

SCTR's Pune Institute of Computer Technology (PICT), Pune

Department of Information Technology (IT)

Structure for B-Tech (IT)

[AY 2025-26 onwards]



Abbreviations used:

Sr. No.	Broad Category	Sub-category of Course	Course Code
I.	BSC/ESC	Basic Science Course (BSC)	01
		Engineering Science Course (ESC)	02
II.	Program Courses (PC)	Program Core Course (PCC)	03
		Program Elective Course (PEC)	04
III.	Multidisciplinary courses (MC)	Multidisciplinary Minor (MDM)	05
		Open Elective (OE) Other than particular program	06
IV.	Skill Courses (SC)	Vocational and Skill Enhancement Course (VSEC)	07
V.	Humanities Social Science and Management (HSSM)	Ability Enhancement Course (AEC-01, AEC-02)	08
		Entrepreneurship/Economics/ Management Courses (EEM)	09
		Indian Knowledge System (IKS)	10
		Value Education Course (VEC)	11
VI.	Experiential Learning Courses (ELC)	Research Methodology (RM)	12
		Community engagement Project (CEP) / Field Project (FP)	13
		Project (PRJ)	14
		Internship/ On Job Training (IP/OJT)	15
VII.	Liberal Learning Courses (LLC)	Co-curricular Activities (CCA)	16

Class	Sem-I – Credits	Sem-II – Credits	Total Credits	Sem-I – Marks	Sem-II – Marks	Total Marks
F.Y.	20	20	40	725	750	1475
S.Y.	22	22	44	750	750	1500
T.Y.	20	20	40	750	750	1500
B-Tech.	20	16	36	700	400	1100
Total	82	78	160	2925	2650	5575

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Final Year B. Tech. Curriculum Structure (Semester – VII / VIII) w.e.f. A.Y. 2027-28

Semester -VII / VIII (Scheme – A)			Teaching Scheme (Hours/Week)				Credit Scheme				Examination / Evaluation Scheme and Marks						
Course Type	Course code	Name of the Course	L	P	T	Total	L	P	T	Total	Theory			Practical			Sem. Total
											CIE	ISE	ESE	CIE	ESE		
											[20]	[20]	[60]	(TW)	(P)	(OR)	
PCC	3703118	Software Design and Architecture (SDA)	3	-	-	3	3	-	-	3	20	20	60	-	-	-	100
PCC	3703119	Distributed Operating Systems (DOS)	3	-	-	3	3	-	-	3	20	20	60	-	-	-	100
PCC	3703120	IT Lab. - II (SDA+DOS)	-	4	-	4	-	2	-	2	-	-	-	25	-	25	50
PEC	37041X4	Program Elective-IV(PEC-IV)	2	-	-	2	2	-	-	2	20	20	60	-	-	-	100
PEC	37041X5	Program Elective-V(PEC-V)	2	-	-	2	2	-	-	2	20	20	60	-	-	-	100
PEC	37042X4	Program Elective-IV Lab. (PECL-IV)	-	2	-	2	-	1	-	1	-	-	-	25	-	25	50
PEC	37042X5	Program Elective-V Lab. (PECL-V)	-	2	-	2	-	1	-	1	-	-	-	25	-	25	50
RM	0712301	Research Methodology *	-	-	2	2	-	-	2	2	-	-	25	-	-	-	25
RM	0712302	Academic Research Writing (ARW)	-	-	1	1	-	-	1	1	-	-	-	25	-	-	25
PRJ	0714201	Project Work Phase-I/II (PwP-I/II)	-	6	-	6	-	3	-	3	-	-	-	50	-	50	100
Total			10	14	3	27	10	7	3	20	80	80	265	150	-	125	700

L: Lecture, P: Practical, T: Tutorial, CIE: Continuous Internal Evaluation, ISE: In-Semester Examination, ESE: End-Semester Examination, TW: Term work, OR: Oral, P: Practical examination

Domain Name	Program Elective Courses-IV (PEC-IV)		Program Elective Courses-V (PEC-V)	
	Course Code	Course Name	Course Code	Course Name
Network and Cyber Security	3704114 & 3704214	Cyber Forensics and Investigation (CFI) & Lab.	3704115 & 3704215	Ethical Hacking Tools and Techniques (EHTT) & Lab.
Intelligent Systems	3704124 & 3704224	Conversational AI & Generative AI (CAIG) & Lab.	3704125 & 3704225	Reinforcement Learning & Decision Making (RLDM) & Lab.
Databases and Web Technologies	3704134 & 3704234	Rich Internet Applications (RIA) & Lab.	3704135 & 3704235	Intelligent Business Analytics (IBA) & Lab.
Advanced Cloud Computing	3704144 & 3704244	Advanced Cloud Analytics (ACA) & Lab.	3704145 & 3704245	Edge Computing for Cloud (ECC) & Lab.
Computer Graphics and Interactive Systems	3704154 & 3704254	Game Development & Interactive Environments (GDIE) & Lab.	3704155 & 3704255	Digital Twin and Simulation (DTS) & Lab.



