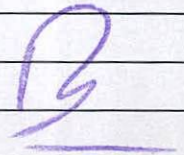


1.3.2 Number of courses that include experiential learning				
Program name	Program	Name of the Course that include experiential learning through project work/field	Course code	Name of the student studied course on experiential learning through project work/field work/internship
FOURTH YEAR				
Computer Science and Engineering	CSE	Artificial Intelligence and Machine Learning	18CS71	Intelligent System for intrusion of animals using convolutional neural network and IOT
Computer Science and Engineering	CSE	Big Data Analytics	18CS72	Radio resource allocation for 5G network using deep reinforcement learning
Computer Science and Engineering	CSE	User Interface Design	18CS734	Abnormal Event Detection And Signalling In Multiple Video Surveillance Scenes
Computer Science and Engineering	CSE	Cryptography	18CS744	Implementing virtual dressing room using deep neural network
Computer Science and Engineering	CSE	Artificial Intelligence and Machine Learning Laboratory	18CSL76	Medicine Vending machine using image processing.
Computer Science and Engineering	CSE	Project Work Phase-I	18CSP77	Rainfall prediction using various ML algorithms.
Computer Science and Engineering	CSE	Internet of Things	18CS81	Real time sign language recognition system for hearing and speech impaired people impaired using computer vision and deep learning
Computer Science and Engineering	CSE	Storage Area Networks	18CS822	Android obfuscated malware application detection using machine learning techniques.
Computer Science and Engineering	CSE	Internship/professional practice	18CSI85	Design and developing autonomous car using deep reinforcement learning.
Computer Science and Engineering	CSE	Project Work-II	18CSP83	Secure decentralised vehicle sharing system using blockchain
Computer Science and Engineering	CSE	Technical Seminar	18CSS84	Computer vision based traffic prediction and violation control.
Computer Science and Engineering	CSE			Analysing cryptocurrencypump and dump scams through social media
Computer Science and Engineering	CSE			ForensicEvidence managementusing blockchain technology
Computer Science and Engineering	CSE			Encoding Binary Data within a Digital image using Deep Steganography and Multilayered Neural Network
Computer Science and Engineering	CSE			Explore the Sky: Face Tracking and object detection for RPAS
Computer Science and Engineering	CSE			Visual question and answeringusingdeep learning
Computer Science and Engineering	CSE			Spotting pathogens on the plant leaf and furnishing remedies using CNN algorithm.
Computer Science and Engineering	CSE			Spam account predictor using Machine Learning
Computer Science and Engineering	CSE			Accident detection and avoidance using IOT
Computer Science and Engineering	CSE			IOT and ML approach in Hydroponic System
Computer Science and Engineering	CSE			Freshness Of Food Detection Using Iot Machine And ML
Computer Science and Engineering	CSE			IOT based smart cradle for baby monitoring system.
Computer Science and Engineering	CSE			Healthmonitoring system using IOT

