

# **SCHEME & SYLLABUS**

**B. TECH.**

**(PRINTING TECHNOLOGY)**

**w.e.f. Batch (2025-29) Onwards**



**Guru Jambheshwar University of Science and Technology**

**Hisar - 125001**

**(Haryana)**

**(Established by State Legislature Act 17 of 1995)**

**'A' GRADE NAAC ACCREDITED UNIVERSITY**



Department Of Printing Technology  
Guru Jambheshwar University of Science & Technology  
Hisar–125001

Scheme & Syllabus of B.Tech.—Printing Technology, w.e.f. Session 2025-2029

## Vision

To develop Department of Printing Technology, Guru Jambheshwar University of Science & Technology as a center of excellence for quality Teaching & consultative research in the areas of Printing Technology to Produce competent technocrats for the Printing & Allied Industries.

## Mission

To facilitate and promote studies and research in the areas of Printing Technology and also to achieve excellence in this field.

## Programme Specific Outcomes (PSOs)

**PSO1:** To prepare the students to understand printing systems, subsystems, components and processes to address technical and engineering challenges.

**PSO2:** To empower the student to build up career in printing and allied industry or pursue higher studies in printing and allied/interdisciplinary program.

**PSO 3:** To enhance the skills of the students with the ability to implement the scientific concepts for betterment of the society considering ethical, environmental and social values.



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 Scheme & Syllabus of B.Tech.—Printing Technology, w.e.f. Session 2025-2029

## B.Tech.(PrintingTechnology)

### Program Educational Objectives (PEOs)

<b>PEO1</b>	Apply technical skill and professional knowledge in engineering practices to face industrial challenges around the world.
<b>PEO2</b>	To prepare the students to lead a successful career in printing and allied industries or to pursue higher studies or to support entrepreneurial endeavors.
<b>PEO3</b>	Inculcate effective team work, moral ethics and leadership with ability to solve societal problems.

### Program Educational Objectives (PEOs)

POs	List of Courses
PO1:	<b>Engineering Knowledge:</b> Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
PO2:	<b>Problem Analysis:</b> Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
PO3:	<b>Design/Development of Solutions:</b> Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet Identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
PO4:	<b>Conduct Investigations of Complex Problems:</b> Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modeling, analysis & interpretation of data to provide valid conclusions. (WKS).
PO5:	<b>Engineering Tool Usage:</b> Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modeling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6:	<b>The Engineer and The World:</b> Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
PO7:	<b>Ethics:</b> Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
PO8:	<b>Individual and Collaborative Team work:</b> Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9:	<b>Communication:</b> Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
PO10:	<b>Project Management and Finance:</b> Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11:	<b>Life-Long Learning:</b> Recognize the need for, and have the preparation and ability for 1) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

**Scheme & Syllabus**  
**for**  
**B. Tech.**  
**(Printing Technology)**  
**2<sup>nd</sup> Year (3<sup>rd</sup> Semester)**

**Scheme B. Tech. (Printing Technology) III- Semester, W.e.f. Batch 2025-29**

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Basic Science Courses	BSC-PTG201-T	--	Applied Sciences for Printing	3	0	0	3.0	--	3.0	30	70	100	
2.	Engineering Science Courses	ESC-PTG201-T	--	Engineering Science for Packaging	3	0	0	3.0	--	3.0	30	70	100	
3.	Professional Core Courses	PCC-PTG201-T	PCC-PTG201-P	Pre-Press Technology/ Pre-Press Technology Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
4.	Professional Core Courses	PCC-PTG203-T	PCC-PTG203-P	Introduction to Printing Processes/ Introduction to Printing Processes Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
5.	Professional Core Courses	PCC-PTG205-T	PCC-PTG205-P	Graphic Design in Printing/ Graphic Design in Printing Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
6.	Professional Core Courses	PCC-PTG207-T	--	Content Management in Printing	3	0	0	3.0	--	3.0	30	70	100	
7.	Mandatory Courses		HSMC201-P	Human Value And Personality Development	0	0	3	0	--	0.0	30	70	100 (Qualifying Only)	
					18	0	12							
<b>Total Credits</b>										<b>22.5</b>	<b>Total Marks= 900</b>			

