

SCHEME & SYLLABUS

B. TECH.

(PACKAGING 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.—Packaging 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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B.Tech.(Packaging Technology)

Program Educational Objectives (PEOs)

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

Program Educational Objectives (PEOs)

POs	List of Courses
PO1:	Engineering Knowledge: 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:	Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
PO3:	Design/Development of Solutions: 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)

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PO4:	Conduct Investigations of Complex Problems: 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:	Engineering Tool Usage: 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:	The Engineer and The World: 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:	Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
PO8:	Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9:	Communication: 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:	Project Management and Finance: 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:	Life-Long Learning: 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)



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B. Tech. (Packaging Technology) III- Semester

Sr. No.	Category	Course Code		Course Nomenclature	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Basic Science Courses	BSC-PKG201-T	--	Applied Sciences for Packaging	3	0	0	3.0	--	3.0
2.	Engineering Science Courses	ESC-PKG201-T	--	Engineering Science for Printing	3	0	0	3.0	--	3.0
3.	Professional Core Courses	PCC-PKG201-T	PCC- PKG201-P	Elements of Packaging/ Elements of Packaging Lab	3	0	3	3.0	1.5	4.5
4.	Professional Core Courses	PCC- PKG203-T	PCC- PKG203-P	Package Printing Processes/ Package Printing Processes Lab	3	0	3	3.0	1.5	4.5
5.	Professional Core Courses	PCC- PKG205-T	PCC- PKG205-P	Graphics Design Essentials in Packaging/ Graphics Design Essentials in Packaging Lab	3	0	3	3.0	1.5	4.5
6.	Mandatory Courses		HSMC201-P	Human Value and Personality Development	0	0	3	0.0	--	0.0
					15	0	12			
Total Credits										19.5

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B. Tech. (Packaging Technology) IV- Semester

Sr. No.	Category	Course Code		Course Nomenclature	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Basic Science Courses	BSC-PKG202-T	-----	Applied Sciences for Packaging Materials	3	0	0	3.0	--	3.0
2.	Professional Core Courses	PCC- PKG202-T	PCC- PKG202-P	Pre-Press Technology in Packaging/ Pre-Press Technology in Packaging Lab	3	0	3	3.0	1.5	4.5
3	Professional Core Courses	PCC- PKG204-T	PCC- PKG204-P	Computer Based Package Design/ Computer Based Package Design Lab	3	0	3	3.0	1.5	4.5
4	Professional Core Courses	PCC- PKG206-T	PCC- PKG206-P	Paper Substrate in Packaging/ Paper Substrate in Packaging Lab	3	0	3	3.0	1.5	4.5
5	Professional Core Courses	PCC- PKG208-T	--	Polymers in Packaging	3	0	0	3.0	--	3.0
6.	Mandatory Courses	MC104-T	--	Essence of Indian Traditional Knowledge	3	0	0	0.0	--	0.0
					18	0	9			
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Total Credits										19.5



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L-Lecture, T-Tutorial, P-Practical

Note: Each student will have to undergo 4 to 6 weeks duration Industrial/Research Laboratory Training (Summer Training-I) during summer vacations at the end of 4th Semester which will be evaluated in 5th Semester.

B. Tech. (Packaging Technology) V- Semester

Sr. No.	Category	Course Code		Course Nomenclature	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Open Elective Courses	OEC-I	--	Open Elective Course-I	3	0	0	3.0	--	3.0
2.	Humanities, Social Sciences and Management Courses	HSMC302-T		Fundamental of Management for Engineers	2	0	0	2.0	--	2.0
3.	Professional Core Courses	PCC- PKG301-T	PCC- PKG301-P	Colour Management in Packaging/ Colour Management in Packaging Lab	3	0	3	3.0	1.5	4.5
4.	Professional Core Courses	PCC- PKG303-T	PCC- PKG303-P	Rigid Packaging Machines/ Rigid Packaging Machines Lab	3	0	3	3.0	1.5	4.5
5.	Professional Core Courses	PCC- PKG305-T	--	Pharmaceutical and Cosmetics Packaging	3	0	0	3.0	--	3.0
6.	Project Work	--	PROJ- PKG301-P	Industrial Training Presentation-I	0	0	2	--	1.0	1.0
					14	0	8			
Total Credits									18.0	

Note: Assessment of Summer Training-I will be based on presentation/seminar, viva-voce, report and certificate for the practical training taken at the end of 4th semester.



