



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

B. Tech. Scheme of Examination & Syllabus 2026-27

INDUSTRIAL IoT

Annexure – I

CREDIT FRAMEWORK STRUCTURE

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	7	7							14
Engineering Science Course		6	6							12
Program Core Course (PCC)	Program Courses	2	2	13	10	7	4	6		44
Program Elective Course (PEC)						4	6	6	4	20
Multidisciplinary Minor (MDM)	Multidisciplinary Courses			2	3	3	3	3		14
Open Elective (OE) Other than a particular program						2	3	3		08
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	2		1	1	2	2			08
Ability Enhancement Course (AEC -01, AEC-02)	Humanities Social Science and Management (HSSM)	1	1			2				04
Entrepreneurship/Economics/Management Courses				2	2					04
Indian Knowledge System (IKS)			2							02
Value Education Course (VEC)				2	2					04
Research Methodology	Experiential Learning Courses								4	04
Comm. Engg. Project (CEP)/ Field Project (FP) Project					2					02
Internship/OJT							2	2		04
Co-curricular Courses (CC)	Liberal Learning Courses								12	12
Total Credits (Major)		20	20	20	20	20	20	20	20	160

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FIRST SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Mid-Sem Examination	Maximum Marks			Minimum Passing Marks	No. of Hrs for ESE
				L	T	P			Continual Assessment	End Sem Examination	Total		
1.	BSC	26II101T	Applied Physics	2	-	-	2	10	10	30	50	23	1.5
2.	BSC	26II101P	Applied Physics Lab	-	-	2	1	-	25	25	50	25	-
3.	BSC	26II102T	Linear Algebra & Calculus	3	-	-	3	20	20	60	100	45	3
4.	BSC	26II102P	Linear Algebra & Calculus Lab	-	-	2	1	-	25	25	50	25	
5.	ESC	26II103T	C Programming	3	-	-	3	20	20	60	100	45	3
6.	ESC	26II103P	C Programming Lab	-	-	2	1	-	25	25	50	25	-
7.	ESC	26II104T	Circuits and Networks	2	-	-	2	10	10	30	50	23	1.5
8.	PCC	26II105T	Electronics Foundations for IoT	2	-	-	2	10	10	30	50	23	1.5
9.	AEC	26II106P	Business Communication Skills I Lab	-	-	2	1	-	25	25	50	25	-
10.	SEC	26II207T	Design Thinking#	2	-	-	2	10	10	30	50	23	1.5
11.	CC	26II108T	Co-curricular Courses-I	2	-	-	2	10	10	30	50	23	1.5
Total				16	-	8	20	90	190	370	650	305	

- Course is to be taken online through NPTEL

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SECOND SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1.	BSC	26II201T	Applied Chemistry	2	-	-	2	10	10	30	50	23	1.5
2.	BSC	26II201P	Applied Chemistry Lab	-	-	2	1	-	25	25	50	25	-
3.	BSC	26II202T	Statistics and Transforms	3	-	-	3	20	20	60	100	45	3
4.	BSC	26II202T	Statistics and Transforms Lab	-	-	2	1	-	25	25	50	25	-
5.	ESC	26II203T	Python Programming	3	-	-	3	20	20	60	100	45	3
6.	ESC	26II203P	Python Programming Lab	-	-	2	1	-	25	25	50	25	-
7.	ESC	26II204P	Electronics Lab	-	-	4	2	-	25	25	50	25	-
8.	PCC	26II205T	Digital Circuits	2	-	-	2	10	10	30	50	23	1.5
9.	AEC	26II206P	Business Communication Skills – II Lab	-	-	2	1	-	25	25	50	25	-
10.	IKS	26II107T	Indian Knowledge Systems#	2	-	-	2	10	10	30	50	23	1.5
11.	CC	26II208T	Co-curricular Courses – II	2	-	-	2	-	50	-	50	25	-
Total				14	-	12	20	70	245	335	650	309	

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THIRD SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1.	PCC	26II301T	Microprocessors and Microcontrollers	3	-	-	3	20	20	60	100	45	3
2.	PCC	26II301P	Microprocessors and Microcontrollers Lab	-	-	2	1	-	25	25	50	25	-
3.	PCC	26II302T	Signals and Systems	2	-	-	2	10	10	30	50	23	1.5
4.	PCC	26II303T	Analog and Digital Communication	2	-	-	2	10	10	30	50	23	1.5
5.	PCC	26II304P	Signals and Communication Lab	-	-	2	1	-	25	25	50	25	-
6.	PCC	26II305T	Mechatronics	3	-	-	3	20	20	60	100	45	3
7.	PCC	26II305P	Mechatronics Lab	-	-	2	1	-	25	25	50	25	-
8.	VEC	26II306T	Universal Human Values	2	-	-	2	10	10	30	50	23	1.5
9.	HSSM	26II307T	Fundamentals of Economics and Management	2	-	-	2	10	10	30	50	23	1.5
10.	SEC	26II341P	Career Development I	-	-	2	1	-	25	25	50	25	-
11.	MDM	26II331M	MDM-I (Refer MDM basket)	2	-	-	2	10	10	30	50	23	1.5
Total				16		08	20	90	190	370	650	305	

