various printing methods in lithography
8. Working in Letterpress & Offset proving machine
9. Imposition and locking up in letter press.
10. Demonstration on single colour offset machine

<u>**Syllabus for Basic Photography-II**</u>

Name of the Course : Diploma in Photography
Name of the Subject: BASIC PHOTOGRAPHY-II
Course Code :   Semester: Second
Duration: 15 weeks   **Maximum Marks: 100**
Teaching Scheme :   **Examination Scheme :**
Theory: 3 contact hours/week.   Internal Examination : 20 Marks
Tutorial : Nil   Class Attendance : 5 Marks
Practical : Workshop   End Semester Examination : 70 Marks
Credit : 4   Teacher's Assessment:5 Marks

Aim:
1.   To develop the skill & knowledge in basics of Photography.
2.   Students will understand the knowhow and can function either as an entrepreneur or can take up jobs in the Photography and film industry.
3.

Objectives - The student will be able to
1.   Develop the concept of Digital Imaging- a new era in Photography
2.   Know the basics of Digital Photography.
3.   Understanding important terms in digital
4.   Understanding Digital Camera,Digital Studio &Digital Darkroom

Pre-Requisite -
1.   Basic concept of Photography –Taking, Developing, Processing & Printing is necessary
2.   Basic communication and digital media based terms should be known
3.   Knowledge of basic Computer, hardware & software is also necessary

Content (Name of Topic)	Periods	
Group - A		
Module1 INTRODUCTION TO A NEW ERA IN PHOTOGRAPHY		
Concept of electronic (digital) imaging,Advantages of electronic image over conventional image, Method of converting conventional photographic image into an electronic image. How can an electronic image be printed? Hardware necessary for digital imaging.	12	
Module 2 BASICS OF DIGITAL PHOTOGRAPHY		
Understanding visual communication, How photography works: (i)The chemical route,(ii) The digital route ,Basic principle of digital photography, How are digital images captured? Imaging sensor: CCD and other types. Analogue versus Digital	12	
Group - B		
Module 3 UNDERSTANDING IMPORTANT TERMS IN DIGITAL		
Concept of the megapixel-No. of effective pixel,Optical and Digital zoom, white Balance ,Image size &Quality, Resolution, File Size, File Types,Concept of Frame, Perception &Composition	6	
Module 4 UNDERSTANDING DIGITAL CAMERA		
Basic Features-Lenses, Viewfinders, Flash, Photographic Control, Image Sensors, Types of Camera-Camera phones, Compact Cameras, Digital SLR,Hybrid Cameras Medium &Large Format Digital Backs.	6	
Group - C		
Module 5 DIGITAL STUDIO & DIGITAL DARKROOM		
General Consideration and Layout of a Small Digital Studio, Acquaintance with necessary Hardware, Software, Cameras, Lights,Umbrella, Backdrop, Tripod etc. to set up a small digital	9	

	studio. Concept of digital (electronic) darkroom		
	Total	45	

EXAMINATION SCHEME

Internal Examination :   Marks - 20   Marks on Attendance : 05
Final Examination :   Marks - 70   Teacher's Assessment : 05

Group	Module	Objective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	
A	1,2	10			
B	3,4	5	Any Twenty	1	20×1-20
C	5	10			
Group	Module	Subjective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	
A	1,2	4	Any Five Taking At Least One from Each Group	10	5 ×10 =50
B	3,4	2			
C	5	2			

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		
Philip Krejcarek	Digital photography-A hands on Introduction	Delmar Publishers.
Adrian Davies and Phil Fennessy	Digital Imaging for Photographers	Focal Press
Jon Tarrant	Understanding Digital Cameras	Focal Press
Carla Rose	Teach Yourself Digital Photography in 14 Days	Techmedia, 1997
	An Introduction to Digital Photo Imaging	Agfa, 1994
Jacobson	An Introduction to Digital Scanning	Agfa, 1994

Syllabus for : Workshop Practice (Photography-A)

Name of the Course: Diploma in Photography.

Course Code:	Semester: First (All Modules should be completed in 1st semester. Evaluation may be done by continuous assessment process and by External Examiner in end semester)
Duration: Seventeen weeks/Semester	Maximum Marks:150 (1st+ 2nd)
Teaching Scheme	Examination Scheme: Continuous Evaluation
Theory : Nil hrs./week	Mid Semester Exam : Nil
Tutorial : Nil hrs./week	Attendance &Teacher's Assessment 75 Marks (1st+ 2nd)

Practical: 3 hrs./week	End Semester Exam : 50 Marks(2nd). **Will be sent with 2nd Sem marks of 100 i.e Total 150 marks for Sem 1 (50) and Sem 2 (100) will be sent after 2nd Sem**
Credit :1	

Aim: To impart practical knowledge in work Shop related withthe study of Photography.

Objective: Student will able to

Sl. No	
1	Develop the knowledge of Photography Studio.
2	Develop the knowledge of Photography Darkroom.
3	Practicing methods of Preparing different stock solutions
4	Practice in shooting subjects for outdoor & indoor photography
5	Processing and Contact print
6	Print Output of photography images

Pre-Requisite: Nil

Sl.No
1   Basic communication and photography based terms should be known.
2   Knowledge of basic technical and aesthetic concepts is also necessary.

Contents: Group:B, Total Periods: 45 (15 Weeks)+6 (2 Weeks)=51(17 Weeks)			Hrs./ Unit	Mark s
Module : 1	**1.0**	**Introduction to Photography Studio**	6 periods	
	1.1	Acquaintance with Light-room equipments & tools viz. camera, light, lens, fitter, flash, exposure metre, drier, glazer, tripod etc.		
Module :2	**2.0**	**Introduction to Photography Darkroom**	3 period s	
	2.1	Acquaintance with Darkroom equipments& tools viz. enlarger, easel, developing tank, tray, processor, timer, safe light etc.		
Module : 3	**3.0**	**Preparation of Stock Solution**	6 Periods	
	3.1	Preparing different stock solutions of darkroom chemicals for Black & White Film Processing and printing from the Raw Stock.		
Module : 4	**4.0**	**Practice in shooting subjects for outdoor & indoor photography**	12 Periods	
	4.1	Practice in shooting subjects for outdoor photography with the help of in-built and hand-held exposure meter.		
	4.2	Practice in shooting subjects for indoor photography with the help of in-built and hand-held exposure meter.		
Module : 5	**5.0**	**Processing and Contact print**	12 periods	
	5.1	Processing of exposed Black & White film viz. developing, fixing, rinsing etc. in tray and talk system		
	5.2	Preparation of contact prints form Black & White negatives using contact box and frames.		
Module : 6	**6.0**	**Print Output of photography images**	6 Periods	
	6.1	Preparation of Black & White enlargement for passport from different grades of negative		
		Total	**45 periods**	

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publishers
James	Fundamentals of photographic theory		
Boucher	Fundamentals of photography		
Mitchell	Ilford manual of photography		
Glafkede	Photographic chemistry		
Cox	Manual of photography		
Jacobson	Manual of photography		

SI. No.	Question Paper setting tips
A	
B	

Syllabus for : Workshop Practice (Photography,Gr-B)

Name of the Course: Diploma in Photography.

Course Code:	**Semester:Second** (All Modules should be completed in 2nd semester. Evaluation may be done by continuous assessment process and by External Examiner in end semester)
Duration: Seventeen weeks/Semester	**Maximum Marks:**150 (1st+ 2nd)
Teaching Scheme	Examination Scheme: Continuous Evaluation
Theory : Nil hrs./week	Mid Semester Exam : Nil
Tutorial : Nil hrs./week	Attendance & Teacher's Assessment 75 Marks (1st+ 2nd)
Practical: 6 hrs./week	End Semester Exam : 100 Marks(2nd). End Semester Exam (at the end of 2nd Sem for both Sem 1 & 2) :**100 Marks (1st + 2nd) i.e Total 150 marks for Sem 1 (50) and Sem 2 (100) will be sent after 2nd Sem**
Credit :4	

Aim: To impart practical knowledge in work Shop related withthe study of Photography.
Objective: Student will able to

Sl. No	
1	Develop the knowledge of Digital Camera andStudio.
2	Develop the knowledge of Digital Darkroom.
3	Practicing methods of capturing or recording images by digital still camera
4	Shooting of different indoor subjects like Passport, Portrait subjects
5	Editing digital images by Image Editing Software
6	Taking output of edited digital images

Pre-Requisite: Nil

Sl.No	
1	Basic concept of Photography –Taking, Developing, Processing & Printing is necessary
2	Knowledge of basic Computer, hardware & software is also necessary

Contents: Group:B, Total Periods: 90(15Weeks)+12(2Weeks)=102(17Weeks)	Hrs./Unit	Marks

