ANNEXURE – I

Credit Structure for Undergraduate programs

Sr. No.	Category Code	Category	Credits
1	HSSM	Ability Enhancement Course (AEC), Indian Knowledge System (IKS), Value Education Course (VEC), Entrepreneurship/Economics/Management courses	10
2	BSC	Basic Science courses	14
3	ESC	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	16
4	PCC	Professional core courses	61
5	PEC	Professional Elective courses relevant to chosen specialization/branch	17
6	OE	Open subjects – Electives from other technical and /or emerging subjects	08
7	ELC	Project work, seminar and internship in industry or elsewhere, Industry Training and Skill Development, Capstone Course	22
8	VSEC	Vocations Skill Courses (VSC) , Skill Enhancement Courses(SEC)	10
9	CC	Co-curricular Courses (CC) such as Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/ Visual/ Performing Arts	04
10	MDM	Compulsory Multidisciplinary Minor	14
		TOTAL	**175**

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GROUP 1: SEMESTER I / GROUP 2: SEMESTER II

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	BSC	AS101T	Engineering Physics & Material Sciences	2	0	-	2	15	35	50
2	BSC	AS101P	Engineering Physics & Material Sciences Lab	-	-	2	1	25	25	50
3	BSC	AS102T	Applied Mathematics – I	4	-	-	4	30	70	100
4	ESC	AS103T	Engineering Practices-I (Electrical & Electronics)	3	-	-	3	30	70	100
5	ESC	AS103P	Engineering Practices-I Lab(Electrical & Electronics)	-	-	2	1	25	25	50
6	ESC	AS104T	Logic building with C	2	-	-	2	15	35	50
7	ESC	AS104P	Logic building with C Lab	-	-	2	1	25	25	50
8	AEC	AS105P	Business Communication Skills I Lab	-	-	2	1	25	25	50
9	IKS	AS106T	Indian Knowledge Systems	2	-	-	2	15	35	50
10	SEC	AS107T	Career Development I	-	-	2	1	50	-	50
11	PCC	IT101T	Program Foundation I	2	-	-	2	15	35	50
12	CC	AS108T	Co-curricular Course - I	-	-	-	2	50	-	50
Total				**15**	**-**	**10**	**22**	**320**	**380**	**700**

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GROUP 1: SEMESTER II / GROUP 2: SEMESTER I

Sr No	Course Category	Course Code	Course Title	L	T	P	Credits	Continual Assessment	End Sem Examination	Total
1	BSC	AS201T	Engineering Chemistry& Environmental Science	2	-	--	2	15	35	50
2	BSC	AS201P	Engineering Chemistry& Environmental Science Lab	-	-	2	1	25	25	50
3	BSC	AS202T	Applied Mathematics–II	4	-	-	4	30	70	100
4	ESC	AS203T	Engineering Practices-II (Civil & Mechanical)	3	-	-	3	30	70	100
5	ESC	AS203P	Engineering Practices-II Lab (Civil & Mechanical)	-	-	2	1	25	25	50
6	ESC	AS204T	Problem Solving with Python	2	-	-	2	15	35	50
7	ESC	AS204P	Problem Solving with Python Lab	-	-	2	1	25	25	50
8	AEC	AS205P	Business Communication Skills II Lab	-	-	2	1	25	25	50
9	SEC	AS206T	Career Development II	-	-	2	1	50	-	50
10	PCC	IT201T	Program Foundation II	2	-	-	2	15	35	50
11	ESC	AS207T	Design Thinking	2	-	-	2	30	70	100
12	CC	AS208T	Co-curricular Course - I	-	-	-	2	50	-	50
			Total	15	0	10	22	345	405	750

SEMESTER III

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	IT301T	Applied Mathematics-III	3	-	-	3	30	70	100
2	PCC	IT302T	Data Structures	3	-	-	3	30	70	100
3	PCC	IT302P	Data Structures Lab	-	-	4	2	25	25	50
4	PCC	IT303T	Computer Network	3	-	-	3	30	70	100
5	PCC	IT303P	Computer Network Lab	-	-	2	1	25	25	50
6	PCC	IT304T	Computer Architecture and Organization	3	-	-	3	30	70	100
7	PCC	IT305P	Computer Lab -1	-	-	4	2	25	25	50
8	SEC	IT306P	Career Development III	-	-	2	1	50	-	50
9	VEC	IT307T	Value Education Course I	2	-	-	2	15	35	50
10	ELC	IT308P	Micro Project I*	-	-	2	1	50	-	50
	Total			**14**	**-**	**14**	**21**	**310**	**390**	**700**
11	MDM		Multidisciplinary Minor - 1	2	-	-	2	15	35	50
	Total			**16**	**-**	**14**	**23**	**325**	**425**	**750**