# **Scheme & Syllabus**

## **for**

### **B. Tech.**

#### **(Printing Technology)**

##### **2<sup>nd</sup>Year (4<sup>th</sup> Semester)**

**Scheme B. Tech. (Printing Technology) IV- Semester, W.e.f. Batch 2025-29**

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Basic Science Courses	BSC-PTG202-T	-----	Applied Science for Packaging Materials	3	0	0	3.0	00	3.0	30	70	100	
2.	Professional Core Courses	PCC-PTG202-T	PCC-PTG202-P	Technology of Flexography/ Technology of Flexography Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
3	Professional Core Courses	PCC-PTG204-T	PCC-PTG204-P	Methodology of Composition in Printing/ Methodology of Composition in Printing Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
4	Professional Core Courses	PCC-PTG206-T	PCC-PTG206-P	Techniques of Printing Image Generation/ Techniques of Printing Image Generation Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
5.	Mandatory Courses	MC-104-T	--	Essence of Indian Traditional Knowledge	3	0	0	0.0	--	0.0	30	70	100 (Qualifying Only)	
					15	0	09							
<b>Total Credits</b>										<b>16.5</b>	<b>Total Marks= 700</b>			

***Note- At the end of the IV-semester each student would undergo 4-6 weeks practical training in an industry/research laboratory. For the same, the assessment will be held with 5<sup>th</sup> Semester Examinations. For the detailed guidelines regarding industrial training, presentation, evaluation students may go through the guidelines mentioned at PROJ-PTG301-P (Industrial Training Presentation-I) in Scheme and Syllabus of 5<sup>th</sup> Semester.***

**Scheme & Syllabus**  
**for**  
**B. Tech.**  
**(Printing Technology)**  
**3<sup>rd</sup>Year (5<sup>th</sup> Semester)**

**Scheme B. Tech. (Printing Technology) V- Semester, W.e.f. Batch 2025-29**

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Open Elective Courses	OEC-I	-----	Open Elective Course-I	3	0	0	3.0	--	3.0	30	70	100	
2.	Humanities, Social Sciences and Management Courses	HSMC302-T	-----	Fundamental of Management for Engineers	2	0	0	2.0	--	2.0	30	70	100	
3.	Professional Core Courses	PCC-PTG301-T	PCC- PTG301-P	Sheet-fed Offset Technology/ Sheet-fed Offset Technology Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
4.	Professional Core Courses	PCC-PTG303-T	PCC- PTG303-P	Colour Analysis & Reproduction Technology/ Colour Analysis & Reproduction Technology Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
5.	Professional Core Courses	PCC-PTG305-T	PCC- PTG305-P	Technology of Gravure/ Technology of Gravure Lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
6.	Project Work	--	PROJ-PTG301-P	Industrial Training Presentation-I	0	0	2	--	1.0	1.0	30	70	100	
7.	Mandatory Courses		MC-PTG301-P	Technical Presentation/Seminar	0	0	2	0.0	--	0.0	30	70	100 (Qualifying Only)	
					14	0	13							
<b>Total Credits</b>										<b>19.5</b>	<b>Total Marks:- 900</b>			

**Scheme & Syllabus**  
**for**  
**B. Tech.**  
**(Printing Technology)**  
**3<sup>rd</sup>Year (6<sup>th</sup> Semester)**