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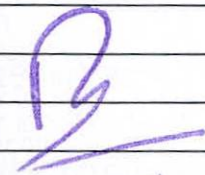
Computer Science and Engineering	CSE			ML and MLP to evaluate Subjective scripts
Computer Science and Engineering	CSE			IOTbasedtraffic management system for emergency vechiles
Computer Science and Engineering	CSE			Roboticsoldier assistance vehicle.
Computer Science and Engineering	CSE			Deep fake creation and identification using deep learning.
Computer Science and Engineering	CSE			Dconnect-Decentralized social media application
Computer Science and Engineering	CSE			Solar DRIVE-IN electric vehicle charging HUB
Computer Science and Engineering	CSE			Smart electoral voting system using face recognition
Computer Science and Engineering	CSE			Automatic pet feeder using IOT
Computer Science and Engineering	CSE			Deblur: Removing mild blur using Deep learning
Computer Science and Engineering	CSE			A Real-time fire detection using deep convolutional neural networks andlong short term memory in video surveillance
Computer Science and Engineering	CSE			Automated greenhouse and field cultivation monitoring system using IOT
Computer Science and Engineering	CSE			Electricity theft detection using machine learning
THIRD YEAR				
Computer Science and Engineering	CSE	Computer Nwteorks and Security	18CS52	GST billing app
Computer Science and Engineering	CSE	Databas Management System	18CS53	Mental Therapy app
Computer Science and Engineering	CSE	Automata Theory and Computability	18CS54	photo manager application
Computer Science and Engineering	CSE	Application Development using Python	18CS55	Meditation app
Computer Science and Engineering	CSE	Unix Programming	18CS56	Income tax and EMI calculator
Computer Science and Engineering	CSE	Computer Network Laboratory	18CSL57	Android Tetris Game
Computer Science and Engineering	CSE	DBMS Laboratory with mini project	18CSL58	Travel guide application
Computer Science and Engineering	CSE	System Software and compilers	18CS61	Hostel Management application
Computer Science and Engineering	CSE	Computer Graphics and Visualization	18CS62	Medicine remainder Android app
Computer Science and Engineering	CSE	Web Technology and its applications	18CS63	Android quiz app
Computer Science and Engineering	CSE	Cloud Computing and its Application	18CS643	Budget Manager
Computer Science and Engineering	CSE			E- commerce application
Computer Science and Engineering	CSE			Android Personal Safety App
Computer Science and Engineering	CSE			media player application

Computer Science and Engineering	CSE		Healthcare application
Computer Science and Engineering	CSE		News Application
Computer Science and Engineering	CSE		Online Grocery Store
Computer Science and Engineering	CSE		pincode validator
Computer Science and Engineering	CSE		Android Ludo Game
Computer Science and Engineering	CSE		Android Weather App
Computer Science and Engineering	CSE		Android Math Quiz App
Computer Science and Engineering	CSE		Ayurvedic Remedies Application
Computer Science and Engineering	CSE		Chat application
Computer Science and Engineering	CSE		Android location Alaram project
Computer Science and Engineering	CSE		Food waste mobile app designing
Computer Science and Engineering	CSE		Modern Unit Convertor
Computer Science and Engineering	CSE		Blood bank application
Computer Science and Engineering	CSE		Piano App in Android studio
Computer Science and Engineering	CSE		CAB / Car booking App
Computer Science and Engineering	CSE		food ordering android app
Computer Science and Engineering	CSE		Music Player Application
Computer Science and Engineering	CSE		Laundry Application Android app
Computer Science and Engineering	CSE		Train food Application
Computer Science and Engineering	CSE		integrate razorpay payment gateway
Computer Science and Engineering	CSE		WhatsApp clone app
Computer Science and Engineering	CSE		WOMEN SAFETY APPLICATION
Computer Science and Engineering	CSE		Android attendance app
Computer Science and Engineering	CSE		S M S management
Computer Science and Engineering	CSE		Meme creator application
Computer Science and Engineering	CSE		Text to Speech translation
Computer Science and Engineering	CSE		expense tracker application

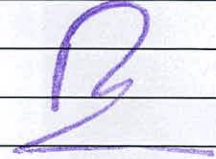


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Computer Science and Engineering	CSE		car emi loan calculator
Computer Science and Engineering	CSE		Ahaar App application
Computer Science and Engineering	CSE		Android Healthcare Application
Computer Science and Engineering	CSE		Courier service app
Computer Science and Engineering	CSE		Tic tac toe application
Computer Science and Engineering	CSE		Online Voting System
Computer Science and Engineering	CSE		Study Application with timer
Computer Science and Engineering	CSE		Story App
Computer Science and Engineering	CSE		Space shuttle game
Computer Science and Engineering	CSE		Music player application
Computer Science and Engineering	CSE		Messenger app
Computer Science and Engineering	CSE		Bag Pack Application
Computer Science and Engineering	CSE		COVID 19 tracker
Computer Science and Engineering	CSE		File application
Computer Science and Engineering	CSE		Lost and Found System
Computer Science and Engineering	CSE		Farming app
Computer Science and Engineering	CSE		Food delivery app
Computer Science and Engineering	CSE		Language learning application
Computer Science and Engineering	CSE		Song Recognition Application
Computer Science and Engineering	CSE		GPS Tracker
Computer Science and Engineering	CSE		Android Tetris Game
Computer Science and Engineering	CSE		Vacation Tour App
Computer Science and Engineering	CSE		weather app
Computer Science and Engineering	CSE		Bank account tracker
Computer Science and Engineering	CSE		Breakout Ball game
Computer Science and Engineering	CSE		memory game
SECOND YEAR			