* **Field Project or Community engagement project in the major discipline**
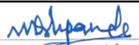
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SEMESTER IV

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	IT401T	Software Engineering and Project Management	3	-	-	3	30	70	100
2	PCC	IT401P	Software Engineering and Project Management Lab	-	-	2	1	25	25	50
3	PCC	IT402T	Object Oriented Programming	3	-	-	3	30	70	100
4	PCC	IT402P	Object Oriented Programming Lab	-	-	2	1	25	25	50
5	PCC	IT403T	Operating System	3	-	-	3	30	70	100
6	PCC	IT404P	Software Lab - 1	-	-	4	2	25	25	50
7	OE	IT405T	Open Elective – I	2	-	-	2	15	35	50
8	VSC	IT406T	Technical Skill Development - I	2	-	-	2	50	-	50
9	VEC	IT407T	Value Education Course II	2	-	-	2	15	35	50
10	SEC	IT408P	Career Development - IV	-	-	2	1	50	-	50
11	ELC	IT409P	Micro Project II*	-	-	2	1	50	-	50
Total				**15**	**0**	**12**	**21**	**345**	**355**	**700**
12	MDM		Multidisciplinary Minor - 2	3	-	-	3	15	35	50
Total				**18**	**-**	**12**	**24**	**350**	**490**	**750**

 * **Field Project or Community engagement project in the major discipline**

Open Elective - I	
IT405T(i)	Ethics in Information Technology
IT405T(ii)	Software Testing and Quality Assurance

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SEMESTER V

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	IT501T	Data Base Management System	3	-	-	3	30	70	100
2	PCC	IT501P	Data Base Management System Lab	-	-	2	1	25	25	50
3	PCC	IT502T	Design and Analysis of Algorithms	3	1	-	4	30	70	100
4	PCC	IT502P	Design and Analysis of Algorithms Lab	-	-	2	1	25	25	50
5	PCC	IT503T	Theory of Computation	3	1	-	4	30	70	100
6	PCC	IT504T	Professional Elective - I	3	-	-	3	30	70	100
7	OE	IT505T	Open Elective – II	3	-	-	3	30	70	100
8	VSC	IT506T	Technical Skill Development - II	2	-	-	2	50	-	50
9	SEC	IT507P	Career Development - V	-	-	2	1	50	-	50
Total				**17**	**2**	**6**	**22**	**300**	**400**	**700**
10	MDM		Multidisciplinary Minor - 3	3	-	-	3	15	35	50
Total				**20**	**2**	**6**	**25**	**315**	**435**	**750**

Professional Elective - I	
IT504T(i)	Gaming Architecture and Programming
IT504T(ii)	Human Computer Interface
IT504T(iii)	IoT DevOps

Open Elective - II	
IT505T(i)	Computer Animation
IT505T(ii)	Web Development
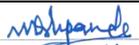
SEMESTER VI

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	IT601T	Java Programming	3	-	-	3	30	70	100
2	PCC	IT601P	Java Programming Lab	-	-	2	1	25	25	50
3	PCC	IT602T	Artificial Intelligence & Machine Learning	3	-	-	3	30	70	100
4	PCC	IT602P	Artificial Intelligence & Machine Learning Lab	-	-	2	1	25	25	50
5	PCC	IT603T	Professional Elective - II	3		-	3	30	70	100
6	PCC	IT604T	Professional Elective - III	3	-	-	3	30	70	100
7	AEC	AS601t	Economics. & Management	2			2	15	35	50
8	OE	IT605T	Open Elective- III	3	-	-	3	30	70	100
9	ELC	IT606P	Project - I	-	-	4	2	50	50	100
10	SEC	IT607P	Career Development - VI	-	-	2	1	50	-	50
Total				**17**	**0**	**10**	**22**	**315**	**485**	**800**
11	MDM		Multidisciplinary Minor - 4	3	-	-	3	15	35	50
Total				**20**	**-**	**10**	**25**	**330**	**520**	**850**

Professional Elective - II	
IT603T(i)	Cloud Computing
IT603T(ii)	Mobile Application Development
IT603T(iii)	Wireless Sensor Networks

Professional Elective - III	
IT604T(i)	Block-Chain Technology
IT604T(ii)	Advance Computer Network
IT604T(iii)	Computer Graphics and Animation

Open Elective - III	
IT606T(i)	Agile Software Development
IT606T(ii)	Basics of Cloud Computing