Module : 1	**1.0 Introduction to Digital Studio** 1.1 Introduction to Camera 1.2 Using Lenses-Prime lens,Zoom Lens 1.3 Using Studio Lights with Umbrella, Diffuser, Reflector 1.4 Using Tripod, Backdrops etc**.**	9 periods	
Module :2	**2.0 Introduction to Digital Darkroom** 2.1 Introduction to Computer 2.2 Working with Operating Software-Windows platform 2.3 Working with Application Softwarefor working with digital imaging.	9 periods	
Module : 3	**3.0 To capture or record images by digital still camera** 3.1 Learningwork-around forcamera setting 3.2 Focus work-around 3.3 Exposure work-around 3.4 Taking / Shootingby using built in flash light 3.5 Studio light and table top lighting.	12 Periods	
Module : 4	**4.0 Shooting of different indoor subjects like Passport,** **Portrait subjects** 4.1 Taking / Shooting of Passport by using Studio light 4.2 Taking / Shooting of Portrait by using Studio light	24 periods	
Module : 5	**5.0 To edit images by Image Editing Software** 5.1 Getting Started with Adobe Photoshop –Opening an Image, Familiarization with Tools and Palettes, Changing Foregrounds/Backgrounds Colour etc. 5.2 Editingimages through -Histogram Study, Navigational Palette and HandTool, Changing the Canvas size, Image size and Resolution. 5.3 Adjusting Colour Balance, Bright/Contrast, Hue/Saturation, Curves, Rotating, Flipping and Cropping Images for tonal and Colourcorrection. 5.4 Using Filter-Preview and apply filters, loading Images and Working with different filters. 5.5 Saving the Photoshop Filesin any of bitmapfile formats like -TIFF, PSD, JPEG, PNG, GIF, PDF and notice the changes.	24 periods	
Module : 6	**6.0 Output of edited digital images** 6.1 To generate print of digital images after editing. 6.2 To place digital images into other documents.	12 periods	
	Total	**90 periods**	

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publishers
Doug Harman	The Digital Photography Handbook	New Edition	Quercus
Vikas Gupta	Comdex Computer Course Kit Windows 7 with Office 2010		Dreemtech
Vikas Gupta	Comdex DTP Course Kit (CorelDraw,InDesign,Photoshop)		Dreemtech
Tom Ang	Digital Photography An Introduction	3rd Edition	DK(Penguin India)
Microsoft	Getting started with Windows 7		Microsoft Corporation
Alexis Leon,Mathews	E-Mail in a Nutshell		Leon Techworld

Reference Books:

Name of Authors	Tide of the Book	Edition	Name of the Publisher
Carla Rose	Teach Yourself Digital Photography in 14 Days	2nd Edition	Techmedia, 1997
Jon Tarrant	Understanding Digital Cameras		Focal Press

Syllabus for Multimedia Development

Name of the Course : MUTIMEDIA TECHNOLOGY
Name of the Subject: **Multimedia Development**
Course Code :   Semester: Second
Duration: 15 weeks   **Maximum Marks: 100**
Teaching Scheme :   **Examination Scheme :**
Theory :3 contact hours/week.   Internal Examination : 20 Marks
Tutorial : 1 contact hour/week   Class Attendance : 5 Marks
Practical : Workshop   End Semester Examination : 70 Marks
Credit : 4   Teacher's Assessment: 5 Marks

Aim:
1. To develop the skill & knowledge in Multimedia mode of information transfer.
2. Students will understand the knowhow and can function either as an entrepreneur or can take up jobs in the multimedia industry, video studios, edit set-up, graphic arts industry and other audio visual sectors.
3.

Objectives - The student will be able to
1. Recognizeand develop the design criteria of multimedia production
2. Appreciate the Multimedia Building blocks-Text, Image & Graphics, Audio, Video & Animation
3. Visualize various Multimedia Authoring System.
4. Development of Multimedia application/ Project

Pre-Requisite -
1. Basic communication and digital media basedterms should be known.
2. Knowledge of basic Computer hardware & software concepts is also necessary.
3.

Content (Name of Topic)	Periods	
Group - A		
Module 1 **Fundamental concepts and Design of a multimedia production**		
Script, Flowchart& Storyboard	3	
Module 2 **Multimedia Building Blocks- Text**		
Text as a part of multimedia project, Text design basic, Fonts, Types of fonts, True type fonts, Hypertext, Hyper Media	6	
Module 3 **Multimedia Building Blocks- Graphics**		
Why Graphics are important in multimedia application, Different kinds of graphics, Source of graphics, Graphics acquisition.	6	
Group - B		
Module 4 **Multimedia Building Blocks- Sound & Video**		
Importance of sound & Video in multimedia application, Elements of sound, analog & Digital sound, Recording, Digitizing, Sound format, Editing, Mixing of sound. Elements of Video, Analog & digital Video, Video Capture, Editing, Application of Video in multimedia- video size, frame rate, Image quality, Resolution.	9	
Module 5 **Multimedia Animation – 2D & 3D Animation**		
What is animation, Benefit of using Animation in multimedia. Animation technics-Traditional &Computerized, 2D & 3D Animation.	6	
Group - C		
Module 6 **Multimedia Authoring System**		
What is Multimedia Authoring? Functions of Multimedia Authoring,Authoring Software-Different types of Authoring tool,Metaphor,Selection of Authoring Program.	6	
Module 7 **Multimedia Application/Project**		
Multimedia Project,Importance of navigation and interactivity, Definition-Interactivity,Navigation,Different Navigational Structure-Linear,Hierarchical,Nonlinear,Composite,Hotspot, Button.	9	
Total	45	

EXAMINATION SCHEME

Internal Examination :   Marks - 20   Marks on Attendance : 05
Final Examination :   Marks - 70   Teacher's Assessment : 05

Group	Module	Objective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	
A	1,2,3	10			
B	4,5	7	Any Twenty	1	20×1-20
C	6,7	8			
Group	Module	Subjective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	

A	1,2, 3	4	Any Five Taking At Least One from Each Group	10	5 ×10 =50
B	4,5	2			
C	6,7	2			

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.

Text Books		
Name of Authors	Title of the Book	Publisher
John Villamil-Casanova, Louis Molina	Multimedia – An Introduction	Prentice Hall of India Pvt. Ltd, 1998
Gokul. S	Multimedia Magic	BPB Publication, 1995
Sinclair	Multimedia on the PC	BPB Publication
Norman Desmorais	Multimedia on the PC	McGraw Hill Inc, 1994
Reference Books		
Judith Jeffcoate	Multimedia in Practice - Technology & Applications	Prentice Hall, 1995
Linda Tway	Multimedia in Actions	AP Professional, 1995
Douglas E. Wolfgram	Creating Multimedia Presentations	QUE Corporation, 1994
Jessica Keys	The McGraw-Hill Multimedia Handbook	McGraw-Hill Inc., 1994
	PC Multimedia – An Introduction to Authoring Application	Francis Botto, 1995
Anil Madaan	Illustrated World of Multimedia	Dreamland Publication, 1999
Ralf Steinmetz &KlaraNahrstedt	Multimedia Computing, Communications and Applications	Prentice Hall PTR, 1995

Syllabus for : Workshop Practice (Multimedia,Gr-A)

Name of the Course: Diploma in Multimedia Technology.

Course Code:	**Semester:First** (All Modulesshould be completed in 1st semester. Evaluation may be done by continuous assessment process and by External Examiner in end semester)
Duration: Seventeen weeks/Semester	**Maximum Marks:**150 (1st+ 2nd)
Teaching Scheme	Examination Scheme: Continuous Evaluation
Theory : Nil hrs./week	Mid Semester Exam : Nil
Tutorial : Nil hrs./week	Attendance &Teacher's Assessment 75 Marks (lst+ 2nd)
Practical: 3 hrs./week	End Semester Exam : 100 Marks(2nd). End Semester Exam (at the end of 2nd Sem for both Sem 1 & 2) :**100 Marks (1st + 2nd) i.e Total 150 marks for Sem 1 (50) and Sem 2 (100) will be sent after 2nd Sem**
Credit :1	

Aim: To impart practical knowledge in work Shop related with course of study.
Objective: Student will able to

Sl. No	
1	Know basic PC operation, operating software& Computer hardware with accessories.
2	Introduction to Disk Operating System
3	Identify, select, & use of various commands in Windows Operating System

4	File Systems-Managing files and folders, working with programs
5	Introduction to word processing and generation of Text component & editing
6	Introduction to Excel, concept of worksheets, making charts etc.
7	Introduction to Internet Explorer and concept of using various features of Internet
8	Creating & Managing Mail Accounts
9	Web browsing

Pre-Requisite: Nil

Sl.No

1   Knowledge of basic computer operation concept of hardware & software is necessary.

2   Basic communication and digital media based terms should be known.

Contents:Group: A, Total Periods: 45(15 Weeks)+6(2 Weeks)=51(17 Weeks)		Hrs./Unit	Marks

Module : 1   1.0   **Basic**   6 periods

                                1.1   Introduction to Multimedia computer (MMPC) system and peripherals

                                1.2   Multimedia Hardware and System software, Application software

Module : 2   2.0   **MS DOS**

                                2.1   Introduction   8

                                2.2   Various commands   periods

                                2.3   How these commands work

Module : 3   **3.0   Windows**   16Periods

                                  3.1   Introduction-Desktop, Taskbar, Start button, My Computer, Windows Explorer etc.

                                3.2   Various Operating systems

                                  3.3   File Systems-Managing files and folders, working with programs

                                  3.4   Sharing and Securities

Module : 4   4.0   **MS Office**   24

                                4.1   Introduction to word processing and generation of Text Component & editing.   periods

                                4.2   MS Word-create, edit, save document, cut & paste, header, footer, printer setup

                                4.3   MS Excel-Introduction, concept of worksheets, making charts etc.

                                4.4   MS Power Point-Introduction & Interactive Presentation in Multimedia form.

Module : 5   **5.0   Internet**   8 periods

                                5.1   Introduction - Exploring Internet and the Web, various features

                                5.2   Creating & Managing Mail Accounts

                                5.3   Searching

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publishers
Vikas Gupta	Comdex Computer Course Kit Windows 7 with Office 2010		Dreemtech

Microsoft	Getting started with Windows 7		Microsoft Corporation
Alexis Leon,Mathews Leon	E-Mail in a Nutshell		Leon Techworld

Reference Books:

Name of Authors	Tide of the Book	Edition	Name of the Publisher
Galen A.Grimes	10 Minute Guide to The Internet and the World Wide Web	2nd Edition	Prentice Hall of India, New Delhi

SI. No.	Question Paper setting tips
A	
B	

Syllabus for : Workshop Practice (Multimedia, Gr-B)

Name of the Course: Diploma in Multimedia Technology.