Final Year B. Tech. Curriculum Structure (Semester – VIII / VII) w.e.f. A.Y. 2027-28

Semester -VIII / VII (Scheme – B)			Teaching Scheme (Hours/Week)				Credit Scheme				Examination / Evaluation Scheme and Marks						
Course Type	Course code	Name of the Course	L	P	T	Total	L	P	T	Total	Theory			Practical			Sem. Total
											CIE	ISE	ESE	CIE	ESE		
											[20]	[20]	[60]	(TW)	(P)	(OR)	
MDM	08053X5	MDM-5#	-	-	2	2	-	-	2	2	-	-	-	50	-	-	50
PRJ	0814202	Project work Phase-II/I (PwP-II/I)	-	6	-	6	-	3	-	3	-	-	-	50	-	50	100
IP	0815201	Internship (IP)	-	22	-	22	-	11	-	11	-	-	-	150	-	100	250
Total			-	28	2	30	-	14	2	16	-	-	-	250	-	150	400

#: Tutorial or laboratory as applicable. Choose one course from the MDM baskets. MDM: X is basket number, [Refer annexure-I](#) for MDM details.

*: Open elective (OE) offered by online platform such as SWAYAM/NPTEL, [Refer Annexure-II](#) for details.

X: Serial numbers of the courses under that particular category.

Note: Students who opted for an internship in 7th Semester will complete the courses in the 8th semester. Students who opted for courses in the 7th semester will take an internship in their 8th semester.

Annexures

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↑ Annexure-I

Structure of Multi-Disciplinary Minor Courses

The structure for the multidisciplinary Minor courses is as follows.

MDM Courses			Teaching Scheme (Hours/Week)				Credit Scheme Credits				Examination / Evaluation Scheme and Marks						
Sem	Course code	Name of Course	L	P	T	Total	L	P	T	Total	Theory			Practical			Semester Total
											CIE	ISE	ESE	CIE	ESE		
											[20]	[20]	[60]	TW	P	OR	
3	03051X 1	MDM-1	2	-	-	2	2	-	-	2	20	20	60	-	-	-	100
3	03052X 1	MDM-1 #	-	2	-	2	-	1	-	1	-	-	-	25	-	-	25
4	04051X 2	MDM-2	2	-	-	2	2	-	-	2	20	20	60	-	-	-	100
4	04052X 2	MDM-2 #	-	2	-	2	-	1	-	1	-	-	-	25	-	-	25
5	05051X 3	MDM-3	2	-	-	2	2	-	-	2	20	20	60	-	-	-	100
5	05052X 3	MDM-3 #	-	2	-	2	-	1	-	1	-	-	-	25	-	-	25
6	06051X 4	MDM-4	2	-	-	2	2	-	-	2	20	20	60	-	-	-	100
6	06052X 4	MDM-4 #	-	2	-	2	-	1	-	1	-	-	-	25	-	-	25
8	08053X 5	MDM-5	-	2	-	2	-	-	2	2	-	-	-	50	-	-	50
		Total	8	10	-	18	8	4	2	14	80	80	240	150	-	-	550

Note: In course code X is basket number. #: is laboratory or tutorial as per course requirements.

1. Students are expected to choose one of the eligible domains of MDM at the beginning of the Semester III.
2. Students will complete the chosen set of all multidisciplinary minor courses mentioned under the chosen MDM domain.
3. Students are not permitted to change from one domain to another.
4. Refer to the last column of the following table for eligibility to choose a particular MDM domain.