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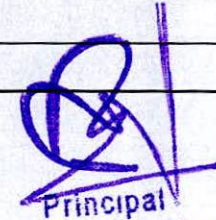
Computer Science and Engineering	CSE	Data Structures and Applications	21CS32	Chat Application
Computer Science and Engineering	CSE	Computer Organizations	21CS34	Library Management System
Computer Science and Engineering	CSE	Object Oriented Programming with JAVA Laboratory	21CS35	Simon Game Challenge
Computer Science and Engineering	CSE	Programming IN c++	21CS382	Audio Book
Computer Science and Engineering	CSE	Design and Analysis of Algorithm	21CS42	Splitter
Computer Science and Engineering	CSE	Microcontroller and Embedded System	21CS43	Student Data Management
Computer Science and Engineering	CSE	Operating Systems	21CS44	Sliding Puzzle Game
Computer Science and Engineering	CSE	Python Programming Laboratory	21CS46	Online Clothing Store
Computer Science and Engineering	CSE			Tic Tac Toe Game
Computer Science and Engineering	CSE			Choose Your Own Adventure Game
Computer Science and Engineering	CSE			Recipe Finder Application
Computer Science and Engineering	CSE			Atm Management System
Computer Science and Engineering	CSE			Resume Builder
Computer Science and Engineering	CSE			Batch Code Creator
Computer Science and Engineering	CSE			Movie Reviewer Website Using Js,Css, Html
Computer Science and Engineering	CSE			Daily Task Planner
Computer Science and Engineering	CSE			Event Management System
Computer Science and Engineering	CSE			Sorting Visualizer
Computer Science and Engineering	CSE			Stock Prediction Analysis Using Python And Machine Learning
Computer Science and Engineering	CSE			Emotion Music Recommendation System
Computer Science and Engineering	CSE			Flipping Tiles
Computer Science and Engineering	CSE			Gui Marksheet
Computer Science and Engineering	CSE			Ai Chatbot
Computer Science and Engineering	CSE			Face Recognition System
Computer Science and Engineering	CSE			Atm Machine
Computer Science and Engineering	CSE			Database Management Website
Computer Science and Engineering	CSE			Library Management System Ui Based


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Computer Science and Engineering	CSE			Unblocked Games Website
Computer Science and Engineering	CSE			Id Card Generator With Qr Code
Computer Science and Engineering	CSE			Project Approval System
Computer Science and Engineering	CSE			Ocr Application
FIRST YEAR				
Computer Science and Engineering	CSE	Mathematics for CSE Stream-I	BMATS101	Online CV
Computer Science and Engineering	CSE	Applied Physics for CSE Stream	BPHYS202	Lexical Analyzer (Using C)
Computer Science and Engineering	CSE	Principles of Programming Using C	BPOPS203	Python(Alarm Clock)
Computer Science and Engineering	CSE	Principles of Programming Using C	BPOPS203	Colour Detection
Computer Science and Engineering	CSE	Mathematics for CSE Stream-II	BMATS201	Fake Currency Detection
Computer Science and Engineering	CSE	Chemistry for CSE Stream	BCHES102	Currency Converter
Computer Science and Engineering	CSE	Computer-Aided Engineering Drawing	BCEDK103	Converting Image To Grayscale & Resizing Using Jupyter
Computer Science and Engineering	CSE	Basics of JAVA programming	BPLCK205C	Mini Voting System
Computer Science and Engineering	CSE			To-Do List Using [Html,Css,Js]
Computer Science and Engineering	CSE			Quiz Game Using C
Computer Science and Engineering	CSE			Detection Of Stress In It Employees
Computer Science and Engineering	CSE			Rolling A Dice
Computer Science and Engineering	CSE			Guess The Number
Computer Science and Engineering	CSE			Rock Paper Scissor And Tic Tac Toe
Computer Science and Engineering	CSE			Python Games
Computer Science and Engineering	CSE			Dice Game Using Python
Computer Science and Engineering	CSE			Student Management System
Computer Science and Engineering	CSE			Desktop Assistant
Computer Science and Engineering	CSE			Hangman Using Python
Computer Science and Engineering	CSE			Dynamic Traffic Handling In Cities
Computer Science and Engineering	CSE			Wordle(Word Game)
Computer Science and Engineering	CSE			Voice Assistant