Course Code:	Semester:Second (All Modules should be completed in 2nd semester. Evaluation may be done by continuous assessment process and by External Examiner in end semester)
Duration: Seventeen weeks/Semester	Maximum Marks:150 (1st+ 2nd)
Teaching Scheme	Examination Scheme: Continuous Evaluation
Theory : Nil hrs./week	Mid Semester Exam : Nil
Tutorial : Nil hrs./week	Attendance &Teacher's Assessment 75 Marks (lst+ 2nd)
Practical: 6hrs./week	End Semester Exam : 100 Marks(2nd). End Semester Exam (at the end of 2nd Sem for both Sem 1 & 2) :**100 Marks (1st + 2nd) i.e Total 150 marks for Sem 1 (50) and Sem 2 (100) will be sent after 2nd Sem**
Credit :4	

Aim: To impart practical knowledge in work Shop related withthe study of Multimedia Technology.

Objective: Student will able to

Sl. No	
1	Develop interactive presentation in PowerPoint.
2	Entering into Power point,Creating New Slide, Layout of the Title Page, Navigational Buttons and Linking with other slidesInserting a Clip Art Picture, Applying Special Effects using the Animation, Slide Transition and Multimedia Effects (Sound & Video)
3	Generation of Text & Graphics in Multimedia in Corel DRAW
4	Working with Documents, Text, Drawing Shapes, Lines, Curves, Filling, Creating Special Effects, Applying Special Effects to Bitmaps-2D, 3D, Blur, Artistic Effects.
5	Introduction to Adobe Photoshop, a bitmap based imageediting tool
6	Working with Images-Histogram Study, Changing the Canvas size, Image size, Resolution, Adjusting Colour Balance, Bright/Contrast, Hue/Saturation, Curves, Rotating, Flipping and Cropping Images for tonal and
7	Generation of Text & Graphics inMultimedia in Adobe In Design
8	Working with Multipage Documents, Designing the page with Text, Character,Paragraph, Drawing Box and Lines, Placing a Graphic or Image, Resizing and Creating the page layout.

Pre-Requisite: Nil

Sl.No
1   Knowledge of basic computer operation concept of hardware & software is necessary.
2   Basic communication and digital media based terms should be known.

Contents:Group:B,Total Periods: 90(15Weeks)+12(2Weeks)=102(17 Weeks)	Hrs./Unit	Marks
Module : 1 **1.0** **Introduction toInteractive Presentation in Multimedia form.** 1.1 Entering into Power point Presentation 1.2 Using Template of the Presentation 1.3 Creating Layout of the Title Page 1.4 Create New Slide 1.5 Preparing Slide 2,3,4 in the Presentation Layout 1.6 Saving the Presentation 1.7 Inserting a Clip Art Picture in the Presentation 1.8 Creating Navigational Buttons and Linking with other slides 1.9 Applying Special Effects using the Animation 1.10 Applying Special Effects using Slide Transition 1.11 Applying Multimedia Effects (Sound & Video) 1.12 View the interactive Presentation	18 periods	
Module :2 **2.0** **Corel DRAW-for the generation of Text & Graphics in Multimedia** 2.1 Introduction to CorelDraw, Setting page size, Adding page Background, Saving file. 2.2 Working with Multipage Documents 2.3 Working with Text 2.4 Drawing Basic Shapes. 2.5 Drawing Lines, Curves and Irregular Shapes 2.6 Filling and Outlining Objects 2.7 Creating Special Effects-Blending, Contouring & Extruding Objects 2.8 Creating Special Effects-Adding Drop Shadow, Using Lenses, Working with Power clip 2.9 Using the Interactive Transparency Tool 2.10 Applying Special Effects to Bitmaps-2D,3D, Blur,Artistic Effects.	24 periods	

Module : 3   **3.0**   **Introduction to Adobe Photoshop,a bitmap based image editing tool**
 3.1   Getting Started with Adobe Photoshop –Opening an Image, Familiarization with Tools and Palettes, Changing Foregrounds/Backgrounds Colour etc.
 3.2   Working with Images-Histogram Study, Navigational Palette and Hand Tool, Changing the Canvas size, Image size, Resolution,
    Adjusting Colour Balance, Bright/Contrast, Hue/Saturation, Curves, Rotating, Flipping and Cropping Images for tonal and colour correction.
 3.3   Working with Selection Tools-Marque, Lasso, Magic Wand etc.
    Copying, Moving, Pasting, Feathering, Transforming the selection
 3.4   Working with Painting Tools-Using of Brush, Swatches, Pencil, Air Brush, Line, Paint Bucket, Erase, Gradient, Filling stroke colour etc.
 3.5   Layer Basics-Layer Palette, Creation, Duplication, Deletion of
	24Periods	

Layers, Changing Layer Opacity, Rearranging, Merging, Flattening layers, Using Layer Effects Type Tool, Editing Type Layer, Applying Layer Effects etc.

3.6 Using Filter-Preview and apply filters, loading Images and Textures, Texture & glass surface controls, Working with different filters.

3.7 Saving the Photoshop Files-Acquaintance with different bitmap file formats-TIFF, PSD, JPEG, PNG, GIF, PDF, Saving the file in any of them and notice the changes.

Module : 4	**4.0 Adobe In Design-for the generation of Text & Graphics in Multimedia**	24 periods

4.1 Getting Started with Adobe In Design, Setting New Document&

page size, No. of pages, Column, Margin and saving the work.
4.2 Working with Multipage Documents
4.3 Designing the page with Text, Typing Text
4.4 Formatting Text Character,Paragraph.
4.5 Drawing Box and Lines, Curves and Irregular Shapes
4.6 Filling and Outlining Objects
4.7 Placing or importing a Graphic or Image, Resizing the image
4.8 Creating the page layout
4.9 Getting a proof of the document
4.10 Saving the document in an electronic file.

Total 90 periods

Text Books:			
Name of Authors	Title of the Book	Edition	Name of the Publishers
Vikas Gupta	Comdex Computer Course Kit Windows 7 with Office 2010		Dreemtech
Vikas Gupta	Comdex DTP Course Kit (CorelDraw,InDesign,Photoshop)		Dreemtech
Vikas Gupta&Kogent Solutions Inc.	Comdex Multimedia And Web Design		Dreemtech
Microsoft	Getting started with Windows 7		Microsoft Corporation
Alexis Leon,Mathews Leon	E-Mail in a Nutshell		Leon Techworld
Reference Books:			
Name of Authors	Tide of the Book	Edition	Name of the Publisher
Galen A.Grimes	10 Minute Guide to The Internet and the World Wide Web	2nd Edition	Prentice Hall of India, New Delhi

B A S I C   D E S I G N

(FOR ARCHITECTURE)

Syllabus for Basic Design

Name of the Course:	Basic Design	
Course Code:		**Semester: 2ND**
Duration: 45 hrs (15L+30 Pr)		**Maximum Marks: 50**
Teaching Scheme		**Examination Scheme**
Theory: 00 hrs./week		**Continuous Internal Assessment** of 25 marks is to be carried out by the teachers throughout Second Semester
Tutorial: 00 hr./week		**External Assessment of 25 marks** shall be held at the end of the Part I – Second Semester on the entire syllabus. One assignment per student from any one of the assignments done is to be performed. Assignment is to be set by lottery system. **Distribution of marks: On spot job – 12, Viva-voce – 13.**
Practical: 03 hrs./week		
Credit: 2		

D E T A I L   C O U R S E   C O N T E N T

Module 1   D e s i g n   F u n d a m e n t a l s   20 periods

1.1   Introduction to the ELEMENTS OF DESIGN based on POINTS, LINES, PLANES, FORMS, TEXTURE, COLOUR etc. — Introduction to the PRINCIPLES OF DESIGN based on SCALE, SYMMETRY, BALANCE, PROPORTION, RHYTHM etc.

1.2   TWO-DIMENSIONAL COMPOSITION of simple geometrical shapes based on Scale, Proportion, Symmetry and Balance.

1.3   THREE-DIMENSIONAL COMPOSITION of simple geometrical forms (applying the basic structure of two-dimensional composition) based on Scale, Proportion, Symmetry, Balance and Solid & Voids.

1.4   GENERAL PRINCIPLES OF COLOUR based on its different qualities & schemes and their representation through a Colour-Wheel.

Module 2   S t u d y   &   A n a l y s i s   10 periods

General principles of Architectural Design on the basis of Functions and Forms; Study and Analysis of simple functional spaces of a small building based on areas & dimensions, furniture & fixtures. Plans, elevations & sections, as required, are to be provided by the teacher-in-charge(s).

Module 3   D e s i g n   &   D r a w i n g   15 periods

Design and drawing of a simple building showing furniture-layout and fixtures (Plans, Elevations and Sections as required).

