

Department of Production Engineering
GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA



Syllabus Scheme 2018
BACHELOR OF TECHNOLOGY
PRODUCTION ENGINEERING



Examination Pattern and Conditions 2018 Batch & Onwards

Minimum Attendance requirement to appear in Final Examinations

1. Minimum requirement for appearing in Examinations is 75% attendance of Schedule Lectures.
2. 10% relaxation is given in case of medical leave, Duty Leave (Representing College or Department) submitted within the week after joining college or after completion of duty.
3. Student Falling short of 75% attendance or 65% attendance (in case of medical leave & Duty Leave) detained in corresponding Subject and will not be allowed to sit in examination of detained subject. Student will have to clear attendance along with his/her junior classes when that subject is offered with permission of Head of Department

Minimum Marks required to pass and Distribution of Marks for Machine Drawing

1. Passing Marks are 40% of Internal(Max.40 Marks) and External (Max. 60 Marks) Both
2. Internal Marks are distributed as, 20 marks as average of two Mid Semester examination marks, 5 marks for attendance (0 for 75% attendance and 5 for more than 95% attendance) and remaining 15 marks for Drawing Sheets

Minimum Marks required to pass and Distribution of Marks for Theory Subjects

1. Passing Marks are 40% of Internal(Max.40 Marks) and External (Max. 60 Marks) Both
2. Internal Marks are distributed as, 24 marks as average of two Mid Semester examination marks, 6 marks for attendance (0 for 75% attendance and 6 for more than 95% attendance) and remaining 10 marks for assignments(Minimum 1 assignment for each chapter)

Minimum Marks required to pass and Distribution of Marks for Practical Subjects

1. Passing Marks are 40% of Internal(Max.30 Marks) and External(Max. 20 Marks) Both
2. Internal Marks are distributed as, 10 marks as Viva Voce Marks 4 marks for attendance (0 for 75% attendance and 4 for more than 95% attendance), 8 Marks for physically performing the practical and remaining 8 marks for Practical File
3. In case of Minor Projects, Passing Marks are 40% of Internal(Max. 60 Marks) and External(Max. 40 Marks) Both and in case of Major Project (CASE I) and Project 1 and Project 2 (CASE II) Passing Marks are 40% of Internal(Max. 120 Marks) and External(Max. 80 Marks) Both
4. In Minor Project, Major Project, Project 1 and Project 2 15 % Marks will be allocated to Novelty of Idea of Project, 15% of Marks will be allocated to presentation of Project, 30% marks will be allocated to report of Project, 30% of marks are allocated to Viva and Discussion of Project and remaining 10% marks are allocated for attendance in case of Internal Marks Distribution
5. In case of External Marks Distribution in Minor Project, Major Project, Project 1 and Project 2 15 % Marks will be allocated to Novelty of Idea of Project, 15% of Marks will be allocated to presentation of Project, 30% marks will be allocated to report of Project and 40% of marks are allocated to Viva and Discussion of Project

Theory Paper Pattern

The Question paper shall be having following structure / weight age:

1. Section A - Short type questions based upon whole syllabus- 6 Questions of 2 marks each. All questions are compulsory $6 \times 2 = 12$ marks
2. Section B - Questions based upon whole syllabus- 6 Questions of 4 marks each. All questions are compulsory $6 \times 4 = 24$ marks
3. Section C - Questions based upon whole syllabus- 2 Questions of 12 marks each. All questions are compulsory with Internal Choice in both the questions $2 \times 12 = 24$ marks

Machine Drawing Paper Pattern

The Question paper shall be having following structure / weight age:

1. Section A - Short type questions based upon whole syllabus- 10 Questions of 2 marks each. All questions are compulsory $10 \times 2 = 20$ marks
2. Section B - Free Hand sketching of machine parts etc.-3 Questions of 5 marks each 2 Questions are to be attempted $2 \times 5 = 10$ marks
3. Section C - Assembly drawing of machine parts with at least two views -2 Questions of 30 marks each 1 question is to be attempted $1 \times 30 = 30$ marks.

Practical Examination Pattern

1. An External Viva Voce will be held by an External Examiner/ Senior Faculty Member.
2. Student will have to perform Practical on Machine/Equipment/Computer in the presence of an External Examiner/ Senior Faculty Member and Internal Examiner.
3. Marks will be distributed as 8 marks for Practical Performance, 8 Marks for Viva Voce and 4 Marks for File/Copy/Report.