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FOURTH SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1.	PCC	26II401T	Object Oriented Programming and Data Structures	3	-	-	3	20	20	60	100	45	3
2.	PCC	26II401P	Object Oriented Programming and Data Structures Lab	-	-	2	1	-	25	25	50	25	-
3.	PCC	26II402T	IoT Protocols and Architecture	3	-	-	3	20	20	60	100	45	3
4.	PCC	26II402P	IoT Protocols and Architecture Lab	-	-	2	1	-	25	25	50	25	-
5.	PCC	26II403T	Computer Networks	2	-	-	2	10	10	30	50	23	1.5
6.	VEC	26II405T	Constitution of India	2	-	-	2	10	10	30	50	23	1.5
7.	HSSM	26II406T	Fundamentals of Entrepreneurship	2	-	-	2	10	10	30	50	23	1.5
8.	SEC	26II441P	Career Development - II	-	-	2	1	-	50	-	50	25	-
9.	CEP	26II404P	Mini Project*	-	-	4	2	-	50	-	50	25	-
10.	MDM	26II431M	MDM-II(Refer MDM basket)	3	-	-	3	20	20	60	100	45	3
Total				15	10	20	20	90	240	320	650	304	

* Field Project or Community engagement project in the major discipline

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FIFTH SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1.	PCC	26II501T	Foundations of Data Science	3	-	-	3	20	20	60	100	45	3
2.	PCC	26II502T	Artificial Intelligence and Machine Learning	3	-	-	3	20	20	60	100	45	3
3.	PCC	26II503P	Data Science, AI and ML Lab	-	-	2	1	-	25	25	50	25	-
4.	PEC	26II504T	Professional Elective – I (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
5.	PEC	26II504P	Professional Elective – I Lab (Refer PE Basket)	-	-	2	1	-	25	25	50	25	-
6.	VSC	26II505P	Technical Skill Development - I	-	-	4	2	-	50	-	50	25	-
7.	AEC	26II541P	Digital and Office Tools	-	-	4	2	-	50	-	50	25	-
8.	MDM	26II531M	MDM – III (Refer MDM basket)	3	-	-	3	20	20	60	100	45	3
9.	OE	26II561O	Open Elective – I (Refer OE basket)	2	-	-	2	10	10	30	50	23	1.5
Total				14		12	20	90	240	320	650	-	-

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SIXTH SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1.	PCC	26II601T	Embedded Systems for IoT	3	-	-	3	20	20	60	100	45	3
2.	PCC	26II601P	Embedded Systems for IoT	-	-	2	1	-	50	-	50	25	-
3.	PEC	26II602T	Professional Elective – II (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
4.	PEC	26II603T	Professional Elective – III (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
5.	PROJ	26II605P	Project – I	-	-	4	2	-	50	50	100	50	-
6.	VSC	26II604P	Technical Skill Development - II	-	-	4	2	-	50	-	50	25	-
7.	MDM	26II631M	MDM – IV (Refer MDM basket)	3	-	-	3	20	20	60	100	45	3
8.	OE	26II661O	Open Elective – II (Refer OE basket)	3	-	-	3	20	20	60	100	45	3
Total				15		10	20	100	250	350	700	325	

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SEVENTH SEMESTER

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1.	PCC	26II701T	Cloud Computing	3	-	-	3	20	20	60	100	45	3
2.	PCC	26II701P	Cloud Computing Lab	-	-	2	1	-	25	25	50	25	-
3.	PCC	26II702P	Industrial IoT Lab	-	-	2	1	-	25	25	50	25	-
4.	PCC	26II703P	Dashboard and Mobile Application Development Lab	-	-	2	1	-	25	25	50	25	-
5.	PEC	26II704T	Professional Elective – IV (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
6.	PEC	26II705T	Professional Elective –V (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
7.	PROJ	26II706P	Project - II	-	-	4	2	-	50	50	100	50	-
8.	MDM	26II731M	MDM – V (Refer MDM basket)	3	-	-	3	20	20	60	100	45	3
9.	OE	26I9I761O	Open Elective – III (Refer OE basket)	3	-	-	3	20	20	60	100	45	3
Total				15		10	20	100	225	425	750	350	