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Computer Science and Engineering	CSE		Hangama Game Using Python
Computer Science and Engineering	CSE		Pasword Strength Checker
Computer Science and Engineering	CSE		Rock Paper Scissor Using Python



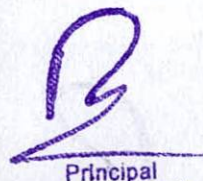
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Visvesvaraya Technological University, Belagavi													
Scheme of Teaching and examinations-2022													
Outcome-Based Education (OBE) and Choice Based Credit System (CBCS)													
(Effective from the academic year 2022-23)													
I Semester (CSE Stream) (Physics Group)													
Sl. No	Course and course code		Course title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	*ASC(IC)	BMATS101	Mathematics-I for CSE Stream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BPHYS102	Applied Physics for CSE stream	Physics	2	2	2	0	03	50	50	100	04
3	ESC	BPOPS103	Principles of Programming Using C	CSE	2	0	2	0	03	50	50	100	03
4	ESC-I	BESCK104x	Engineering Science Course-I	Respective Engg Dept	3	0	0	0	03	50	50	100	03
5	ETC-I	BETCK105x	Emerging Technology Course-I	Any Dept	3	0	0	0	03	50	50	100	03
	OR												
	PLC-I	BPLCK105x	Programming Languages Course-I		2	0	2	0	03				
6	AEC	BENGK106	Communicative English	Humanities	1	0	0	0	01	50	50	100	01
		OR											
		BPWSK106	Professional Writing Skills in English										
7	HSMC	BKSKK107 BKBBK107	Sanskrutika Kannada/ Balake Kannada	Humanities	1	0	0	0	01	50	50	100	01
		OR											
		BICOK107	Indian Constitution										
8	AEC/SDC	BIDTK158	Innovation and Design Thinking	Any Dept	1	0	0	0	02	50	50	100	01
		OR											
		BSFHK158	Scientific Foundations of Health		1	0	0	0	01				
TOTAL										400	400	800	20
SDA-Skill Development Activities, TD/PSB- Teaching Department / Paper Setting Board, ASC-Applied Science Course, ESC- Engineering Science Courses, ETC-													

