Visvesvaraya Technological University, Belagavi B. Tech in Computer Science and Business Systems (CSBS)

Scheme of Teaching and Examinations 2021

Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)(Effective from the academic year 2021-22)

III SE	MESTER		2000	a Education(OBE) and Choice		`					ine year		/	
					ô	Teaching	Hours /	Week	_	Examination				-
SI. No	Course and Course Code Cou		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	- Theory Lecture	Tutorial	ש Practical/ Drawing	ہ Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits	
	BSC		Transf	orm Calculus, Fourier Series	TD- Maths	L			5					-
1	21CB31			umerical Techniques	PSB-Maths	2	2	-	-	03	50	50	100	3
2	IPCC 21CB32			Structures and Applications	TD-CSE PSB- CSE	3	0	2	-	03	50	50	100	4
3	IPCC 21CB33		Comp	uter Organization	TD- CSE PSB- CSE	3	0	2	-	03	50	50	100	4
4	PCC 21CB34		Busine Scienc	ess Communication and Value	TD- CSE PSB- CSE	3	0	0	-	03	50	50	100	3
5	PCC 21CBL35		Introd	uction to scripting languages	TD- CSE PSB- CSE	0	0	2	-	03	50	50	100	1
6	UHV 21UH36		Social	Connect and Responsibility	Any Department	0	0	1	-	01	50	50	100	1
	HSMC 21KSK37/4 HSMC	7		rutika Kannada				0			50	50	100	
7	21KBK37/4	7	Balake	e Kannada OR	TD and PSB HSMC	0	2		-	01				1
	HSMC 21CIP37/47	7		itution of India and ssional Ethics										
8	8 AEC 21CB38X		Ability Enhancement Course - III		TD: Concerned department PSB: Concerned Board	If offered as Theory Course 01 0 2 0 - 01 If offered as lab. course 02 02 50 10						100	1	
						Ū	U	2		Total	400	400	800	18
	for s	211(02) (100)		National Service Scheme (NSS)	NSS	All students have to register for any one of the courses name National Service Scheme, Physical Education (PE)(Sports a Athletics), and Yoga with the concerned coordinator of the cour							and ourse	
9	iled activities fo VIII semesters	NCI 21F	MC PE83	Physical Education (PE)(Sports and Athletics)	PE	during the first week of III semester. The activities shall be carri out between III semester to VIII semester (for 5 semesters). SEE the above courses shall be conducted during VIII semest						EE in ester		
	Scheduled activities for III to VIII semesters		′O83	Yoga	Yoga	examinations and the accumulated CIE marks shall be added to a SEE marks. Successful completion of the registered course mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and same shall be reflected in the calendar prepared for the NSS, and Yoga activities.							se is d the	
		C	ourse	prescribed to lateral entry	Diploma holders a	dmitted t	o III se	mester	B.E./	B.Tech	prograi	ms		
1	NCMC 21MATDIP3	1		Additional Mathematics - I	Maths	02	02				100		100	0
Note:BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course,INT –Internship, HSMC: Humanity and Social Science & Management Courses, AEC–Ability Enhancement Courses. UHV: Universal Human Value Course. L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.TD-Teaching Department, PSB: Paper Setting department 21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and 21KBK37/47 Balake Kannada is for non-Kannada speaking,														
	reading, and writing students. Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with practical of the same course. Credit for IPCC													
can l by C	be 04 and its IE and SEE. T question pap	Tea he p	iching– practica	re Course (IPCC): Refers to Pro Learning hours (L : T : P) can b al part shall be evaluated by on re details, the regulation gove	e considered as (3 : 0 ly CIE (no SEE). How	0 : 2) or (2 ever, ques	: 2 : 2). tions fro	The the om the p	ory pa practic	art of the al part c	e IPCC sl of IPCC s	hall be e hall be i	evaluated included in	both n the
		ra lı	nstituti	onal Internship: All the studen	ts admitted to engine	ering prog	grams u	nder the	latera	l entry o	ategory	shall ha	ive to und	ergo

21INT49Inter/Intra Institutional Internship: All the students admitted to engineering programs under the lateral entry category shall have to undergo a mandatory 21INT49 Inter/Intra Institutional Internship of 03 weeks during the intervening period of III and IV semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the IV semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequently after satisfying the internship requirements. The faculty coordinator or mentor shall monitor the students' internship progress and interact with them for the successful completion of the internship.