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B. Tech. (Packaging Technology) VI- Semester

Sr. No.	Category	Course Code		Course Nomenclature	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Open Elective Courses	OEC-II	--	Open Elective Course -II	3	0	0	3.0	--	3.0
2.	Program Elective Courses	PEC-I	--	Program Elective Course -I	3	0	0	3.0	--	3.0
3.	Humanities, Social Sciences and Management Courses	HSMC301-T	--	Economics for Engineers	2	0	0	2.0	--	2.0
4.	Professional Core Courses	PCC- PKG302-T	PCC- PKG302-P	Print Finishing Techniques/ Print Finishing Techniques Lab	3	0	3	3.0	1.5	4.5
5.	Professional Core Courses	PCC- PKG304-T	PCC- PKG304-P	Ink Technology in Packaging/ Ink Technology in Packaging/ Lab	3	0	3	3.0	1.5	4.5
6.	Professional Core Courses	PCC- PKG306-T	--	FMCG Packaging	3	0	0	3.0	--	3.0
					17	0	6			
Total Credits										20.0

Note: Each student will have to undergo 6 to 8 weeks duration Industrial/Research Laboratory Training (Summer Training-II) during summer vacations at the end of 6th Semester which will be evaluated in 7th Semester.



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Program Elective Course–I (PE -I : Theory)	
Course Code	Course Name
PEC-PKG151-T	Digital Printing Process
PEC- PKG152-T	Hybrid Printing Technology
PEC- PKG153-T	Offset Technology
Any one MOOC course not studied earlier (or to be studied as per scheme)	





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B. Tech. (Packaging Technology) VII- Semester

Sr. No.	Category	Course Code		Course Nomenclature	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Open Elective Courses	OEC-III	--	Open Elective Course -III	3	0	0	3.0	--	3.0
2.	Program Elective Courses	PEC-II	PEC-II Lab	Program Elective Course -II	3	0	2	3.0	1.0	4.0
3	Program Elective Courses	PEC-III	--	Program Elective Course -III	3	0	0	3.0	--	3.0
4.	Professional Core Courses	PCC-PKG401-T	PCC-PKG401-P	Packaging Converting Process/ Packaging Converting Process Lab	3	0	3	3.0	1.5	4.5
5.	Professional Core Courses	PCC-PKG403-T		Print Cost Estimation	3	0	0	3.0	--	3.0
6.	Project Work	--	PROJ-PKG401-P	Minor Project	0	0	6	--	3.0	3.0
7.	Project Work	--	PROJ-PKG403-P	Seminar	0	0	2	--	1.0	1.0
8.	Project Work	--	PROJ-PKG405-P	Industrial Training Presentation-II	0	0	2	--	1.0	1.0
9.	Mandatory Courses	--	MC-PKG401-P	General Proficiency	0	0	2	--	0.0	0.0
					15	0	17			
Total Credits									22.5	



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Program Elective Course - II (Theory)		Program Elective Course - II (Practical)	
Course Code	Course Name	Course Code	Course Name
PEC-PKG251-T	Polymer Processing Technology	PEC-PKG251-P	Polymer Processing Technology Lab.
PEC- PKG252-T	Packaging Machinery Maintenance	PEC- PKG252-P	Packaging Machinery Maintenance Lab.
PEC- PKG253-T	Dry Offset Printing Process	PEC- PKG253-P	Dry Offset Printing Process Lab.
Any one MOOC course not studied earlier (or to be studied as per scheme)			

Program Elective Course - III (Theory)	
Course Code	Course Name
PEC-PKG351-T	Supply Chain Management
PEC- PKG352-T	Green Printing
PEC- PKG353-T	Industrial Packaging
Any one MOOC course not studied earlier (or to be studied as per scheme)	

Note:

1. Students will be allowed to use non-programmable scientific calculator only, **however sharing of calculator will not be permitted.**
2. Project load will be treated as 2 hours for Project Coordinator and 1 hour for each participating teacher.
3. Assessment of Seminar will be based on presentation, viva-voce and report.
4. Assessment of Summer Training-II will be based on presentation/seminar delivered, viva-voce, report and certificate for the practical training taken at the end of 6thSemester.

