GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

COURSE CURRICULUM
COURSE TITLE: DIGITAL PRINTING
(Code: 3345805)

Diploma Programs in which this course is offered	Semester in which offered
Printing Technology	4th Semester

1. RATIONALE

The advancements in digital technology have lead to revolution in printing and now multi technology integration is taking place in printing industry. The purpose of this course is to enhance the knowledge and skill level of students in different digital technologies so that students can choose appropriate technology depending upon the nature of work and can make the optimum use of it to improve the quality of printing and reduce the cost.

2. COMPETENCY

The course content should be taught and curriculum should be implemented with the aim to develop required skills in students so that they are able to acquire following competency

- **Choose appropriate digital technology according to nature of work and make optimum use of it in printing.**

3. COURSE OUTCOMES (COs)
The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

    i.   Explain Digital Technology process.
   ii.   Select amongst various digital techniques for prepress and press work.
  iii.   Improve quality of printing using different software used in digital techniques for printing industry.
  iv.   Add value to printing quality by using internet and multimedia packages for.

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	ESE	PA	ESE	PA	
4	0	0	4	70	30	0	0	100

Legends: L-Lecture; **T** – Tutorial/Teacher Guided Student Activity; **P** –Practical; **C** – Credit;; **ESE** –End Semester Examination; **PA** – Progressive Assessment.

5. DETAILED COURSE CONTENTS

Unit	Major Learning Outcomes (in cognitive domain)	Topics and Sub-topics
Unit –I Introduction of Non Impact Printing Technology	1a. Explain NIP methods 1b. Describe advantages and disadvantages of process. 1c. Classify NIP process	1.1 Meaning and Application of Non Impact Printing technology 1.2 Advantages and Disadvantages of Non Impact Printing Technology 1.3 Workflow of Non Impact Printing Technology 1.4 Classification of Non Impact Printing Technology
Unit– II Electro photography	2a. Describe Electro photography with meaning and its types, 2b. List characteristics of inks used 2c. State merits and demerits of electro photography	2.1 Meaning and its types 2.2 Construction of Machine 2.3 Inks used in Electro photography. 2.4 Application of Elect photography 2.5 Advantages and Disadvantages of Electro photography
Unit– III Ionography and magnetography	3a. Describe construction of Ionography and Magnetography machine and methods to use them.	3.1 Introduction of Ionography and Magnetography 3.2 Construction of Ionography and Magnetography machine 3.3 Inks used in Ionography and Magnetography 3.4 Application of Ionography and Magnetography
Unit– IV Injet Technology	4a. Explain working of Ink jet printer 4b. Describe merits and demerits of inkjet printer.	4.1 Introduction of Inkjet Process 4.2 Construction of Inkjet Machine 4.3 Inks used for Inkjet Process 4.4 Application of Inkjet Process 4.5 Advantages and Disadvantages of Inkjet Process
Unit– V Thermography	5a. Describe construction of thermography machine. 5b. State procedure for use of thermography machine. 5c. Discuss merits and demerits of thermography.	5.1 Introduction of Thermography. 5.2 Construction of Thermography Machine 5.3 Inks used for Thermography 5.4 Application of Thermography 5.5 Advantages and Disadvantages of Thermography
Unit - VI Photography	6a. Explain working principle of Photography. 6b. Discuss merits and demerits of photography.	6.1 Introduction of photography. 6.2 Construction of Photography machine. 6.3 Application of Process 6.4 Advantages and Disadvantages
Unit – VII Computer to Print Technology	7a. Describe computer to print technology. 7b. Discuss its merits and demerits.	7.1 Introduction of Process. 7.2 Construction of machine. 7.3 Application of process. 7.4 Advantages and Disadvantages. 7.5 Inks used.

Unit	Major Learning Outcomes (in cognitive domain)	Topics and Sub-topics
Unit – VIII Introduction of Different Workflow.	8a. Explain Digital workflow. 8b. Differentiate between different type of Work flows used in printing 8c. Discuss Merits of digital work flow.	8.1 Introduction to work flow. 8.2 Job flow and Workflow. 8.3 Compare between conventional and Digital workflow 8.4 Use of JDF 8.5 Different types of Workflow used in Printing. 8.6 Advantages of Digital Workflow

6. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY)

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total
I	Introduction of Non Impact Printing Technology	06	0	4	4	08
II	Electrophotography	08	2	2	4	08
III	Ionography and magnetography	06	0	2	4	06
IV	Injet Technology	05	2	2	4	08
V	Thermography	08	2	5	5	12
VI	Photography	06	0	4	4	08
VII	Computer to Print Technology	08	2	4	4	10
VIII	Introduction of Different Workflow.	09	2	4	4	10
	Total	56	10	27	33	70

Legends: R = Remember; U= Understand; A= Apply and above levels (Bloom's Revised taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

7. SUGGESTED LIST OF PRACTICALS/EXERCISE

Not Applicable

8. SUGGESTED LIST OF STUDENT ACTIVITIES

i. Students will prepare assignments on the above mentioned topics.
ii. Students will learn different digital printing process used in industry and prepare a comparison chart of various facilities or innovative functions.
iii. List common troubles in digital printing.

9. SPECIAL INSTRUCTIONAL STRATEGIES (if any)

i.   Industrial Visits
ii. Visit to Exhibitions on theme of IT, Computers and Printing
iii. Experts Seminar
iv. Display of video/animation films on different technologies.

10. SUGGESTED LEARNING RESOURCES

A.   List of Books:

S. No.	Title of Books	Author	Publication
1	Hand book of Printmedia	Helmut Kipphan	Springler (ISBN 3-540-67326-1)
2	A guide to Graphic Print Production	Kaj Johanson	John Viley & sons.

B. List of Major Equipment/ Instrument.

      i.Computer lab
      ii.Laser Printer
      iii.Scanner

C.   List of Software/Learning Websites.

      • Trail version of software Like CorelDraw, PageMaker, Photoshop, in design etc.

11.   COURSE CURRICULUM DEVELOPMENT COMMITTEE.

Faculty Members from Polytechnics
- **Prof. B. l. Patel,** I/C Head of Department of Printing Technology, RCTI, Ahmedbad.
- **Prof. S. D. Gohel,** Lecturer in Printing Technology, RCTI, Ahmedbad.

Coordinator and Faculty Members from NITTTR Bhopal
- **Dr. Nishith Dubey**, Professor, Dept. of Vocation Education & Entrepreneurship Development
- **Dr. Shashi Kant Gupta,** Professor and Coordinator for State of Gujarat**.**