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**BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING) SYLLABUS SCHEME 2018 ONWARDS
3RD SEMESTER**

GNDEC/PE-2018

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Core Course	PCPE-101	Strength of Materials	Theory	3	0	0	40	60	100	3
2	Professional Core Course	PCPE-102	Machine Drawing	Theory	2	0	4	40	60	100	4
3	Professional Core Course	PCPE-103	Thermal Engineering	Theory	3	0	0	40	60	100	3
4	Humanities Course	HSMPE-101	Operations Management	Theory	3	0	0	40	60	100	3
5	Basic Science Course	BSPE-101	Material Science	Theory	3	0	0	40	60	100	3
6	Engineering Science Course	ESPE-101	Industrial Engineering	Theory	3	0	0	40	60	100	3
7	Professional Core Course	LPCPE-101	Strength of Material Lab	Practical	0	0	2	30	20	50	1
8	Professional Core Course	LPCPE-102	Thermal Engineering Lab	Practical	0	0	2	30	20	50	1
9	Institutional Training	TR-101	Training I	Practical	-	--	-	60	40	100	1
10	Project	PRPE-101	Seminar/ Technical Report Writing	Practical	0	0	2	100	-	100	1
11	Mandatory Course	MPD-102	Mentoring and Professional Development	Practical	0	0	1	-	-	-	-
Total					17	0	11	460	440	900	23

Institutional Training after 2ND semester of 4 weeks duration will be conducted during summer vacations and marks will be added in 3rd semester

4TH SEMESTER

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Core Course	PCPE-104	Design of Machine Elements	Theory	3	1	0	40	60	100	4
2	Professional Core Course	PCPE-105	Fluid Mechanics & Machinery	Theory	3	1	0	40	60	100	4
3	Professional Core Course	PCPE-106	Manufacturing Processes	Theory	3	0	0	40	60	100	3
4	Professional Core Course	PCPE-107	Kinematics & Dynamics of Machines	Theory	3	0	0	40	60	100	3
5	Professional Core Course	PCPE-108	Physical Metallurgy & Heat Treatment	Theory	3	0	0	40	60	100	3
6	Professional Core Course	LPCPE-103	Fluid Mechanics & Machinery Lab	Theory	0	0	2	40	60	100	1
7	Professional Core Course	LPCPE-104	Kinematics & Dynamics of Machines Lab	Practical	0	0	2	30	20	50	1
8	Professional Core Course	LPCPE-105	Manufacturing Processes Lab & Physical Metallurgy & Heat Treatment Lab	Practical	0	0	4	30	20	50	2
9	Mandatory Non Credit Course	MCI-101	Environmental Engineering	Practical	2	0	0	50	-	50	-
10	Mandatory Course	MPD-102	Mentoring and Professional Development	Practical	0	0	1	100	-	100	1
Total					17	2	9	410	390	800	22



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**BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING) SYLLABUS SCHEME 2018 ONWARDS
5th SEMESTER**

GNDEC/PE-2018

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Core Course	PCPE-109	Industrial Automation & Robotics	Theory	3	0	0	40	60	100	3
2	Professional Core Course	PCPE-110	Inspection & Quality Control	Theory	3	0	0	40	60	100	3
3	Professional Core Course	PCPE-111	Metal Forming	Theory	3	0	0	40	60	100	3
4	Professional Core Course	PCPE-112	Engineering Metrology	Theory	3	0	0	40	60	100	3
5	Professional Core Course	PCPE-113	Machining Science	Theory	3	0	0	40	60	100	3
6	Professional Elective Course	PEPE-XXX	Departmental Elective-I	Theory	4	0	0	40	60	100	4
7	Professional Core Course	LPCPE-106	Industrial Automation & Robotics Lab	Practical	0	0	2	30	20	50	1
8	Professional Core Course	LPCPE-107	Metal Forming & Machining Science Lab	Practical	0	0	2	30	20	50	1
9	Professional Core Course	LPCPE-108	Engineering Metrology Lab	Practical	0	0	2	30	20	50	1
10	Industrial/Institutional Training	TR-102	Training II	Practical	-	-	--	60	40	100	1
11	Mandatory Course	MPD-103	Mentoring and Professional Development	Practical	0	0	1	-	-	--	-
Total					19	0	7	390	460	850	23