D E L I N E A T I O N

(FOR ARCHITECTURE)

Name of the Course:	Delineation	
Course Code:		Semester: 2ND
Duration: 45 hrs (45 Pr)		Maximum Marks: 100
Teaching Scheme		Examination Scheme
Theory: 00 hrs./week		**Continuous Internal Assessment of 50 marks** is to be carried out by the teachers throughout Part I – Second Semester.
Tutorial: 00 hr./week		**External Assessment of 50 marks** shall be held at the end of the Part I – Second Semester on the entire syllabus. One assignment per student from any one of the assignments done is to be performed. Assignment is to be set by lottery system. **Distribution of marks: On spot job – 25, Viva-voce – 25.**
Practical: 03 hrs./week		
Credit: 2		

O B J E C T I V E

On completion of this course, the students will be in a position to understand:

D E T A I L   C O U R S E   C O N T E N T

G R O U P – A   T W O – D I M E N S I O N A L   D E L I N E A T I O N   25 PERIODS

MODULE 1   INDOOR SKETCHING
5

To practice freehand drawing of objects & figures with shades & shadows and using colours in various media such as pencil, crayons, watercolour, poster colour etc.

MODULE 2   OUTDOOR SKETCHING
5

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, watercolour, poster-colour etc.

MODULE 3   ARCHITECTURAL PRESENTATION & RENDERING OF LANDSCAPE ELEMENTS

To practice presentation and rendering of TREES, HERBS, SHRUBS, GROUND COVERS, CONTOURS, WATER BODIES etc, as a single entity and in clusters / groups, both in plans & elevations, in Black & White and in colour.

MODULE 4   ARCHITECTURAL PRESENTATION & RENDERING OF CARS

To practice presentation and rendering of both plans & elevations, in Black & White and in colour.

MODULE 5   ARCHITECTURAL PRESENTATION & RENDERING OF HUMAN FIGURES

To practice presentation and rendering of both plans & elevations, in Black & White and in colour.

To practice rendering of LIVING / DRAWING ROOM, DINING ROOM, BED ROOM etc, in Black & White and 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.

SCHEME OF SHEETS

MODULE	NO. OF SHEETS	SHEET SIZE
1	ONE	A1/A2
2	ONE	A1/A2
3	TWO	A1/A2
4 5	ONE	A1/A2
6	ONE	A1/A2

GROUP – B   THREE–DIMENSIONAL DELINEATION   20 PERIODS

MODULE 7   INTRODUCTION

Names of Tools & Appliances and characteristics of materials used for architectural model making.

MODULE 8   ARCHITECTURAL SCALE MODEL OF OBJECTS

To make architectural scale models of simple objects using mount-board/ balsa-wood.

MODULE 9   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/ balsa-wood etc.

Syllabus for : Business Economics & Accountancy

Name of the Course: Business Economics & Accountancy	
Course Code:	**Semester:** Second
Duration: : Seventeen weeks	**Maximum Marks: 100**
Teaching Scheme	**Examination Scheme**
Theory: 4 hrs./week	Mid Semester Exam.:20 Marks
Tutorial: Nil hrs./week	Attendance & Teacher's Assessment : 10 Marks
Practical: Nil hrs./week	End Semester Exam.:70 Marks
Credit: 3	

Aim:	
Sl. No.	The Students will be able to:
1.	Understand some basic economic principles applied in business
2.	Analyze logically the interrelationships among economic ideas
3.	Solve economic problems using mathematics as a tool
4.	Derive results using mathematical formula
5.	Apply decision rules to select best alternative
6.	Relate theory to real life observations

7.	Make judgment in case of choice problems
8.	Understand basic concepts of Accounts
9.	Apply Golden Rules in Journal & Ledger
10.	Maintain Cash Book
11.	Prepare Trial Balance
12.	Prepare Final Account

Objective:

Sl. No.	The students are likely to acquire the following skills at the end of the course:
1.	Critical thinking skill
2.	Mathematical problem solving skill
3.	Theorizing skill
4.	Decision making skill
5.	Accounting skill
6.	Computing skill

Pre-Requisite:

Sl. No.	
1.	Elementary knowledge about Co-ordinate Geometry
2.	Basic knowledge in Algebra and Differential Calculus

Contents : GROUP: A BUSINESS ECONOMICS TOTAL PERIODS: 30		Hrs./Unit	Marks
Unit: 1 Name of the Topics: **Economics and Its Relation with Engineering** **Period: 10**	1.1 Allocation and effective utilisation of scarce resources ;Opportunity cost; Rationality Costs and benefits *1.2 **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	**Period: 2** **Period: 8**	

Unit: 2
Name of the Topics:
Theory of Production, Cost and Markets
 	
Periods: 12
	2.1 Theory of Production and Costs
	Production function – short run & long run;
	Short run – theory of production ;
	Long run – Returns 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
		Period 8	

	demand function and quadratic or cubic cost functions; 2.2 *Markets* Basic features of – (a) Perfectly Competitive Market (b) Monopolistic Competition (c) Oligopoly and (d) Monopoly, Relevant examples from Indian economy	**Period 3**	
Unit: 3 **Investment Planning and Problems of Indian Economy** **Periods: 8**	**3.1 *Investment Planning*** Concept of investment Evaluating Capital Projects (a) Payback Period Method (b) Net Present Value Method (c) Internal Rate of Return Method **Application** : Solving numerical problems	**Period :3**	
	3.2 *Economic Concepts and issues in the Context of Indian Economy* Mixed Economy and relevance of planning; Globalization; Gross Domestic Product and its growth; Inflation; Business Cycle and real estate business in India; Foreign Direct Investment;	**Period: 6**	
	Total Periods :	**30**	
GROUP – B ACCOUNTANCY TOTAL PERIODS: 30			
Unit: 4 Name of the Topics: **Fundamentals of Accountancy** **Periods: 12**	**4.1 *Introduction to Accountancy*** 4.1.1 **Accountancy**: Definition & objectives 4.1.2 **Book** Keeping & Accountancy 4.1.3 Accountancy &Accounting Evolution 4.1.4 Single & Double Entry System **4.2 *Double Entry System*** 4.2.1**.** Transaction Concepts: Accounts & Classification of Accounts ⮚ Transaction- Two fold aspects Events ⮚ Golden Rules 4.2.2 Journal as a book of prime entry : subdivisions of Journal ⮚Recording of Transaction Narration 4.2.3 Ledger : Rules for writing Ledger ⮚ Balancing of Ledger Accounts—Concepts of b/d and c/d	**Periods: 2** **Periods:10**	
Unit: 5 Name of the Topics:	**5.1 *Cash Book***	**Periods: 3**	

Cash Book and Trial Balance **Periods: 9**	5.1.1. Single Columns and Double Column including Contra Entry 5.1.2. Concept of Petty Cash Book *5.2 Trial Balance* 5.2.1 Preparation of Trial Balance 5.2.2 Rectification of Wrong Trial Balance 5.2.3 Errors detected in Trial Balance 5.2.4 Errors not detected in Trial Balance	**Periods: 6**	
Unit: 6 Name of the Topics: **Preparing Final Account** **Periods: 9**	**6.1 Basic Concepts Regarding Final Account** General Concept ⬜ Assets, Liabilities, Capital Drawings, Provision, Reserve, Reserve Fund, Bad Debts, Provision for Debts, Profit Seeking and Non-profit Seeking Concerns **6.2 Final Account** Trading Account ⬜ Profit & Loss Account ⬜ Balance Sheet (with simple adjustment)	**Periods:2** **Periods: 7**	
	Total Periods :	**30**	

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Samuelson & Nordhaus	Economics	Sixteenth Edition	Tata McGraw Hill
Mankiw, Gregory N.	Principles of Economics	Sixth Edition	CENAGE Learning
A.N. Agarwal	Indian Economy: Problem of Development and Planning		New Age International
Dey & Dutt Amitava Basu	Hisab Shastra Financial Accountancy – 1		Chaya Prakashani Teedee Publisher
Ranesh Roy	Bharat-er Arthaniti (Bengali Version)		Mitram
Haridas Acharya	Adhunik Arthaniti		De Book Concern

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Archibald & Lipsey Lipsey & Chrystal	Introduction to Mathematical Economics Economics	 12th Edition	Harper & Row Oxford
Basu & Das S. N. Maheshwari	Practice in Accountancy Introduction to Accountancy		Rabindra Library Pioneer Book House

Sl. No.	Question Paper setting tips
A	**Business Economics** Short Question: 10 Marks, Students will answer 10 questions, each carrying 1 mark out of 14 questions. Type: True/False, MCQ, Fill in the blanks, Definitions, Matching the items etc. **Accountancy** Short Question: 10 Marks, Students will answer 10 questions, each carrying 1 mark

		out of 14 questions. Type : True/False , Classification of Accounts(Personal/Real/Nominal) etc.
	B	**Business Economics** Broad question: 25 Marks, Students have to answer any 5 questions choosing at least 1(one) from each of the 3 units. A total of 9(nine) questions have to be set, 3 from each unit. Each question will carry 5 Marks. Only short note to be set from Unit 3 Chapter 2 **Accountancy** Broad Question: 25 Marks, students will answer 3 questions choosing 1 (one) from each of the 3 units. A total of 6(six) questions have to be set, 2(two) from each Unit. From Unit 4, 1(one) numerical problem & 1(one) theoretical question carrying 8(eight) marks. From Unit 5, 1(one) numerical problem & 1(one) theoretical question carrying 7(seven) marks. From Unit 6, 1(one) numerical problem & 1(one) theoretical question carrying 10(ten) marks. Theoretical questions may have more than 1(one) part questions.