### **Scheme B. Tech. (Printing Technology) VI- Semester, W.e.f. Batch 2025-29**

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Open Elective Courses	OEC-2	-----	Open Elective Course-II	3	0	0	3.0	--	3.0	30	70	100	
2.	Program Elective Courses	PEC-1	-----	Program Elective Course-I	3	0	0	3.0	--	3.0	30	70	100	
3.	Humanities, Social Sciences and Management Courses	HSMC301-T	-----	Economics for Engineers	2	0	0	2.0	--	2.0	30	70	100	
4.	Professional Core Courses	PCC- PTG302-T	PCC- PTG302-P	Paper Technology/ Paper Technology Lab	3	1	3	4.0	1.5	5.5	T	30	70	100
											P	30	70	100
5.	Professional Core Courses	PCC- PTG304-T	PCC- PTG304-P	Print Finishing/ Print Finishing lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
6.	Professional Core Courses	PCC- PTG306-T	PCC- PTG306-P	Printing Ink Technology/ Printing Ink Technology lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
<b>Total Credits</b>					17	01	09							
										22.5	<b>Total Marks: - 900</b>			

**Note-** At the end of the VI-semester each student would undergo 4-6 weeks practical training in an industry/research laboratory. For the same, the assessment will be held with 7<sup>th</sup> Semester Examinations. For the detailed guidelines regarding industrial training, presentation, evaluation students may go through the guidelines mentioned at PROJ-PTG405-P (Industrial Training Presentation-II) in Scheme and Syllabus of 7<sup>th</sup> Semester.

<b>Program Elective Course –I (PEC-I)</b>	
<b>Course Code</b>	<b>Course Name</b>
PEC-PTG151-T	Newspaper & Multimedia
PEC- PTG152-T	Substrates for Printing
PEC- PTG153-T	Printing Organizations & Plant Layout
PEC- PTG154-T	Introduction to Packaging
PEC- PTG155-T	Printed Electronics
Any one MOOC course not studied earlier ( or to be studied as per scheme)	

**Scheme & Syllabus**  
**for**  
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**4<sup>th</sup>Year (7<sup>th</sup> Semester)**

## B. Tech. (Printing Technology) VII- Semester, w.e.f. Batch 2025-29

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Open Elective Courses	OEC-III	--	Open Elective Course-III	3	0	0	3.0	--	3.0	30	70	100	
2.	Program Elective Courses	PEC-II	--	Program Elective Course -II	3	0	0	3.0	--	3.0	30	70	100	
3	Program Elective Courses	PEC-III	--	Program Elective Course-III	3	0	0	3.0	--	3.0	30	70	100	
4.	Professional Core Courses	PCC-PTG401-T	PCC-PTG401-P	Quality Control in Printing/ Quality Control in Printing lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
5.	Project Work	--	PROJ-PTG401-P	Project-I	0	0	4	--	2.0	2.0	30	70	100	
6.	Project Work	--	PROJ-PTG403-P	Printing Industry Awareness Project	0	0	4	--	2.0	2.0	30	70	100	
7.	Project Work	--	PROJ-PTG405-P	Industrial Training Presentation-II	0	0	2	--	1.0	1.0	30	70	100	
8.	Mandatory Courses	--	MC-PTG401-P	General Proficiency	0	0	2	--	0.0	0.0	30	70	100 (Qualifying Only)	
					12	0	15							
<b>Total Credits</b>										18.5	<b>Total Marks:- 800</b>			

Program Elective Course-II		Program Elective Course-III	
Course Code	Course Name	Course Code	Course Name
PEC-PTG251-T	Book Publishing	PEC-PTG351-T	Security Printing
PEC- PTG252-T	Print Entrepreneurship	PEC- PTG352-T	E-Publishing
PEC- PTG253-T	Management for Printing Organizations	PEC- PTG353-T	Print Wastage Management
PEC- PTG254-T	Computer Graphics in Printing	PEC- PTG354-T	Advancements in Printing
Any one MOOC course not studied earlier (or to be studied as per scheme)			