Industrial/ Institutional Training after 4th semester of 4 weeks duration will be conducted during summer vacations and marks will be added in 5th semester

6TH SEMESTER

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Core Course	PCPE-114	Industrial Tribology	Theory	3	0	0	40	60	100	3
2	Professional Core Course	PCPE-115	Machine Tool Design	Theory	3	0	0	40	60	100	3
3	Professional Core Course	PCPE-116	Operation Research	Theory	3	1	0	40	60	100	4
4	Professional Core Course	PCPE-117	Non-Traditional Machining	Theory	3	0	0	40	60	100	3
5	Professional Elective Course	PEPE-XXX	Departmental Elective-II	Theory	4	0	0	40	60	100	4
6	Professional Open Course	OEZZ-XXX	Open Elective- I	Theory	3	0	0	40	60	100	3
7	Professional Core Course	LPCPE-109	Industrial Tribology Lab & Machine Tool Design Lab	Practical	0	0	2	30	20	50	1
8	Professional Core Course	LPCPE-110	Non-Traditional Machining Lab	Practical	0	0	2	30	20	50	1
9	Seminar/Project	PRPE-102	Minor Project	Practical	0	0	2	60	40	100	1
10	Mandatory Course	MPD-103	Mentoring and Professional Development	Practical	0	0	1	100	-	100	1
Total					19	1	7	460	440	900	24



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**BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING) SYLLABUS SCHEME 2018 ONWARDS GNDEC/PE-2018
(Case I: - If student opts for Sixth Month Training then the student will have to select the Case I Scheme)**

7TH SEMESTER CASE I

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Elective Course	PEPE-XXX	Departmental Elective-III	Theory	4	0	0	40	60	100	4
2	Professional Elective Course	PEPE-XXX	Departmental Elective-IV	Theory	4	0	0	40	60	100	4
3	Professional Open Course	OEZZ-XXX	Open Elective- II	Theory	3	0	0	40	60	100	3
4	Mandatory Course Non Credit (Open Elective)	MCI-10X	Indian Constitution/ Organizational Behavior	Theory	2	0	0	50	-	-	-
5	Industrial/Institutional Training	TR-103	Training III	Practical	-	-	-	60	40	100	1
6	Seminar/Project	PRPE-103	Major Project	Practical	0	0	6	120	80	200	3
7	Mandatory Course	MPD-104	Mentoring and Professional Development	Practical	0	0	1	-	-	-	-
Total					13	0	7	350	300	650	15

Industry/Institutional Training after 6th semester of 4 weeks duration will be conducted during summer vacations and marks will be added in 7th Semester

8TH SEMESTER CASE I

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
2	Industrial/Institutional Training	TR-104	Training IV	Practical	-	-	30	350	150	500	15
3	Mandatory Course	MPD-104	Mentoring and Professional Development	Practical	0	0	1	100	-	100	-
Total					0	0	31	450	150	600	16

(Case II: - If student opts for theory classes in both 7th and 8th Semester then the student will have to select the Case II Scheme)

7TH SEMESTER CASE II

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Elective Course	PEPE-XXX	Departmental Elective-III	Theory	4	0	0	40	60	100	4
2	Professional Elective Course	PEPE-XXX	Departmental Elective-IV	Theory	4	0	0	40	60	100	4
3	Professional Open Course	OEZZ-XXX	Open Elective- II	Theory	3	0	0	40	60	100	3
4	Industrial/Institutional Training	TR-103	Training III	Practical	-	-	-	60	40	100	1
5	Seminar/Project	PRPE-104	Project I	Practical	0	0	6	120	80	200	3
6	Mandatory Course	MPD-104	Mentoring and Professional Development	Practical	0	0	1	-	-	-	-
Total					11	0	7	300	300	600	15

Industry/Institutional Training after 6th semester of 4 weeks duration will be conducted during summer vacations and marks will be added in 7th Semester



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BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING) SYLLABUS SCHEME 2018 ONWARDS

GNDEC/PE-2018

Industry/Institutional Training after 6th semester of 4 weeks duration will be conducted during summer vacations and marks will be added in 7th Semester