Syllabus on Applied Physics

Name of the Course: Subject : APPLIED PHYSICS		
Course Code:	**Semester: SECOND**	
Duration: 6 months	**Maximum Marks: 50**	
Teaching Scheme	**Examination Scheme**	
Theory: 2 hrs./week	Mid Semester Exam.: 10 Marks	
Tutorial: -- hrs./week	Attendance, Assignment & interaction: 5 Marks	
Practical: 2 hrs./week	End Semester Exam.: 35 Marks	
Credit: 3		
Aim:		
Sl. No**.**		
1.	To make the students of Engineering & Technology aware of the basic laws and principles of Physics and their applications in the field of Engineering & Technology.	
2.	The goal of physics is to formulate comprehensive principles that bring together and explain the world around us.	
3.	To establish the awareness about the power of Physics as a tool in the practicality of the life.	
Objective:		
Sl. No.	Students will be able to	
1.	• Analyze and solve problems of mechanics with engineering aspects. • Acquire basic knowledge on rotational mechanics for engineering applications. • Acquire knowledge on superconductivity • Differentiate galvanometer, ammeter and voltmeter. • Learn the applications of Wheatstone bridge principle. • Learn thermoelectric effects.	
2.	• Analyze magnetic effect of electric current and its application. • Learn the applications of electromagnetic induction.	
3.	• Acquire basic knowledge on semiconductor and applications of p-n junction diode. • Learn the applications of X-ray and LASER.	

| | | • Enhance analytical approach in formulating and solving problems related to different physical situations. | | | | | |

Pre-Requisite:	
Sl. No.	
1.	Basic Mathematics knowledge to solve the problems.
2.	Knowledge of basic concepts sciences such as physics, chemistry and mathematics
3.	Visualization and analytical approach towards the subject is necessary

End Semester Examinations Scheme.   Maximum Marks – 35.   Time allotted – 2 hrs.

Group	Unit	Objective Questions (MCQ only with one correct answer)		Subjective Questions			
		No. of questions to be set	Total marks	No. of questions to be set	To answer	Marks per question	Total marks
A	1, 2, 3	6	10	5	3	5	25
B	4, 5	4		4	2		

- Only multiple choice type questions (MCQ) with one correct answer are to be set in the objective part.
- Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper.

	Content (Theory)	Hrs/Unit	Marks/Unit
Unit – 1 **PARTICLE DYNAMICS**	**1.1 Rectilinear Motion:** Kinematical equations in one dimension: $v=u+at$, $s=ut+(1/2)at^2$, $V^2=u^2+2as$ (only equation), Distance travelled by particle in n_{th} second, Velocity- Time Diagrams:- uniform velocity, uniform acceleration and uniform retardation. Kinematical equations for motion under gravity.	8	10
	1.2 Laws of Motion: Newton's laws of motion, definition of force from second law. Momentum and impulse of force (definition and SI unit) and their relation. Conservation of linear momentum (statement only). Applications to – Recoil of gun, Motion of lift, Motion of two bodies connected by light inextensible string passing over smooth pulley. (Simple problems).		
	1.3 Rotational Motion: Angular displacement, angular velocity and angular acceleration (definition and SI unit only). Relation between linear velocity & angular velocity and between linear acceleration & angular acceleration. Centripetal acceleration and centripetal force (definition and formula only, no derivation). Centrifugal force (formula & concept only). Moment of a force or torque (definition & SI unit). Moment of inertia (definition & SI unit). Angular momentum (definition & SI unit). Relation between torque and		

	angular momentum (no derivation). Principle of conservation of angular momentum (Statement only).		
Unit – 2 **WORK, POWER AND ENERGY**	Concept and explanation of work, power and energy with their SI units. Importance of force – displacement curve (concept of work). Mechanical energy: kinetic energy (derivation) and potential energy. Work – energy principle. Law of conservation of mechanical energy. (Simple numerical problems).	3	4
Unit – 3 **CURRENT ELECTRICITY**	**3.1 ELECTRIC CURRENT:** Ohm's law — Resistance and its unit, specific resistance — Various factors affecting the resistance. Concept of super conductivity, Equivalent resistance for Series and Parallel arrangements of resistances (No deduction), (Simple numerical problems) Concept of conversion of Galvanometer to Ammeter and Voltmeter and related simple problems. Wheatstone Bridge Principle for balanced condition, its applications in Meter Bridge and P.O. Box. **3.2 HEATING EFFECTS OF CURRENT:** Joule's law — Electrical work, energy and power with practical units (Simple numerical problems). **3.3 THERMOELECTRICITY:** Thermocouple. Seebeck effect, thermo-emf (expression only), emf-temperature curve, neutral temperature & inversion temperature, thermoelectric power(definition only) Peltier effect (statement only). Differences between Peltier effect with Joule's effect.	6	7
Unit – 4 **ELECTROMAGNETISM**	**4.1 MAGNETIC EFFECT OF ELECTRIC CURRENT:** Bio-Savart's law. Magnetic field: (i) for infinitely long straight current conductor, (ii) at the centre of a current carrying circular coil, (iii) for infinitely long current solenoid (no deduction, only concept and mathematical expression in S.I. units). Force on a current carrying conductor placed in a magnetic field (formula only), Fleming's left hand rule. Application of Magnetic effect of electric current – Galvanometer (concept only) **4.2 ELECTROMAGNETIC INDUCTION:** Magnetic flux, Magnetic flux density with SI units, Faraday's laws, Lenz's law, Motional emf (qualitative discussion with formula only). Fleming's right hand rule. Self induction, mutual induction and their coefficients (definition and SI unit). Principles of generation of AC.	5	5
Unit – 5 **MODERN PHYSICS**	**5.1 SEMI – CONDUCTOR:** Energy band in solids (Idea only). Distinction between conductor, insulators & semi-conductors in terms of energy band diagram, Intrinsic and extrinsic (P-type; N-type) semiconductor, P – N junction diode, depletion region, potential barrier. Forward and reverse biasing; Forward and reverse bias characteristic curve. Application of P – N junction diode as – (i) half wave rectifier, (ii) full wave rectifier (Bridge circuit only) (only circuits and explanation with	8	9

	input and output curves).		
	5.2 X – rays: Production of X- rays by Coolidge X- ray tube. X-ray spectra – continuous and characteristic X-rays (Graphical plot only), minimum wavelength (simple problems). Properties of X- rays. Application of X- rays.		
	5.3 LASER: Light amplification by stimulated emission of radiation. Properties of laser. Spontaneous and stimulated emission, population inversion, pumping. He - Ne laser (Principle only). Hologram and its use (mention only).		
	TOTAL	30	35

Recommended that Units – 3 & 4 be taught at the beginning to provide back up to ELECTRICAL TECHNOLOGY.

Practicals:

Sl. No.	Skills to be developed
1.	**1) Intellectual skills-** • Proper selection of measuring instruments on the basis of range, least count, precision and accuracy required for measurement. • Analyze properties of matter & their use for the selection of material. • To verify the principles, laws, using given instruments under different conditions. • To read and interpret the graph. • To interpret the results from observations and calculations.
2.	**2) Motor skills-** • Proper handling of instruments. • Measuring physical quantities accurately. • To observe the phenomenon and to list the observations in proper tabular form. • To adopt proper procedure and precautions while performing the experiment. • To plot the graphs.

Examination scheme:

- **Continuous Internal Assessment:** 25 marks.

- **External Assessment:** Marks – 25. Time allotted – 2 hrs. External teacher will assess the students. Each student will have to perform one experiment allotted on lottery basis.
  Distribution of marks: Theory – 5. Table, units & data taking – 10. Viva – Voce – 10.

Laboratory Experiments :

Sl. No.	At least six experiments to be performed
1.	• Verification of series law of resistances by P.O. Box (Values of resistances to be supplied).
2.	• Determination of specific resistance of the material of a wire by metre bridge (length and diameter of the wire to be supplied).
3.	• Verification of parallel law of resistances by ammeter – Voltmeter method.
4.	• Drawing of the forward bias characteristic curve (I-V curve) of a P – N junction diode.
5.	• Determination of the velocity of sound in air at NTP by resonance air column method.
6.	• Determination of the frequency of an unknown tuning fork by resonance air column method / preferably by sonometer.

7.	• Determination of acceleration due to gravity by simple pendulum.
8.	• Determination of the resistance of a table galvanometer by half deflection method.