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B. Tech. (Packaging Technology) VIII- Semester

Sr. No.	Category	Course Code		Course Nomenclature	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Program Elective Courses	PEC-IV	PEC-IV Lab	Program Elective Course -IV	3	0	3	3.0	1.5	4.5
2.	Program Elective Courses	PEC-V	PEC-V Lab	Program Elective Course -V	3	0	3	3.0	1.5	4.5
3.	Professional Core Courses	PCC-PKG402-T	PCC-PKG402-P	Quality Control & Waste Management/ Quality Control & Waste Management Lab	3	0	3	3.0	1.5	4.5
4.	Professional Core Courses	PCC-PKG404-T		Latest Trends in Packaging	3	0	0	3.0	--	3.0
5.	Project Work, Seminar and Internship in Industry	--	PROJ-PKG402-P	Major Project	0	0	8	--	4.0	4.0
6.	Project Work, Seminar and Internship in Industry	--	PROJ-PKG404-P	Seminar	0	0	4	--	2.0	2.0
					12	0	21			
Total Credits										22.5

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Program Elective Course - IV (Theory)		Program Elective Course - IV (Practical)	
Course Code	Course Name	Course Code	Course Name
PEC-PKG451-T	Technology of Gravure	PEC-PKG451-P	Technology of Gravure Lab.
PEC- PKG452-T	Label Printing	PEC- PKG452-P	Label Printing Lab.
PEC- PKG453-T	Technology of Flexography	PEC- PKG453-P	Technology of Flexography Lab.
Any one MOOC course not studied earlier (or to be studied as per scheme)			

Program Elective Course - V (Theory)		Program Elective Course - V (Practical)	
Course Code	Course Name	Course Code	Course Name
PEC-PKG551-T	Rigid Packaging Machinery	PEC-PKG551-P	Rigid Packaging Machinery Lab.
PEC- PKG552-T	Packaging of Industrial and Hazardous Goods	PEC- PKG552-P	Packaging of Industrial and Hazardous Goods Lab.
PEC- PKG553-T	Flexible Packaging Machines	PEC- PKG553-P	Flexible Packaging Machines Lab.
Any one MOOC course not studied earlier (or to be studied as per scheme)			

Note:

1. The project will be evaluated at the end of the 8th Semester on the basis of its implementation (software/hardware), presentation delivered, viva-voce and report.
2. A viva of the students will be taken by external examiner at the end of the semester.

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Or

B. Tech. (Packaging Technology): 8th Semester FULL SEMESTER INDUSTRIAL TRAINING

Sr. No.	Category	Course Code		Course Title	Hours per week			Course Credits		
		Theory	Practical		L	T	P	Theory	Practical	Total
1.	Professional Core Courses	PCC-PKG402-T	PCC-PKG402-P	Quality Control & Waste Management/ Quality Control & Waste Management Lab	3	0	3	3	1.5	4.5
2.	Professional Core Courses	PCC-PKG404-T	----	Latest Trends in Packaging	3	0	0	3.0	0	3.0
3.	Industrial Training	--	PROJ-PKG-442-P	Full Semester Industrial Training	0	0	30	--	15.0	15.0
					06	0	33			
Total Credits										22.5

Guidelines for 8th Semester Full Semester Industrial Training

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: -



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- i. 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.

- ii. If the student gets offer of pursuing training from reputed Research organization/Govt. sponsored project/ Govt. research institution/ Multinational corporations (MNCs)/ Public sectors.
- iii. Student will have to manage their Professional Core Courses as per concerned faculty guidelines for conducting classes in offline/online mode.
- iv. 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.
- v. 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, Faculty of Engineering and Technology.

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