8TH SEMESTER CASE II

S. No.	Course Category	Course Code	Course Title	Theory/ Practical	Hours per Week			Internal Marks	External Marks	Total Marks	Credits
					L	T	P				
1	Professional Elective Course	PEPE-XXX	Departmental Elective-V	Theory	4	0	0	40	60	100	4
2	Professional Elective Course	PEPE-XXX	Departmental Elective-VI	Theory	4	0	0	40	60	100	4
3	Professional Open Course	OEZZ-XXX	Open Elective- III	Theory	3	0	0	40	60	100	3
4	Mandatory Course Non Credit (Open Elective)	MCI-10X	Indian Constitution/ Organizational Behavior	Theory	2	0	0	50	-	-	-
5	Seminar/Project	PRPE-105	Project II	Practical	0	0	6	120	80	200	3
6	Mandatory Course	MPD-104	Mentoring and Professional Development	Practical	0	0	1	100	-	100	1
7	Seminar/Project	PRPE-106	Seminar on Recent Advances in Production Engineering	Practical	0	0	2	50	-	50	1
Total					13	0	9	340	260	700	16

LIST OF DEPARTMENTAL ELECTIVE SUBJECTS CASE I

S. No.	Course Code	Course Title	Course Code	Course Title	Course Code	Course Title	
		Design & Manufacturing Engineering Group		Industrial Engineering Group		Materials Group	
Elective I (5TH Semester)							
1	PEPE-101	Jig Fixture & Die Design	PEPE-125	Human Engineering	PEPE-149	Composite Materials	
2	PEPE-102	Tool & Cutter Design	PEPE-126	Agile Manufacturing	PEPE-150	Materials Testing & Characterization	
3	PEPE-103	Introduction to Robotics	PEPE-127	Technology Management	PEPE-151	Science & Engineering of Metals	
4	PEPE-104	Micro Manufacturing	PEPE-128	Marketing Management	PEPE-152	Deformations & Defects of Materials	
Elective II (6TH Semester)							
1	PEPE-105	Advance Casting & Welding Technology	PEPE-129	Plant Layout & Material Handling	PEPE-153	Advance Engineering Material	
2	PEPE-106	Maintenance & Reliability Engineering	PEPE-130	Productivity Management	PEPE-154	Advance Ceramics	
3	PEPE-107	Statistic & Numerical Analysis	PEPE-131	Project Management	PEPE-155	Material Processing	
4	PEPE-108	Cryogenic Manufacturing	PEPE-132	Estimating & Costing	PEPE-156	Aero Space Materials	
Elective III (7TH Semester)							
1	PEPE-109	Non Destructive Testing	PEPE-133	Supply Chain Management	PEPE-157	Texture in Materials	
2	PEPE-110	Computer Aided Design & Manufacturing	PEPE-134	Quality & Reliability Engineering	PEPE-158	Environmental Degradation of Materials	
3	PEPE-111	Precision Engineering	PEPE-135	Green Manufacturing	PEPE-159	Water Resistance Materials	
4	PEPE-112	Theory of Plasticity	PEPE-136	Investment Planning	PEPE-160	Nuclear Materials	
Elective IV (7TH Semester)							
1	PEPE-113	Plastic and Ceramics Technology	PEPE-137	Industrial Safety & Environment	PEPE-161	Nano Materials	
2	PEPE-114	Finite Element Method	PEPE-138	Value Engineering	PEPE-162	Explosive Materials used in Industries	
3	PEPE-115	Automobile Engineering	PEPE-139	Intellectual Property Rights	PEPE-163	Wear Technology	
4	PEPE-116	Industrial Finishing	PEPE-140	Total Productive Maintenance	PEPE-164	Thermodynamics of Materials	



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BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING) SYLLABUS SCHEME 2018 ONWARDS GNDEC/PE-2018