# **Scheme & Syllabus**

**for**

**B. Tech.**

**(Printing Technology)**

**4<sup>th</sup>Year (8<sup>th</sup> Semester)**

### **B. Tech. (Printing Technology) VIII- Semester, w.e.f. Batch 2025-29**

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Program Elective Courses	PEC-IV	--	Program Elective Course -IV	3	0	0	3.0	--	3.0	30	70	100	
2.	Program Elective Courses	PEC-V	PEC-V (Lab)	Program Elective Course-V	3	0	2	3.0	1.0	4.0	T	30	70	100
											P	30	70	100
3.	Professional Core Courses	PCC-PTG402-T	--	Costing & Estimation in Printing	3	2	0	5.0	0	5.0	30	70	100	
4.	Professional Core Courses	PCC-PTG404-T	PCC-PTG404-P	Advanced Screen Printing/ Advanced Screen Printing lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
5.	Project Work, Seminar and Internship in Industry	--	PROJ-PTG402-P	Project-II	0	0	8	--	4.0	4.0	30	70	100	
6.	Project Work, Seminar and Internship in Industry	--	PROJ-PTG404-P	Seminar	0	0	4	--	2.0	2.0	30	70	100	
					12	02	17							
<b>Total Credits</b>										22.5	<b>Total Marks: - 800</b>			

Program Elective Course -IV		Program Elective Course -V (Theory and Lab)			
Course Code	Course Name	Course Code	Course Name	Course Code	Course Name
PEC-PTG451-T	Speciality Printing	PEC-PTG551-T	Web Offset Printing	PEC-PTG551-P	Web Offset Printing Lab
PEC-PTG452-T	Green Printing	PEC-PTG552-T	Packaging Technology	PEC-PTG552-P	Packaging Technology Lab
PEC-PTG453-T	3D Printing	PEC-PTG553-T	Digital Printing	PEC-PTG553-P	Digital Printing Lab
PEC-PTG-454-T	Patents & IPR	PEC-PTG554-T	Colour Management	PEC-PTG554-P	Colour Management Lab
Any one MOOC course not studied earlier (or to be studied as per scheme)		Any one MOOC course not studied earlier (or to be studied as per scheme)			

**Or**  
**FULL SEMESTER INDUSTRIAL TRAINING**

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits			Evaluation Scheme			
		Theory	Practical		L	T	P	Theory	Practical	Total	Int.	Ext.	Total	
1.	Professional Core Courses	PCC-PTG402-T	--	Costing & Estimation in Printing	3	2	0	5.0	0	5.0	30	70	100	
2.	Professional Core Courses	PCC-PTG404-T	PCC-PTG404-P	Advanced Screen Printing/ Advanced Screen Printing lab	3	0	3	3.0	1.5	4.5	T	30	70	100
											P	30	70	100
3.	Industrial Training	--	PROJ-PTG442-P	Full Semester Industrial Training	0	0	26	--	13.0	13.0	As per Ordinance		500	
					06	02	29							
<b>Total Credits</b>										22.5	<b>Total Marks:- 800</b>			

**Guidelines**

The student will be required to submit to the department, the offer letter for the full semester industrial training, at-least 15 days before the commencement of 8th semester. The options shall be according to the following conditions: A student may opt for one semester industrial training in lieu of attending the courses of 8th semester. The scheme and syllabus for full semester industrial training is mentioned above.

A student will be allowed to join the industrial training under following conditions: -

- a. If the student gets selected for the job through campus placements and the employer is willing to take the student for the training for a period of full semester.
- b. If the student gets offer of pursuing training from reputed Research organization/Govt. sponsored project/ Govt. research institution/ Multinational corporations (MNCs)/ Public sectors.
- c. Student will have to manage their Professional Core Courses as per concerned faculty guidelines for conducting classes in offline/online mode.
- d. For completion of lab work, the student will have to undergo for two week capsule course in respective lab of the department prior to final practical examination.
- e. For evaluation of the industrial training, the guidelines circulated by T&P Cell will prevail.

For pursuing this training, the student shall require prior approval from Dean of Faculty of Engineering & Technology through the Chairperson of the respective department. To ensure the fruitfulness of this training, a list of companies, beside the Govt. organizations/ Public sectors, will be provided. The student will be allowed to go for training only to the companies/organizations mentioned in the list. The list can be modified (addition/deletion) from time to time subject to approval from Dean of Faculty of Engineering and Technology.