Non-credit mandatory courses (NCMC):

(A)Additional Mathematics I and II:

(1)These courses are prescribed for III and IV semesters respectively to lateral entry Diploma holders admitted to III semester of B.E./B.Tech., programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

(2)Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

(3) Successful completion of the courses Additional Mathematics I and IIshall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics I and IIshall be indicated as Unsatisfactory.

(B) National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:

(1) Securing 40 % or more in CIE,35 % or more marks in SEE, nd 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.

(2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.

(3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks.

(4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.

(5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

	Ability Enhancement Course - III								
21CB381	Information Processing	21CB383	C++ Programming						
21CB382	Mastering Office	21CB384	Introduction to Web Development						

	Visvesvaraya Technological University, Belagavi											
	B. Tech in Computer Science and Business Systems (CSBS) Scheme of Teaching and Examinations 2021											
11/ 01		-Based Education(OBE) and Choice Based	sed Credit Syster	n (CBCS	5)(Effe	ective fr	om the	acader	nic yea	r 2021-2	2)	
IV SI	IV SEMESTER Teaching Hours / Week Examination											
SI. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
				L	т	Р	S					
1	BSC 21CB41	Discrete Mathematical Structures	TD- Maths PSB-Maths	3	0	0	-	03	50	50	100	3
2	IPCC 21CB42	Operating Systems	TD- CSE PSB- CSE	3	0	2	-	03	50	50	100	4
3	IPCC 21CB43	Design and Analysis of Algorithms	TD- CSE PSB- CSE	3	0	2	-	03	50	50	100	4
4	PCC 21CB44	Object Oriented Programming Concepts Using C++	TD- CSE PSB- CSE	3	0	0	-	03	50	50	100	3
5	AEC 21BE45	Biology For Engineers	BT, CHE, PHY	1	2	0	-	02	50	50	100	2
6	PCC 21CBL46	OOPS Laboratory	TD- CSE PSB- CSE	0	0	2	-	03	50	50	100	1
	HSMC 21KSK37/47	Samskrutika Kannada										
7	HSMC 21KBK37/47	Balake Kannada	HSMC	0	2	0	-	01	50	50	100	1
	OR											
	HSMC 21CIP37/47	Constitution of India & Professional Ethics										
	450		TD and PSB:	If offe	red as	theory 0	Course	01				
8	AEC 21CB48X	Ability Enhancement Course- IV	Concerned department	If off	If offered as lab. course 0 0 2 -		02	50	50	100	1	
9	UHV 21UH49	Universal Human Values	Any Department	0	2	0	-	01	50	50	100	1
10	INT 21INT49	Inter/Intra Institutional Internship	Evaluation By the appropriate authorities	Completed during the intervening period ofII and III semesters by students admitted to first year of BE./B.Tech and during the and IV semesters by Lateral entry students admitted to III semester.				100	2			
	6			••••••			office	Total	550	450	1000	22
	NCMC	urse prescribed to lateral entry Diplo				mester	OT ENG	neerin		ams		_
HSIV L –Le 21KS	1 21MATDIP41 Additional Mathematics - II Maths 02 02 100 100 0 Note: BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course, AEC –Ability Enhancement Courses, HSMC: Humanity and Social Science and Management Courses, UHV- Universal Human Value Courses. 100 100 0 21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and 21KBK37/47 Balake Kannada is for non-Kannada speaking,											
Inte can by C SEE	21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and 21KBK37/47 Balake Kannada is for non-Kannada speaking, reading, and writing students. ntegrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCCshall be included in the SEE question paper.For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech.) 2021-22 may be referred.											

Non – credit mandatory course (NCMC):

Additional Mathematics - II:

(1) Lateral entry Diploma holders admitted to III semester of B.E./B.Tech., shall attend the classes during the IV semester to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

(2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

(3) Successful completion of the course Additional Mathematics IIshall be indicated as satisfactory in the grade card. Non-completion of the courses. Additional Mathematics IIshall be indicated as Unsatisfactory.

Ability Enhancement Course - IV								
21CB481	Introduction to Computer Graphics and Animation	21CB483	Unix Shell and PHP Programming					
21CB482	Fundamentals of Economics	21CB484	R Programming					

Internship of 04 weeks during the intervening period of IV and V semesters; 21INT68Innovation/ Entrepreneurship/ Societal Internship.

(1)All the students shall have to undergo a mandatory internship of 04 weeks during the intervening period of IV and V semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the VI semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be considered under F (fail) grade and shall have to complete it subsequently after satisfying the internship requirements.