LIST OF DEPARTMENTAL ELECTIVE SUBJECTS CASE II

S. No.	Course Code	Course Title	Course Code	Course Title	Course Code	Course Title
Design & Manufacturing Engineering Group		Industrial Engineering Group			Materials Group	
Elective I (5TH Semester)						
1	PEPE-101	Jig Fixture & Die Design	PEPE-125	Human Engineering	PEPE-149	Composite Materials
2	PEPE-102	Tool & Cutter Design	PEPE-126	Agile Manufacturing	PEPE-150	Materials Testing & Characterization
3	PEPE-103	Introduction to Robotics	PEPE-127	Technology Management	PEPE-151	Science & Engineering of Metals
4	PEPE-104	Micro Manufacturing	PEPE-128	Marketing Management	PEPE-152	Deformations & Defects of Materials
Elective II (6TH Semester)						
1	PEPE-105	Advance Casting & Welding Technology	PEPE-129	Plant Layout & Material Handling	PEPE-153	Advance Engineering Material
2	PEPE-106	Maintenance & Reliability Engineering	PEPE-130	Productivity Management	PEPE-154	Advance Ceramics
3	PEPE-107	Statistic & Numerical Analysis	PEPE-131	Project Management	PEPE-155	Material Processing
4	PEPE-108	Cryogenic Manufacturing	PEPE-132	Estimating & Costing	PEPE-156	Aero Space Materials
Elective III (7TH Semester)						
1	PEPE-109	Non Destructive Testing	PEPE-133	Supply Chain Management	PEPE-157	Texture in Materials
2	PEPE-110	Computer Aided Design & Manufacturing	PEPE-134	Quality & Reliability Engineering	PEPE-158	Environmental Degradation of Materials
3	PEPE-111	Precision Engineering	PEPE-135	Green Manufacturing	PEPE-159	Water Resistance Materials
4	PEPE-112	Theory of Plasticity	PEPE-136	Investment Planning	PEPE-160	Nuclear Materials
Elective IV (7TH Semester)						
1	PEPE-113	Plastic and Ceramics Technology	PEPE-137	Industrial Safety & Environment	PEPE-161	Nano Materials
2	PEPE-114	Finite Element Method	PEPE-138	Value Engineering	PEPE-162	Explosive Materials used in Industries
3	PEPE-115	Automobile Engineering	PEPE-139	Intellectual Property Rights	PEPE-163	Wear Technology
4	PEPE-116	Industrial Finishing	PEPE-140	Total Productive Maintenance	PEPE-164	Thermodynamics of Materials
Elective V (8TH Semester)						
1	PEPE-117	Computer Integrated Manufacturing	PEPE-141	Research Methodology	PEPE-165	Extreme Environmental Materials
2	PEPE-118	Design of Experiments	PEPE-142	Materials Management	PEPE-166	Cryogenic Materials
3	PEPE-119	Bio Mechanics	PEPE-143	Probability & Statistics	PEPE-167	Bio Materials
4	PEPE-120	Reverse Engineering	PEPE-144	Total Quality Management	PEPE-168	Waste Material & Management
Elective VI (8TH Semester)						
1	PEPE-121	Rapid Prototyping	PEPE-145	Production Planning & Control	PEPE-169	Medical Materials
2	PEPE-122	Mechatronics	PEPE-146	Entrepreneurship	PEPE-170	Hazardous Materials
3	PEPE-123	Product Design & Development	PEPE-147	Quality Assurance	PEPE-171	Smart Materials
4	PEPE-124	Surface Engineering	PEPE-148	Enterprise Resource Planning	PEPE-172	Lather Technology

7TH SEMESTER CASE I & 8TH SEMESTER CASE II Mandatory Non Credit Course (Open Elective)

(Students can select any one Mandatory Non Credit Course (Open Elective))

S. No.	Course Category	Course Code	Course Title	S. No.	Course Code	Course Title
1	Mandatory Course Non Credit (Open Elective)	MCI-102	Indian Constitution	2	MCI-103	Organizational Behavior



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BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING) SYLLABUS SCHEME 2018 ONWARDS GNDEC/PE-2018

List of Open Elective Subjects Offered by the Department to the students of Other Departments

S. No.	Course Code	Course Title	Course Code	Course Title	Course Code	Course Title
	6th Semester Open Elective I		7th Semester Open Elective II		8th Semester Open Elective III	
1	OEPE-101	Automobile Engineering	OEPE-104	Production Planning & Control	OEPE-107	Supply Chain Management
2	OEPE-102	Human Engineering	OEPE-105	Engineering Materials	OEPE-108	Composite Materials
3	OEPE-103	Nano Materials	OEPE-106	Product Design & Development	OEPE-109	Precision Engineering