Text and reference books:

Sl. No.	Title of the Book	Name of Authors	Publisher
1.	Physics – I &II	Resnik & Halliday	Wily Eastern Ltd.
2.	Physics. Part – I & II		NCERT
3.	Applied Physics	Arthur Beiser	Tata McGraw- Hill
4.	Physics - I	V. Rajendram	Tata McGraw- Hill Pub.
5.	Engineering Physics	Avadhanulu, Kshirsagar	S. Chand Publication
6.	Concept of Physics. Vol.- I &II	H. C. Verma	Bharati Bhavan Pub. & Distribution
7.	B. Sc. Physics. Vol.- I & II	C. L. Arora	S. Chand & Co. Ltd.
8	Engineering Physics	R. K. Gaur & S. L. Gupta	Dhanpat Rai Pub.
9	University Physics	Young	
10.	ABC of Physics	S. K. Gupta	Modern Publisher, New Delhi
11.	General Properties of matter	D. S. Mathur	S. Chand & Co. Ltd.
12.	Text Book of ISC Physics	Bhatnagar	Selina Publication
13.	A Text Book of Light	B. Ghosh & K. G. Majumder	Sreedhar Pub.
14.	Elements of H. S. Physics-I & II	Dutta & Pal	Publishing Syndicate
15.	H. S. Physics. Vol.- I & II	Duari, Maity & Majumder	Chhaya Prakashani
16.	H. S. Physics – I & II	C. R. Dasgupta	Pub.Book Syndicate
18.	Senior Practical Physics	A.S. Vasudeva	S. K. Kataria & Sons
19.	Elements of Physics-2	Dr. Subrata Kamilya	Knowledge Group Publications
20	Physics 2	Basak (WBSCTE Series)	Tata McGraw- Hill

List of equipments / apparatus for laboratory experiments :

Sl. No.	Name of major equipment / apparatus	
1	P. O. Box	
2	Metre bridge	
3	Table galvanometer	
4	Resistance box	
5	Standard resistance coil	
6	Variable DC power supply (Eliminator)	
7	Sliding rheostat	
8	Commutator	
9	Sonometer	

Syllabus for: Applied Chemistry

Name of the Course: Applied Chemistry	
Course Code:	**Semester:** first
Duration: : 6 months	**Maximum Marks: 50**
Teaching Scheme	**Examination Scheme**
Theory: 2 hrs./week	Internal Examination: 10Marks
Tutorial: Nil hrs./week	Attendance+Assignment + interaction :05 Marks
Practical: 2 hrs./week	Final Examination: 35Marks
Credit:	

Aim:			
Sl. No.	The Students will be able to:		
1.	It is intended to teach students the appropriate use of engineering materials, their protection & lubrication processes in different working conditions of machines.		
Objective:			
Sl. No.	The students are likely to acquire the following skills at the end of the course:		
1.	Suggest the appropriate use of metals, alloys & non metallic materials in engineering.		
2.	Applying the Knowledge to Protect Metallic & Non Metallic Surfaces		
3.	Select Lubricants for Smooth Running of Machines.		
Pre-Requisite:			
Sl. No.			

Detailed Course Content		Hrs./Unit	Marks
GROUP: A			
Unit: 1 Name of the Topics: Cement	Portland cement: Raw materials, Composition and Manufacture, Setting and Hardening of cement, function of gypsum, Cement Mortar, Cement concrete, Lime mortar, plaster of paris.	3	4
Unit: 2 Name of the Topics: lubricant	Definition, purpose and types of lubrication, names of common lubricants and uses, Flash point, Fire point, Pour point, Cloud point, selection of lubricant.	2	4
Unit: 3 (For printing Technology only)	Aliphatic compounds: Chemical test to identify & uses- Alcohol: Ethanol, 2-propanol, 1- butanol. Ketone: Acetone, butanone. Acid: Acetic acid, propanoic acid. Ester: Ethyl acetate, amylacetate. Aromatic compounds : Benzene: chlorination, Nitration, Friedel-Crafts alkylation; Aniline: Diazolisation, Coupling reaction with phenol aniline & N, N-dimethyl aniline.	3	4
Unit: 4 Name of the Topics: **Fuel**	Defination and classification, calorific value (Dulong formula), Determination of calorific value by Bomb calorimeter. Solid Fuels : Composition , properties and uses of wood, peat, lignite, Proximate andU A Liquid fuels : Fractional distillation of petroleum (product and uses), Cracking, Knocking, Octane number, Cetane number, antiknock compounds. Gaseous Fuels : Composition and uses of Coal gas, Water gas, Producer gas, Gobar gas, Natural gas, LPG, CNG, LNG.	6	7
GROUP – B			
Unit: 5 Name of the Topics: **Corrosion**	Definition, Causes of Corrosion and methods of prevention, Refractories --- properties and use of Boron Carbide and Carborandirm , Asbestors, Glass, Ceramics, Cork (preliminary idea only).	4	4

| Unit: 6
Name of the Topics:
Protective Coating	Paints : Composition , types (Snowchem, distemper) Varnishes : Definition , types , difference from paint, uses, characteristics. Metallic coating : Galvanisation, Electroplating, Tin plating. Lacquers.	4	4
Unit: 7
Name of the Topics:
 Polymers | Definition & classification of Synthetic polymers
Synthetic plastic :   Thermoplastic plastic   and Thermosetting plastic --- their differences   with examples, preparation and uses of Polythene, PVC, Polypropylene, Polystyrene, Teflon, Bakelite, Orlon, Saran.
Synthetic rubber : Buna –S, Buna –N, Neoprene, Butyl, rubber, silicone, Vulcanization of rubber.
Synthetic Fibres : Nylon , Terylene , Rayon. | 5 | 6 |
| **GROUP – C** | | | |
| Unit: 8
Name of the Topics:
Environmental Pollution | Introduction , Definition , Causes of pollution, Types of pollution.

Air pollution :   Definition, sources of Air pollution, causes of Air pollution, Different types of Air pollutants and their effects, Green House Effect, Acid Rain, OZone Layer Depletion, Air pollution control methods.

Water Pollution :   Definition, causes of water pollution, sources of water pollution, Methods of preventing water pollution, Domestic wastes, Industrial wastes, their physical and Biologocal characteristics, BOD, COD, Effects of water pollution. | 6 | 6 |

a) Internal Examination Marks	: 10		
b) Final Examination Marks	: 35	Full Marks = 50	
c) Attendance + Assignment + interaction.	: 5		

Laboratory Experiments :

Sl. No.			
1	Estimation of total hardness of a sample of water by standard EDTA method.		

2	Qualitative detection of Arsenic content of a given sample of water [5 ppm soln of sod. Arsenite] [2 lit Arsenic containing water to 20ml by evoporation]		
3	To determine pH value of an unknown solution by pH meter.		
4	To apply Thin Layer Chromatography for separation of mixture of compounds.		
5	Preparation of phenol formaldehyde resin.		
6	Determination of dissolve O_2 in a sample of water.		
7.	To determine neutralization point of weak acid and weak base by conductivity meter.		
8.	1. To determine end point of titration between dilute H_2SO_4 and $BaCl_2$ using conductivity meter.		

Text Books:

Name of Authors	Title of the Book	Name of the Publisher
S. S. Dara	Environmental chem. & pollution control	S. Chand Publication
Dr. Aloka Debi	A Text Book of Env. Engg.	Dhanpat Rai Publishing Co.
Jain & Jain	Engg. Chem.	Dhanpat Rai Publishing Co.
Madhusudan Chowdhury	Chem I & II	Naba Prakashani
Dr. Kaberi Bhattacharya	Chem I & II	Lakshmi Prakasani
Dr. Aloka Debi	Chem I & II	Bhagabati Prakasani

Reference Books:

Name of Authors	Title of the Book	Name of the Publisher
Jain & Jain	Engg. Chem.	Dhanpat Rai Publishing Co.
Dr. Aloka Debi	A Text Book of Env. Engg.	Dhanpat Rai Publishing Co.
Shrieve Atkins	Industrial Chem	
Bahl & Bahl	A Text Book of Organic Chemistry	S. Chand Publication
M. M. Uppal	Engg. Chemistry	
S. N. Poddar & S.	General & Inorganic. Chemistry	Book Syndicate Pvt. Ltd.

Ghosh		
Harish Kr. Chopra Anupama Parkar	Engg. Chemistry A Text Book	Narosha Publishing House
B. K. Sharma	Industrial Chemistry	Goel Publishing House

Syllabus for Engineering Mathematics

Name of the Course : **ENGINEERING MATHEMATICS** (Second Semester all branches)		
Course Code :	Semester : Second	
Duration : 15 weeks	**Maximum Marks : 100**	
Teaching Scheme :	**Examination Scheme :**	
Theory : 3 contact hours/week.	Internal Examination : 20 Marks	
Tutorial : 1 contact hour/week	Class Attendance : 05 Marks	
Practical : NA	End Semester Examination : 70 Marks	
Credit : 4	Teacher's Assessment : 05 Marks	

Aim :			
1.	To make the student efficient in mathematical calculations.		
2.	To make the student aware about the topics in mathematics having application to engineering.		
3.			
Objectives – The student will be able to			
1.	Develop the ability to apply mathematics for solving engineering & practical problems.		
2.	Gather concepts, principles & different methods of mathematics.		
3.	Realize the importance of mathematics in the study of engineering.		
Pre-Requisite -			
1.	Concepts of mathematics taught in the subject Mathematics in Sem-1.		
Content (Name of Topic)		Periods	
Group – A			
Unit 1	**DETERMINANTS & MATRICES**	12	
	1.1 Determinant 1.1.1 Definition & expansion of determinants of order 2 and 3. 1.1.2 Properties of determinants (statement only) 1.1.3 Minors and cofactors. 1.1.4 Evaluation of determinants of order 4 by Chio's method.		
	1.2 Matrix Algebra 1.2.1 Definition of a matrix of order mxn, leading element, principal diagonal. 1.2.2 Types of matrices – null matrix, square matrix, diagonal matrix, identity matrix etc. 1.2.3 Symmetric and Skew symmetric matrices. 1.2.4 Matrix algebra – addition, subtraction, scalar multiplication and multiplication of matrices. 1.2.5 Matrix inversion by adjoint method.		
Unit 2	**NUMERICAL METHODS**	7	
	2.1 Concept of Interpolation with Newton forward interpolation formula (Statement only). Simple Problems. 2.2 Numerical solution of simultaneous linear equations by Gaussian elimination method only (without proof). 2.3 Numerical Solutions of non-linear equations by Newton-		