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(ESC-I) Engineering Science Courses-I					(ETC-I) Emerging Technology Courses-I				
Code	Title	L	T	P	Code	Title	L	T	P
BESCK104A	Introduction to Civil Engineering	3	0	0	BETCK105A	Smart Materials and Systems	3	0	0
BESCK104B	Introduction to Electrical Engineering	3	0	0	BETCK105B	Green Buildings	3	0	0
BESCK104C	Introduction to Electronics Communication	3	0	0	BETCK105C	Introduction to Nano Technology	3	0	0
BESCK104D	Introduction to Mechanical Engineering	3	0	0	BETCK105D	Introduction to Sustainable Engineering	3	0	0
BESCK104E	Introduction to C Programming	2	0	2	BETCK105E	Renewable Energy Sources	3	0	0
					BETCK105F	Waste Management	3	0	0
					BETCK105G	Emerging Applications of Biosensors	3	0	0
					BETCK105H	Introduction to Internet of Things (IOT)	3	0	0
					BETCK105I	Introduction to Cyber Security	3	0	0
					BETCK105J	Introduction to Embedded System	3	0	0
(PLC-I) Programming Language Courses-I									
Code	Title	L	T	P					
BPLCK105A	Introduction to Web Programming	2	0	2					
BPLCK105B	Introduction to Python Programming	2	0	2					
BPLCK105C	Basics of JAVA programming	2	0	2					
BPLCK105D	Introduction to C++ Programming	2	0	2					
The course 22ESC145/245, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by ANY DEPARTMENT									

- The student has to select one course from the ESC-I group.
- CSE/ISE and allied branches Students shall opt for any one of the courses from the ESC-I group **except**, BESCK104E-**Introduction to C Programming**
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

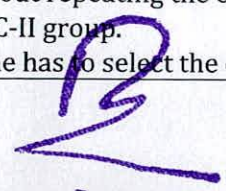


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29052023/V10 scheme for Computer Science and Engineering and allied branches (CSE/ISE and BT all allied branches of CSE)

(ESC-II) Engineering Science Courses-II					(ETC-II) Emerging Technology Courses-II				
Code	Title	L	T	P	Code	Title	L	T	P
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	0
					BETCK205F	Waste Management	3	0	0
					BETCK205G	Emerging Applications of Biosensors	3	0	0
					BETCK205H	Introduction to Internet of Things(IoT)	3	0	0
					BETCK205I	Introduction to Cyber Security	3	0	0
					BETCK205J	Introduction to Embedded System	3	0	0
(PLC-II) Programming Language Courses-II									
Code	Title	L	T	P					
BPLCK205A	Introduction to Web Programming	2	0	2					
BPLCK205B	Introduction to Python Programming	2	0	2					
BPLCK205C	Basics of JAVA programming	2	0	2					
BPLCK205D	Introduction to C++ Programming	2	0	2					
The course BESCK204E, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by ANY DEPARTMENT									

- The student has to select one course from the ESC-II group.
- CSE/ISE and allied branches Students shall opt for any one of the courses from the ESC-II group **except, BESCK204E-Introduction to C Programming**
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. in Computer Science and Engineering
Scheme of Teaching and Examinations 2021
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2021 - 22)

III SEMESTER												
Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question and Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	BSC 21MAT31	Transform Calculus, Fourier Series and Numerical Techniques	Maths	3	0	0		03	50	50	100	3
2	IPCC 21CS32	Data Structures and Applications	Any CS Board Department	3	0	2		03	50	50	100	4
3	IPCC 21CS33	Analog and Digital Electronics		3	0	2		03	50	50	100	4
4	PCC 21CS34	Computer Organization and Architecture		3	0	0		03	50	50	100	3
5	PCC 21CSL35	Object Oriented Programming with JAVA Laboratory		0	0	2		03	50	50	100	1
6	UHV 21UH36	Social Connect and Responsibility	Any Department	0	0	2		01	50	50	100	1
7	HSMC 21KSK37/47	Samskrutika Kannada	TD and PSB: HSMC	1	0	0		01	50	50	100	1
	HSMC 21KBK37/47	Balake Kannada										
	HSMC 21CIP37/47	Constitution of India and Professional Ethics										
8	AEC 21CS38X/21 CSL38X	Ability Enhancement Course - III	TD: Concerned department PSB: Concerned Board	If offered as Theory Course				01	50	50	100	1
				1	0	0						
				If offered as lab. course				02				
				0	0	2						
Total								400	400	800	18	