List of Multi-Disciplinary Minor Domains

Label	Multi-Disciplinary Minor Domains	SY		TY		B-Tech	Offered to students of B Tech Program
		MD1-1	MD2-2	MD3-3	MD4-4	MD5-5	
		Sem-III	Sem-IV	Sem-V	Sem-VI	Sem-VII/VIII	
MD1	Smart and Sustainable Systems (SSS)	Fundamentals of Smart and Sustainable Systems (FSSS) & Tut	IoT for Smart and Sustainable Systems (ISSS) & Lab	Data Analytics for Smart and Sustainable Systems (DASSS) & Lab	Security for Smart and Sustainable Systems (SSS&S) Smart and Sustainable System Development (SSD) Lab	Smart and Sustainable System Development (SSD)	ALL
MD2	Finance and Management (F&M)	Fundamentals of Financial Engineering (FFE) & Tut	Banking, Financial Services and Insurance (BFSI) & Tut	Fundamentals of Stock Market (FSM) & Tut	Fintech: Foundations & Applications (FFA) & Tut	Financial Derivatives & Risk Management (FDRM)	ALL
MD3	3D- Printing (3DP)	3D modeling and Design (3MD) & Lab	Fundamentals of Additive Manufacturing (FAM)& Lab	3D Printing Materials and Processes (3DPMP)	Industry 4.0 and Digital Manufacturing (IDM)	Applied 3D Printing and Prototyping Lab (A3DPPL)	ALL
MD4	Electric Vehicles (EV)	EV foundation – Principles and Concepts (EVPC) & Lab	Advanced Motor Technologies and Power Electronics for EV(AMT) & Lab	EV Powertrain Dynamics and Control System (PDC) Tut/Lab	Intelligent EV Systems: AI IoT and Automation (IEV)	Capstone Project in Electric Mobility	ALL
MD5	Applied Mathematics for Engineering (AME)	Linear Algebra with Python & Lab	Statistical Techniques and Numerical Methods with R & Lab	Fuzzy Logic and Graph Theory with Matlab/Python & Lab	Optimization Techniques & Lab	Field Study/Case Study	ALL
MD6	Software Development (SD)	Data Structures and Algorithms (DSA) & Lab	Object Oriented Programming (OOP) & Lab	Database and Management Systems (DBMS) & Lab	Web Development (WD) & Lab	System Programming and Operating System (SPOS)	Only E&TCE
MD7	Autonomous and Intelligent Systems (AIS)	Digital Systems and Organization (DSO) & Lab	Smart System Engineering (SSE) & Lab	Embedded IoT Systems (EIS) & Lab	Autonomous Systems (AS) & Lab	Cyber Physical Systems: Screen Mode (CPS) / Capstone Project	All except E&TCE
MD8	Embedded Systems (ES)	Fundamental of Microcontroller (FM) & Lab	Embedded Processors –I (EP -I) & Lab	Microcontrollers and IoT (MI) & Lab	Embedded Systems and RTOS (ES-RTOS) & Lab	Capstone Project using Microcontrollers lab (CPML)	All Except E&TCE
MD9	AI & Machine Learning (AI-ML)	Statistical Data Analysis & Lab	Machine Learning (ML) & Lab	Natural Language Processing (NLP) & Lab	Artificial Intelligence (AI) & Lab	Deep Learning (DL)	Only E&CE

Link: [Detailed Syllabus](#)

↑ Annexure -II

Guidelines for Open Elective Courses

1. Open Elective – I will be offered in third semester as foreign language as prescribed in the structure.
2. Open Electives – II, III, IV will be offered through SWAYAM/NPTEL MOOCs of Equivalent Credits.
3. Departments shall prepare the baskets of open elective courses from discipline/faculty other than respective major programs. Students may choose any course from the basket without adhering to any one stream.
4. Credits & Grade will be awarded based on the Marks Obtained through the certification including assignments and proctored examination as per the MOOCs Policy.

			Teaching Scheme (Hours/Week)				Credits				Examination Scheme and Marks						
Sem	Course code	Name of the Course	L	P	T	Total	L	P	T	Total	Theory			Practical			Total
											CIE	ISE	ESE	CIE	ESE		
											[20]	[20]	[60]	TW	P	OR	
3	OE-I	Foreign Language Studies (FLS)	-	-	2	2	-	-	2	2	-	-	-	50	-	-	50
4	OE-II	MOOCs	-	-	2	2	-	-	2	2	-	-	50	-	-	-	50
5	OE-III	MOOCs	-	-	2	2	-	-	2	2	-	-	50	-	-	-	50
6	OE-IV	MOOCs	-	-	2	2	-	-	2	2	-	-	50	-	-	-	50
Total			-	-	8	8	-	-	8	8	-	-	150	50	-	-	200

Guidelines for MOOCs

1. The department shall release a list of approved SWAYAM-NPTEL courses before the commencement of every semester.
2. Students shall register for the approved Courses as per the schedule announced by SWAYAM-NPTEL.
3. A student shall undergo the courses only from the list notified by the department through SWAYAM/NPTEL platform and complete all the assignments and examination requirements as specified by SWAYAM/NPTEL.
4. SWAYAM-NPTEL Courses are considered for transfer of credits only if the student concerned has successfully completed and obtained the SWAYAM-NPTEL Certificate.
5. The credit equivalence for SWAYAM-NPTEL Courses: 12 weeks – 3credits; 8 weeks – 2 credits; 4 weeks – 1 credit.
6. Equivalent marks will be considered for awarding the grades as specified in examination rules and regulations. The weightage for assignments is 40%, while the weightage for the proctored examination will be 60% for award calculating SGPA/CGPA. Students must score a minimum of 40% of the total marks by combining both assignments and proctored examinations

7. A student must submit the original SWAYAM-NPTEL Course Certificates to the Head of the Department concerned, with a written request for the transfer of the equivalent credits. On verification of the SWAYAM-NPTEL Course Certificates and approval by the head of the department, credits will be awarded.
8. The Institute shall not reimburse any fees/expenses a student may incur for the SWAYAM-NPTEL Courses.
9. If the SWAYAM/NPTEL course calendar does not align with the institute's calendar, the department shall facilitate and conduct examination of the relevant course of equivalent credits in physical/virtual mode and award the credits accordingly.

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