	Raphson method (without proof). 2.4 Numerical integration by trapezoidal rule & Simpson's 1/3 rule (without proof).			
GROUP - B				
Unit 3	**INTEGRATION**		17	
	3.1 Definition of Integration as inverse process of differentiation. 3.2 Integration of standard functions. 3.3 Rules for integration (sum, difference, scalar multiple). **3.4 Methods for Integration** 3.4.1 Integration by substitution. 3.4.2. Integration by trigonometric substitution. 3.4.3 Integration by parts. 3.4.4 Integration by partial fraction. **3.5 Definite Integral** 3.5.1 Definition of Definite Integral. 3.5.2 Properties of definite integrals with simple problems. **3.6 Applications of Definite Integral** 3.6.1 Area under plain curves. 3.6.2 Area bounded by two curves. 3.6.3 Volume of revolution. Simple examples.			
GROUP - C				
Unit 4	**ORDINARY DIFFERENTIAL EQUATIONS**		10	
	4.1 Definition of ordinary differential equation, order & degree. 4.2 Solution of differential equations of 1st order & 1st degree of 4.2.1 variable separable type 4.2.2 Homogeneous type 4.2.3 Reducible to homogeneous type 4.2.4 Exact type 4.2.5 Linear type 4.2.6 Reducible to linear type (Bernoulli's Equation). .**4.3 Solution of 2nd order linear ordinary differential equations with constant coefficients –** 4.3.1 Evaluation of Complementary functions (C.F.) 4.3.2 Evaluation of Particular Integral (P.I.) for exponential function, polynomial function, sine and cosine function & functions of the form $e^{ax}V$ where V is any one of the above.			
	GROUP - D			
Unit 5	**PARTIAL DIFFERENTIATION**		4	
	5.1 Definition & meaning of partial derivative. 5.2 Evaluation of partial derivatives. 5.3 Definition & examples of homogeneous functions. 5.3 Euler's theorem (1st order) on Homogeneous functions for 2 & 3 variables (without proof). Simple problems.			
Unit 6	**STATISTICS & PROBABILITY**		10	
	6.1 Statistics			
	6.1.1 Definition & examples of frequency distribution. 6.1.2 Measures of central tendency (mean, median, mode) for ungrouped and grouped frequency distribution. 6.1.3 Measures of dispersion – Standard deviation, Simple problems.			
	6.2 Probability			
	6.2.1 Definition of random experiment, sample space, event, occurrence of events & types of events (eg. Impossible, mutually			

	exclusive, exhaustive, equally likely) 6.2.2 Classical & axiomatic definition of probability 6.2.3 Addition & multiplication theorems of probability (statement only). Simple problems.				
			Total	**60**	

EXAMINATION SCHEME

Internal Examination :   Marks – 20   Marks on Attendance : 05
Final Examination :   Marks – 70   Teacher's Assessment : 05

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

Group	Unit	Subjective Questions			Total Marks
		To be Set	To be Answered	Marks per Question	
A	1,2	3	Any Five Taking At Least One From Each Group	10	5 x 10 = 50
B	3	3			
C	4	2			
D	5,6	2			

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.

Text Books

Name of Authors	Title of the Book	Publisher
B.K. Paul	Diploma Engineering Mathematics (Vol-2)	U.N. Dhar & Sons
A. Sarkar	Engineering Mathematics	Naba Prakashani
G.P. Samanta	A Text Book of Diploma Engineering Mathematics, Volume-2	Learning Press
Konch & Dey	Engineering Mathematics	Bhagabati Publication
B.S. Grewal	Higher Engineering Mathematics	Khanna Publishers, New Delhi
Babu Ram	Engineering Mathematics	Pearson
H.K. Dass	Advanced Engineering Mathematics	S. Chand & Co.
Erwin Kreyszig	Advanced Engineering Mathematics	Wiley
Nurul Islam	Numerical Analysis	Academic Press
B.C. Das & B.N. Mukherjee	Integral Calculus - Differential Equations	U.N. Dhar & Sons
Srimanta Pal	Engineering Mathematics	Oxford University Press

Reference Books

Name of Authors	Title of the Book	Publisher
Fatunla S O	Numerical Methods for initial value problems in ordinary differential equations.	Academic Press Inc. (London) Ltd
Kendall E A	An Introduction to numerical analysis (Second edition)	John Wiley and Sons, 1989
Burden, Richard L and Douglas	Numerical Analysis	Thomson, 9th Edition, 2011
Braun M, Golubitsky M, Marsden J, Sirovich L,	Differential Equations and their applications	New York, Springer-Verlag LLC, 1992

Jager W,		

Syllabus for Engineering Drawing

Name of the Course: **ENGINEERING DRAWING** (**For** ETCE,MLT,FPT,EE,CSWT,CST,DP,PHO,CHE,EIE,IT, MET, ME,MEP,CE, AE, ARCH, MIN, MS, SE,PT, LGT, and FWT.)			
Course Code:		**Semester:** Second	
Duration: 17 weeks		**Maximum Marks:** 150	
Teaching Scheme		**Examination Scheme**	
Theory: 1 hrs./week		Internal Examination: Marks: 10 Marks on attd.:05	
Tutorial: hrs./week		Continuous Internal Assessment : 50 External Assessment: 50	
Practical: 3 hrs./week		End Semester Exam.: Marks 35	
Credit: 3			
Aim:			
Sl.No.			
1.	The Course is aimed at developing basic graphic skills so as to enable them to use these skills in preparation of engineering drawings.		
2.	Understand the fundamentals of Engineering Drawing		
3.	Read and interpret object drawings.		
Objective:- The student should be able to:-			
Sl.No.			
1.	Draw different engineering curves and know their applications.		
2.	Draw orthographic projections of different objects.		
3.	Visualize three dimensional objects and draw Isometric Projections.		
4.	Use the techniques and able to interpret the drawing in Engineering field		
5.	Use computer aided drafting		
Pre-Requisite:			
Sl.No.			
1.	Unambiguous and clear visualization.		
2.	Sound Pictorial Intelligence		
Contents (Theory)		**Hrs./Unit**	**Marks**
Unit: 1 Name of the Topics: **Projections of Solids**	1.1 Projections of Prism, Pyramid, Cone, Cylinder, Tetrahedron, Cube with their axes perpendicular /inclined to one reference plane and parallel to other.	**02**	**05**
Unit: 2 Name of the Topics: **Sectional Views**	2.1 Types of sections 2.2 Conversion of pictorial view into sectional orthographic views (First Angle Projection Method only)	**02**	**05**
Unit: 3 Name of the Topics: **Missing Views[Not for ARCH] Perspective Projection [For ARCH]**	3.1 Draw missing view from the given orthographic views- simple components (First Angle Projection Method only)[Not for ARCH] Introduction to the Principals of perspective projection (one point and two points) Ground Plane-Picture Plane-Station Point-Horizontal Plane-Central Plane-Ground Line-Horizontal Line-Axis of Vision-Centre of Vision-Visual Ray Method- Vanishing Point Method. [For ARCH]	**02**	**05**
Unit: 4 Name of the Topics: **Sections of Solids**	4.1 Prism, Pyramid, Cone, Cylinder, Tetrahedron, Cube resting on their base on Horizontal plane. 4.2 Prism, Cylinder : Axis parallel to both the reference plane 4.3 Section plane inclined to one reference plane and perpendicular to other	**03**	**05**
Unit: 5 Name of the Topics: **Isometric Projection**	5.1 Conversion of orthographic views into Isometric view / projection (Including rectangular, cylindrical objects, representation of slots on sloping as well as plane surfaces)	**03**	**05**
Unit: 6 Name of the Topics: **Developments of Surfaces**	6.1 Developments of Lateral surfaces of cube, prism, pyramids, cylinder, cone and their applications such as tray, funnel, chimney, pipe bends etc.	**02**	**05**
Unit: 7 Name of the Topics: **Free Hand Sketches[Not For ARCH] Axonometric Projections[For ARCH]**	7.1 Free hand sketches of nuts, bolts, rivets, threads, split pin, foundation bolts, keys and couplings.[Not for ARCH] Introduction to Axonometric Projections [For ARCH]	**02**	**05**

		Total	16	35

Contents (Practical)		
List of Practical	**Intellectual skill**	**Motor skill**
1.**Projection of solids** Three problems on three different solids, one by axis of solid inclined to H.P and parallel to V.P. and one problem by axis inclined to V.P. and parallel to H.P. and one problem by axis inclined to both planes. (1 sheet)	To interpret the different positions of solids with reference planes. To develop ability to differentiate between true length of axis and apparent length of axis.	To draw projections of different solids when axis is inclined or perpendicular to one of the reference plane.
2.**Sectional Views & Isometric Projections** Two objects by First Angle Projection Method with section Two objects one by true scale and another by Isometric scale (1 sheet)	To interpret sectional views of given object Develop ability to differentiate between Isometric view and isometric projections	Develop ability to draw sectional views , Isometric views and Isometric projections from given objects and orthographic views of an object
3.**Missing Views** Two problems by first angle projection method [Not for ARCH] Two simple problems on Perspective Projection [For ARCH] (1 sheet)	To interpret the missing view from given orthographic views.[Not for ARCH] To generate the perspective views from given orthographic views [For ARCH]	To develop ability to draw missing view from given orthographic views. To develop ability to draw perspective view from given orthographic views.
4.**Section of solids** Three problems on different solids, one problem, section plane inclined to H.P.and perpendicular to V.P. one problem ,section plane inclined to V.P.and perpendicular to H.P And one problem, section plane perpendicular to one reference plane and parallel to other plane. (1 sheet)	To differentiate between true shape and apparent shape of section. To Interpret the positions of section plane with reference planes.	To develop ability to draw the sectional orthographic views of given solids ,when it is cut by section plane in different position with reference planes. Ability to draw true shape of section.
5.**Development of surfaces** Three problems on development of surfaces of different objects (1 sheet)	Able to interpret the development of surfaces of different solids.	Ability to draw the development of surfaces of different objects in different shapes.
6.**Free hand sketches [Not for ARCH]** Any six figures on different topics **Axonometric Projections[For ARCH]** Axonometric Projection of exterior interiors (Bed Room-Kitchen-Toilet etc.) of any house. (1 sheet)	To differentiate between scale drawing and free hand drawing. To differentiate between various parts of machine.[Not for ARCH] To express exterior or interior views of any house through Axonometric views [For ARCH]	Develop ability to draw orthographic views of different machine elements.[Not for ARCH] Develop ability to draw axonometric views of exterior or interiors of any house [For ARCH]
7. **Drawing with CAD** One object by first angle projection method with section and one Isometric figure.	To differentiate between two dimensional figure and three dimensional figure.	Develop ability to draw orthographic and Isometric figure with computer