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SEMESTER VII

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	IT701T	Information and Cyber Security	3	-	-	3	30	70	100
2	PCC	IT701P	Information and Cyber Security Lab	-	-	2	1	25	25	50
3	PCC	IT702P	Software Lab - 2 (Emerging Technology Lab)	-	-	4	2	25	25	100
4	PCC	IT703T	Professional Elective - IV	4	-	-	4	30	70	100
5	PCC	IT704T	Professional Elective - V	4	-	-	4	30	70	100
6	ELC	IT705P	Project - II	-	-	8	4	50	50	100
7	ELC	IT706P	Summer / Winter Internship*	-	-	-	2	50	-	50
Total				**11**	**0**	**14**	**20**	**240**	**310**	**600**
8	MDM		Multidisciplinary Minor - 5	3	-	-	3	15	35	50
Total				**14**	**0**	**14**	**23**	**255**	**345**	**650**

* Summer / Winter Internship (Evaluation of Four weeks Internship Completion till 6th Semester)

Professional Elective - IV	
IT703T(i)	Data Warehousing and Mining
IT703T(ii)	Natural Language Processing
IT703T(iii)	Edge Computing

Professional Elective - V	
IT704T(i)	Deep Learning
IT704T(ii)	Advance in Data Base Management System
IT704T(iii)	Digital Forensics

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SEMESTER VIII

Option A

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	ELC	IT801P*	Project based on one semester internship in Industry/Research Institute/ National Laboratories/ Incubation Center	-	-	-	12	300	100	400
			Total	-	-	-	**12**	**300**	**100**	**400**

*End semester examination will consist of evaluation of seminar & project report.

Option B

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	ELC	IT801P#	Institutional Internship	-	-	12	6	100	100	200
2	ELC	IT802P	Project – III	-	-	12	6	100	100	200
			Total	-	-	**24**	**12**	**300**	**100**	**400**

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.

* Minimum 90 days internship in any industry and project is to be carried out during internship.

Two NPTEL courses (as per choice of student) or Institutional Internship by IEDC, SVPCET.

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EXIT OPTIONS

Online course of 8 credits will be provided with evaluation from department at the exit of 2nd, 4th and 6th semester. (To be written as per BoS suggestions)

OR

Award of UG Certificate in Major with 44 credits and an additional 8 credits (After First Year)

	EXIT COURSES		
S.N.	**Course name**	**Mode of conduction**	**Credits**
1	Programming In Modern C++	Online-Swayam	4
2	Introduction to Computer Science	Online-EDX	4
3	Introduction to hardware & operating system	Online-Coursera-IBM	4
	Programming Data Structures And Algorithms Using Python	Online-NPTEL	
4	Financial Management for Managers	Online-NPTEL	4

* The department will conduct the detailed evaluation for 8 credits based on online courses and Micro project

Award of UG Diploma in Major with 88 credits and an additional 8 credits (After Second Year)

	EXIT COURSES		
S.N.	**Course name**	**Mode of conduction**	**Credits**
1	Programming In Java	NPTEL	4
2	Introduction to Computer Science	Online-EDX	4
3	Fundamentals of digital marketing	Online-Learndigital	4
	Digital Marketing	Online-oxfordhomestudy	
4	Financial Management for Managers	Online-NPTEL	4

* The department will conduct the detailed evaluation for 8 credits based on online courses and Micro project

Award of BSC Engg./BVoc in Major with 132 credits and an additional 8 credits (After Third Year)

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S.N.	EXIT COURSES		
	Course name	**Mode of conduction**	**Credits**
1	Introduction to Computer Science	Online-EDX	4
2	Cyber Security	Online-Swayam	4
	Data Mining	Online-Swayam	
3	Software Programmer-Java	Online-NASSCOM	4
4	Certificate in Digital Marketing	Online-oxfordhomestudy	4

* The department will conduct the detailed evaluation for 8 credits based on online courses and Micro project

Multidisciplinary Minor

Minor 1 :- Management

Sr No	Sem	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
					L	T	P		Continual Assessment	End Sem Examination	Total
1		MDM									
2		MDM									
3		MDM									
4		MDM									
				Total				**14**			

Multidisciplinary Minor

Minor 2 :- Emerging Trends

Sr No	Sem	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
					L	T	P		Continual Assessment	End Sem Examination	Total
1		MDM									
2		MDM									
3		MDM									
4		MDM									

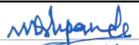|		July 2023	1.0	Applicable for 2023-24
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ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY,NAGPUR

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

B. Tech. Scheme of Examination & Syllabus 2023-24

INFORMATION TECHNOLOGY

				Total				14				

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