(2)Innovation/ Entrepreneurship Internshipshall be carried out at industry, State and Central Government /Non-government organizations (NGOs), micro, small and medium enterprises (MSME), Innovation centres, or Incubation centers etc. Innovation need not be a single major breakthrough; it can also be a series of small or incremental changes.Innovation of any kind can also happen outside of the business world.

Entrepreneurship internships offer a chance to gain hands-on experience in the world of entrepreneurship and help to learn what it takes to run a small entrepreneurial business by performing intern duties with an established company. This experience can then be applied to future business endeavors.Start-ups and small companies are a preferred places to learn the business tactics for future entrepreneurs as earning how a small business operates will serve the intern well when he/she manages his/her own company. Entrepreneurship acts as a catalyst to open minds to creativity and innovation.Entrepreneurship internships can be from several sectors, including technology, small and medium-sized sector, and the service sector.

(3) Societal or Social internship. Urbanization is increasing on a global scale; and yet, half the world's population still resides in rural areas and is devoid of many things that urban population enjoys. The rural internship is a work-based activity in which students will have a chance to solve/reduce the problems of the rural place for better living.

	Visvesvaraya Technological University, Belagavi B. Tech in Computer Science and Business Systems (CSBS)											
	Scheme of Teaching and Examinations 2021											
		-Based Education(OBE) and Choice	e Based Credit Sy	/stem (CBC	CS)(Effe	ective fr	om the	acaden	nic year	2021-2	2)	
V SEMESTER Teaching Hours / Week Examination												
SI. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)		Tutorial	Practical/	Self -Study	Duration in hours	CIE Marks	SEE Marks	Fotal Marks	Credits
			B a a	і 	т	Р	S	ā	Ū	SI	To	
1	BSC 21CB51	Software Engineering	TD- CSE PSB- CSE	2	2	0	-	03	50	50	100	3
2	IPCC 21CB52	Computer Networks	TD- CSE PSB- CSE	3	0	2	-	03	50	50	100	4
3	PCC 21CB53	Database Management Systems	TD- CSE PSB- CSE	3	0	0	-	03	50	50	100	3
4	PCC 21CB54	Business Communication and Value Science – II	TD- CSE PSB- CSE	3	0	0	-	03	50	50	100	3
5	PCC 21CBL55	Database Management Systems Laboratory	TD- CSE PSB- CSE	0	0	2	-	03	50	50	100	1
6	AEC 21CB56	Research Methodology & Intellectual Property Rights	TD: Any Department PSB: As identified by University	1	2	0	-	02	50	50	100	2
7	HSMC 21CIV57	Environmental Studies	TD: Civil/ Environmental /Chemistry/ Biotech. PSB: Civil Engg	0	2	0	-	1	50	50	100	1
0	AEC		Concerned	If offe 0	red as T 2	red as Theory courses		01	50	50		
8	21CB58X	Ability Enhancement Course-V	Board	If of	fered as	i lab. Cou	irses	02	50	50	100	1
				0	0	2	-					
			hility Enhancem	ont Cours	o \/			Total	400	400	800	18
210	B581 Softwa	A are Design and Design Thinking	bility Enhancem	21CB583	1	gular JS a	and Nod	e IS				
		cial Management		21CB585		Progra		C 33				
Inter L –Le	e: BSC: Basic Scier rnship, HSMC: H ecture, T – Tutoria	nce Course, PCC: Professional Core Co umanity and Social Science & Manage al, P- Practical/ Drawing, S – Self Study	urse, IPCC: Integra ment Courses. Component, CIE:	ited Profess Continuous	sional Co	ore Cour al Evalua	se, AEC -	E: Semes	ster End	Examina	ition.	

Integrated Professional Core Course (IPCC): refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech.) 2021-22 may be referred.