Text Books:			
Name of Authors	Titles of the Book	Edition	Name of the publisher
N.D.Bhatt	Engineering Drawing		Charotkar Publishing House
R.K.Dhawan	Engineering Drawing		S.Chand & Co.
K.Venugopal	Engineering Drawing and Graphics +AutoCAD		New Age publication
Basant Agrawal C M Agrawal	Engineering Drawing		Tata McGraw Hill Education Private Ltd.
N D Bhatt	Machine Drawing		Charotkar Publishing House
R K Dhawan	Machine Drawing		S.Chand & Co.
Pal & Bhattacharya	Engineering Drawing	6th	Viva Books
Reference Books:			
Name of Authors	Titles of the Book	Edition	Name of the publisher
P S Gill	Engineering Drawing		SK Kataria and sons

Dhananjay A Jolhe	Engineering Drawing		Tata McGraw Hill Education Private Ltd.
Pal & Bhattacharya	Computer Aided Engineering Drawing	7th	Viva Books
B. Bhattacharyya	Machine Drawing		Oxford University Press
Suggested list of laboratory experiments:			
	Not Applicable		
Suggested list of Assignments/ Tutorial:			
	Not Applicable		
Note :			
1.Students should use two separate A3 Size sketch books ,One for class work practice and another for assignment.			
2.Students should solve assignment on each topic.			
3.Use approximately 570mm x 380mm size Drawing Sheet for sessional work			

Syllabus of Development of Life Skill-1

Name of the Course: All Branches of Diploma in Engineering and Technology (Development of Life Skill-1)

Course Code:	Semester: Second
Duration: : Seventeen weeks	Maximum Marks: 50
Teaching Scheme	Examination Scheme
Theory: 1hrs./week	
Tutorial: Nil hrs./week	Internal Teacher's Assessment :25
Practical: 3 hrs./week	External Teacher's Assessment :25
Credit: 3	

Aim:	
Sl. No.	
1.	Conduct different session to improve students memory Power
2.	Conduct different session to improve time management skills
3.	Developing the team work culture
4.	Personality development and problem solving ability

Objective:	
Sl. No.	
1.	Develop reading skills
2.	Use techniques of acquisition of information from various sources
3.	Draw the notes from the text for better learning.
4.	Apply the techniques of enhancing the memory power.
5.	Develop assertive skills.
6.	Apply techniques of effective time management.
7.	Set the goal for personal development.
8.	Enhance creativity skills.
9.	Develop good habits to overcome stress.
10.	Face problems with confidence
11.	Apply problem solving skills for a given situation
12.	Survive self in today's competitive world

Pre-Requisite:	
Sl. No.	
1.	Basic Of Self Analysis methods.
2.	Basic knowledge of stress and time management concepts.
3	Basic knowledge of presentation skills.
4.	Desire to gain comparable knowledge and skills of various activities in various streams of engineering.

Contents :	Development of Life Skill TOTAL PERIODS: 48	Hours
Unit: 1	Importance of Development of Life Skill(DLS), Introduction to subject, importance in present context, application	03

1

Unit: 2	**Information Search** Information source –Primary, secondary, tertiary Print and non – print, documentary, Electronic Information center, Library , exhibition, Government Departments. Internet Information search – Process of searching, collection of data –questionnaire , taking Interview , observation method. Information analysis and processing.	06
Unit: 3	**Self Analysis** Understanding self— Attitude, aptitude, assertiveness, self esteem, Confidence buildings. SWOT Analysis – concept, how to make use of SWOT Concept of motivation.	09
Unit: 4	**Self Development** Stress Management –Concept, causes, effects and remedies to Avoid / minimize stress. Health Management – Importance, dietary guidelines and exercises. Time management- Importance, Process of time planning, Urgent Vs importance, Factors leading to time loss and ways to handle it, Tips for effective time management. EMOTION-CONCEPT, TYPES, CONTROLLING, EMOTIONAL INTELLIGENCE. CREATIVITY-CONCEPT, FACTORS ENHANCING CREATIVITY. THINKING – ANALYTICAL & LOGICAL THINKING, HIGHER ORDER THINKING GOAL SETTING – CONCEPT, SETTING SMART GOAL.	20
Unit: 5	**Study habits** Ways to enhance memory and concentration. Developing reading skill. Organisation of knowledge, Model and methods of learning.	10
	Total	**48**

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Personality Development & Soft Skills	B. K. Mitra		Oxford University Press
E.H. Mc Grath , S.J.	Basic Managerial Skills for All		Prentice Hall of India, Pvt Ltd
Allen Pease	Body Language		Sudha Publications Pvt. Ltd.
Lowe and Phil	Creativity and problem solving		Kogan Page (I) P Ltd
Adair, J	Decision making & Problem Solving		Orient Longman
Bishop , Sue	Develop Your Assertiveness		Kogan Page India
Marion E	Make Every Minute Count		Kogan page India

Haynes			
Pearson Education Asia	Organizational Behavior		Tata McGraw Hill
Michael Hatton (Canada – India Project)	Presentation Skills		ISTE New Delhi
-- --	Stress Management Through Yoga and Meditation		Sterling Publisher Pt Ltd.
Richard Hale, Peter Whilom	Target setting and Goal Achievement		Kogan page India
Chakravarty, Ajanta	Time management		Rupa and Company
Marshall Cooks	Adams Time management		Viva Books

Internet Assistance:

1.	http://www.mindtools.com
2.	http://www.stress.org
3.	http://www.ethics.com
4.	http://www.coopcomm.org/workbook.htm
5.	http://www.mapfornonprofits.org/
6.	http://www.learningmeditition.com
7.	http://bbc.co.uk/learning/courses/
8.	http://eqi.org/
9.	http://www.abacon.com/commstudies/interpersonal/indisclosure.html
10.	http://www.mapnp.org/library/ethics/ethxgde.htm
11.	http://www.mapnp.org/library/grp_cnfl/grp_cnfl.htm
12.	11)http://members.aol.com/nonverbal2/diction1.htm
13.	http://www.thomasarmstron.com/multiple_intelligences.htm
14.	http://snow.utoronto.ca/Learn2/modules.html
15.	http://www.quickmba.com/strategy/swot/

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Darlene	Life Skills Activities for	5th	Kindle Edition

Mannix	Secondary Students with Special Needs		
Autism or Asperger's,	1001 Great Ideas for Teaching and Raising Children with Autism or Asperger's,	2 nd	Kindle Edition
How to Become Smarter	Nikolai Shevchuk		Kindle Edition

Suggested List of Laboratory Experiments :

1.	Conduct Guest Lectures.
2.	Conduct industrial visit
3.	Conduct Seminar/Group Discussions.

Suggested List of Assignments/Tutorial :

S. No	The Term Work Will Consist Of Following Assignments.
	Library search:- Visit your Institute's Library and enlist the books available on the topic given by your teacher. Prepare a bibliography consisting name of the author, title of the book, publication and place of publication.
	Enlist the magazines, periodicals and journals being available in your library. Select any one of them and write down its content. **Choose a topic for presentation**
	Attend a seminar or a guest lecture, listen it carefully and note down the important points and prepare a report of the same.
	Visit to any one place like historical/office/farms/development sites etc. and gather information through observation, print resources and interviewing the people.
	Prepare your individual time table for a week – (a) List down your daily activities. (b) Decide priorities to be given according to the urgency and importance of the activities. (c) Find out your time wasters and mention the corrective measures.
	Keep a diary for your individual indicating- planning of time, daily transactions, collection of good thoughts, important data, etc
	Find out the causes of your stress that leads tension or frustration .Provide the ways to Avoid them or to reduce them.
	Undergo the demonstration on yoga and meditation and practice it. Write your own views, feeling and experiences on it.
	MINI PROJECT on Task management. Form different teams from taking 5-8 students in a group. Decide any task to be completed in a stipulated time with the help of teacher. Write a report considering various steps in a task management.

NOTE: - THESE ARE THE **SUGGESTED ASSIGNMENT** FOR GUIDE LINES TO THE SUBJECT TEACHER. HOWEVER THE SUBJECT TEACHERS CAN SELECT, DESIGN ANY ASSIGNMENT RELEVANT TO THE TOPIC, KEEPING IN MIND THE OBJECTIVES OF THIS SUBJECT.