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EIGHTH SEMESTER

Option A

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No of Hours for ESE
				L	T	P		Continual Assessment	Mid-Sem Examination	End Sem Examination	Total		
1	RM	26ES801T	Research Methodology [#]	2	-	-	2	10	10	30	50	23	1.5
2	RM	26ES802P	Research Methodology Lab [#]	-	-	4	2	-	25	25	50	25	-
3	PEC	26II803T	Professional Elective [#] -VI (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
4	PEC	26II803P	Professional Elective -VI Lab [#] (Refer PE Basket)	-	-	2	1	-	25	25	50	25	-
5	OJT	26II804P(i)	Industry/Research Internship [*]	-	-	24	12	-	300	100	400	200	-
Total				5	-	30	20	30	380	240	350	118	

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EIGHTH SEMESTER

Option B

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks			Minimum Passing Marks	No of Hours for ESE	
				L	T	P		Continual Assessment	Mid-Sem Examination	End Sem Examination			Total
1	RM	26II801T	Research Methodology#	2	-	-	2	10	10	30	50	23	1.5
2	RM	26II802P	Research Methodology Lab#	-	-	4	2	-	25	25	50	25	-
3	PEC	26II803T	Professional Elective# -VI (Refer PE Basket)	3	-	-	3	20	20	60	100	45	3
4	PEC	26II803P	Professional Elective – VI Lab# (Refer PE Basket)	-	-	2	1	-	25	25	50	25	-
5	OJT	26II804P(ii)	Institutional Internship [§] & Project III	-	-	24	12	-	300	100	400	200	-
Total				5	-	30	20	30	380	240	650	318	

Option B is available to students only after recommendation of the concerned Head of the department. The project and internship should contribute towards career development plan of the students.

Courses to be mapped with NPTEL/SWAYAM/MOOC offered courses in that semester.

* One semester internship in any industry/ Research Institute is to be carried out.

§ One Semester Internship offered by Institute Level Cells such as TPDC/ IEDC/E-Yantra/ Team Ashwa Riders along with project in the Major Discipline assigned by department to be carried out.

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Basket for Multi-Disciplinary Minor Courses (MDM)

A. INDUSTRIAL IoT

Semester	Course Category	Course Code	Name of Course	Subject Expert Name	Weeks	Credits
III	MDM - I	26II331M	Industry 4.0: Managing The Digital Transformations		2	2
IV	MDM - II	26II431M	Introduction to Internet of Things		3	3
V	MDM - III	26II531M	Embedded Sensing, Actuation and Interfacing Systems		3	3
VI	MDM - IV	26II631M	Introduction to Industry 4.0 and Industrial Internet of Things		3	3
VII	MDM - V	26II731M	Cyber Security and Privacy		3	3

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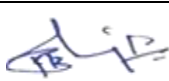
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Basket for Program Elective Courses (PEC)

B. INDUSTRIAL IoT

Semester	Course Category	Course Code	Name of Course	Credits
V	PEC	26II504T (i)	Database Management Systems	3
V	PEC	26II504P (i)	Database Management Systems Lab	1
V	PEC	26II504T (ii)	Digital Signal Processing	3
V	PEC	26II504P (ii)	Digital Signal Processing Lab	1
VI	PEC	26II602T (i)	Control Systems	3
VI	PEC	26II603T (i)	Industrial Automation and Robotics	3
VI	PEC	26II603T (ii)	Operating Systems	3
VII	PEC	26II702T (i)	Industrial IoT and Industry 4.0	3
VII	PEC	26II703T (i)	Privacy and Security in IoT	3
VIII	PEC	26II803T (i)	Computer Vision and Image Processing	3
VIII	PEC	26II803P (i)	Computer Vision and Image Processing Lab	3
VIII	PEC	26II803P (i)	Deep Learning	3
VIII	PEC	26II803P (i)	Deep Learning Lab	3

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Basket for Open Elective Courses (OE)

C. INDUSTRIAL IoT

Semester	Course Category	Course Code	Name of Course	Credits
V	OE	26II561O	Introduction to IoT	2
VI	OE	26II661O	Fundamentals of Industry 4.0 and Industrial IoT	3
VII	OE	26II761O	Privacy and Security in IoT	3

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EXIT OPTIONS

Award of UG Certificate in Major with 40 credits and an additional 8 credits (After First Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.	Internship	Offline	8
2.			
3.			

Award of UG Diploma in Major with 80 credits and an additional 8 credits (After Second Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.	Internship	Offline	8
2.			
3.			

Award of UG Degree in Major with 120 credits and an additional 8 credits (After Third Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.	Internship	Offline	8
2.			
3.			

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