Visvesvaraya Technological University, Belagavi														
	B. Tech in Computer Science and Business Systems (CSBS)													
Scheme of Teaching and Examinations 2021														
	Ou	tcome	Based Education(OBE) and Choice	•					om the	acaden	nic vea	r 2021-	22)	
VI S	EMESTER					(//=				,		/	
						Teaching	Hours	/Week			Exami	nation		
SI. No	Course Course		Course Title	Teaching Department (TD) and Question	Paper setting Board (PSB)	Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
				ă		L	т	Р	S					
1	HSMC 21CB61		Management and Entrepreneurship for IT Industry	Any Department		2	2	0	-	03	50	50	100	3
2	IPCC 21CB62		Artificial Intelligence and Machine Learning with Python	TD- CSE PSB- CSE		3	0	2	-	03	50	50	100	4
3	PCC 21CB63		Business Strategy	TD- CSE PSB- CSE		3	0	0	-	03	50	50	100	3
4	PEC 21CB64x	(Professional Elective Course-I	TD- CSE PSB- CSE		3	0	0	-	03	50	50	100	3
5	OEC 21CB65x	(Open Elective Course-I	TD- CSE PSB- CSE		3	0	0	-	03	50	50	100	3
6	PCC 21CBL66	5	SOFTWARE DESIGN WITH UML LABORATORY	TD- CSE PSB- CSE		0	0	2	-	03	50	50	100	1
7	MP 21CBMP	67	Mini Project			Two con interacti faculty a	on bet	tween th			100		100	2
8	8 INT 21INT68		Innovation/Entrepreneurship /Societal Internship		Completed during the intervenir and V semesters.				of IV		100		100	3
	Total 500 300 800 22									22				
Professional Elective - I														
	B641		n Resource Management			B644	Expert System and Decision Support System Soft and Evolutionary Computing							
210	B642		luction to Innovation IP Management a preneurship	nd	210	B645								
21C	B643		tion Research		210	B646	Oper	ration M	anagem	ient				
			Open Electives – I offered	by the Dep	artm	ent to ot	her D	epartm	ent stu	dents				
21CI	B651	Introd Scienc	luction to Business Communication and	Value	210	B653	Intro	oduction	to Web	Technol	ogy			
21CI	B652	Introd	luction to Statistical Software (MATLAB	and SPSS)	210	B654	Prog	rammin	g in JAV	A				
			ty and Social Science & Management (Courses, O EC -Open Elective Course, M			-		nal Core	Course	e, PCC: P	rofessio	nal Core	e Course	e, PEC:
			al, P - Practical / Drawing, S – Self Study											
can by C Bach	Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech) 2021-22 may be referred.													
Professional Elective Courses(PEC):														
	A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology													
curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10.														
	However, this conditional shall not be applicable to cases where the admission to the program is less than 10.													
Stud How elec	Open Elective Courses: Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor. Selection of an open elective shall not be allowed if,													
	 (i) The candidate has studied the same course during the previous semesters of the program. (ii) The syllabus content of open electives is similar to that of the Departmental core courses or professional electives. (iii) A similar course, under any category, is prescribed in the higher semesters of the program. 													

In case, any college is desirous of offering a course (not included in the Open Elective List of the University) from streams such as Law, Business (MBA), Medicine, Arts, Commerce, etc., can seek permission, at least one month before the commencement of the semester, from the University by submitting a copy of the syllabus along with the details of expertise available to teach the same in the college.

The minimum students' strength for offering open electives is 10. However, this conditional shall not be applicable to cases where the admission to

the programme is less than 10.

Mini-project work: Mini Project is a laboratory-oriented course which will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications.

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates. No SEE component for Mini-Project.

VII semester Class work and Research Internship /Industry Internship (21INT82)

Swapping Facility

Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship after the VI semester.

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program. **Elucidation:**

At the beginning of IV years of the program i.e., after VI semester, VII semester classwork and VIII semester Research Internship /Industrial Internship shall be permitted to be operated simultaneously by the University so that students have ample opportunity for an internship. In other words, a good percentage of the class shall attend VII semester classwork and a similar percentage of others shall attend to Research Internship or Industrial Internship.

Research/Industrial Internship shall be carried out at an Industry, NGO, MSME, Innovation center, Incubation center, Start-up, center of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations/institutes.

The mandatory Research internship /Industry internship is for 24 weeks. The internship shall be considered as a head of passing and shall be considered for the award of a degree. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.

INT21INT82Research Internship/ Industry Internship/Rural Internship

Research internship: A research internship is intended to offer the flavor of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industryinternship: Isan extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

The faculty coordinator or mentor has to monitor the students' internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of internship.

Visvesvaraya Technological University, Belagavi B. Tech in Computer Science and Business Systems (CSBS)

Scheme of Teaching and Examinations 2021

Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)(Effective from the academic year 2021-22) Swappable VII and VIII SEMESTER

VII S	EMEST	ER	-								-				
					â		eachin	g Hours	/Week			Exam	ination		
SI. No			-	Course Title	Teaching Department (TD) and Question Paper Setting	Board (PSB)	l neory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
							L	Т	Р	S					
1	PCC 21CB	71		Business Intelligence and Data Analytics	TD- CSE PSB- CSE	:	3	0	0	-	3	50	50	100	3
2	PCC 21CB	72		Internet of Things	TD- CSE PSB- CSE	:	2	0	0	-	3	50	50	100	2
3	PEC 21CB	72X		Professional Elective Course-II	TD- CSE PSB- CSE	:	3	0	0	-	3	50	50	100	3
4	PEC 21CB	73X		Professional Elective Course-III	TD- CSE PSB- CSE	2		0	0	-	3	50	50	100	3
5	OEC 21CB	74X		Open Elective Course-II	TD- CSE PSB- CSE	:	3		0	-	3	50	50	100	3
6	-	Project Project work Two contact hours /week for interaction between the faculty and students.					the	3	100	100	200	10			
								Total	350	350	700	24			
VIII SEMESTER											·				
						Те	eachin	g Hours	/Week			Exam	ination		
SI. No			-	Course Title	Teaching Department	Theory	l neory Lecture	Tutorial	Practical/ Drawing Self-Study		Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
							L	т							
1	Semir 21XX			Technical Seminar			inter	action I	ntact hour /week for ction between the Ity and students.			100		100	01
2	INT 21INT	82		Research Internship/ Industry Internship			inter	action l	tact hours /week for ction between the Ity and students.			100	100	200	15
3		21N	S83	National Service Scheme (NSS)	NSS										
	NCMC	21PI	E83	Physical Education (PE) (Sports and Athletics)	PE	s	Completed during the intervening period of III semester to VIII semester.				50	50	100	0	
		21Y(D83	Yoga	Yoga								150		16
					Professiona	al Flecti	ive -	11			Tota	I 250	150	400	16
21C	B721		Marke	ting Management & Marketing Rese		21CB		1	erprise S	vstems					
	B722			and Mobile Application		21CB7			ud Comp						
	Development						-								
21C	21CB723 Dot net framework for Application Development 21CB726 Computational Fir							nal Fina	nce Moc	deling					
	Professional Elective - III														
21CB731 Usability Design of Software 21CB734 Behavioral Economics															
21CB732 Cryptography and Network Security 21CB735 Web and Cyber Security															
21CB733 Data Mining and Data Warehousing 21CB736 Block Chain Technology															
Open Electives - II Offered by the Department to other Department Students															
	21CB741 User Interface Design 21CB744 Introduction to Data Science														
21C	21CB742 Introduction to Cloud Computing														

21CB743	Programming in Python							
Note: PCC: Professional Core Course, PEC: Professional Elective Courses, OEC-Open Elective Course, AEC - Ability Enhancement Courses.								
L –Lecture, T	L –Lecture, T – Tutorial, P- Practical / Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.							
Note: VII and VIII semesters of IV year of the programme								
(1) Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship after								
the VI semester.								

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

PROJECT WORK (21XXP75): The objective of the Project work is

(i) To encourage independent learning and the innovative attitude of the students.

(ii) To develop interactive attitude, communication skills, organization, time management, and presentation skills.

(iii) To impart flexibility and adaptability.

(iv) To inspire team working.

(v) To expand intellectual capacity, credibility, judgment and intuition.

(vi) To adhere to punctuality, setting and meeting deadlines.

(vii) To install responsibilities to oneself and others.

(viii)To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

CIE procedure for Project Work:

(1) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work, shall be based on the evaluation of the project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(2) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

TECHNICAL SEMINAR (21XXS81): The objective of the seminar is to inculcate self-learning, present the seminar topic confidently, enhance communication skill, involve in group discussion for the exchange of ideas. Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the program of Specialization.

(i) Carry out a literature survey, and systematically organize the content. (ii) Prepare the report with your own sentences, avoiding a cut and paste act. (iii)Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities. (iv) Present the seminar topic orally and/or through PowerPoint slides. (v) Answer the queries and involve in debate/discussion. (vi) Submit a typed report with a list of references.

The participants shall take part in the discussion to foster a friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.

Evaluation Procedure:

The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session, and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior-most acting as the Chairman.

Marks distribution for CIE of the course:

Seminar Report:50 marks

Presentation skill:25 marks

Question and Answer: 25 marks. No SEE component for Technical Seminar

Non-credit mandatory courses (NCMC):

National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:

(1) Securing 40 % or more in CIE,35 % or more marks in SEE, and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.

(2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.

(3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequently to earn the qualifying CIE marks subject to the maximum program period.

(4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.

(5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of a degree.