9	Scheduled activities for III to VIII semesters	NMDC 21NS83	National Service Scheme (NSS)	NSS	All students have to register for any one of the course namely National Service Scheme, Physical Education (PE)(Sports and Athletics) and Yoga with the concerned coordinator of the course during the first week of III semester. The activities shall be carried out from (for 5 semesters) between III semester to VIII semester. SEE in the above courses shall be conducted during VIII semester examinations and the accumulated CIE marks shall be added to the SEE marks. Successful completion of the registered course is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the colander prepared for the NSS, PE and Yoga activities.							
		NMDC 21PE83	Physical Education (PE)(Sports and Athletics)	PE								
		NMDC 21YO83	Yoga	Yoga								

Course prescribed to lateral entry Diploma holders admitted to III semester B.E./B.Tech programs

1	NCMC 21MATDIP31	Additional Mathematics - I	Maths	02	02	--	--	---	100	---	100	0
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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

21KSK37/47Samskrutika 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's 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 IPCC shall 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.

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

IV SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question and Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits				
				Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks					
				L	T	P	S									
1	BSC 21CS41	Mathematical Foundations for Computing	Maths	2	2	0		03	50	50	100	3				
2	IPCC 21CS42	Design and Analysis of Algorithms	Any CS Board Department	3	0	2		03	50	50	100	4				
3	IPCC 21CS43	Microcontroller and Embedded SystemS		3	0	2		03	50	50	100	4				
4	PCC 21CS44	Operating SystemS		2	2	0		03	50	50	100	3				
5	AEC 21BE45	Biology For Engineers	BT, CHE, PHY	2	0	0		02	50	50	100	2				
6	PCC 21CSL46	Python Programming Laboratory	Any CS Board Department	0	0	2		03	50	50	100	1				
7	HSMC 21KSK37/47	Samskrutika Kannada	HSMC	1	0	0		01	50	50	100	1				
	HSMC 21KBK37/47	Balake Kannada														
	OR															
	HSMC 21CIP37/47	Constitution of India & Professional Ethics														
8	AEC 21CS48X/21C SL48X	Ability Enhancement Course- IV	TD and PSB: Concerned department	If offered as theory Course				01	50	50	100	1				
				1	0	0		02								
				If offered as lab. course												
				0	0	2										
9	UHV 21UH49	UniversalHumanValues	Any Department	1	0	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 intervening period of III and IV semesters by Lateral entry students admitted to III semester.				3	100	--	100	2				
Total								550	450	1000	22					

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

1	NCMC 21MATDIP41	Additional Mathematics - II	Maths	02	02	--	--	--	100	--	100	0
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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.

L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

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's 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 practical part of IPCC shall 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

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI												
Scheme of Teaching and Examination 2018 – 19												
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)												
(Effective from the academic year 2018 – 19)												
V SEMESTER												
Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18CS51	Management, Entrepreneurship for IT idustry	HSMC	2	2	--	03	40	60	100	3
2	PCC	18CS52	Computer Networks and Security	CS / IS	3	2	--	03	40	60	100	4
3	PCC	18CS53	Database Management System	CS / IS	3	2	--	03	40	60	100	4
4	PCC	18CS54	Automata theory and Computability	CS / IS	3	--	--	03	40	60	100	3
5	PCC	18CS55	Application Development using Python	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CS56	Unix Programming	CS / IS	3	--	--	03	40	60	100	3
7	PCC	18CSL57	Computer Network Laboratory	CS / IS	--	2	2	03	40	60	100	2
8	PCC	18CSL58	DBMS Laboratory with mini project	CS / IS	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental	1	--	--	02	40	60	100	1
				[Paper setting: Civil Engineering Board]								
TOTAL					18	10	04	26	360	540	900	25
Note: PCC: Professional Core, HSMC: Humanity and Social Science.												
AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.												


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
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Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CS61	System Software and Compilers	CS / IS	3	2	--	03	40	60	100	4
2	PCC	18CS62	Computer Graphics and Visualization	CS / IS	3	2	--	03	40	60	100	4
3	PCC	18CS63	Web Technology and its applications	CS / IS	3	2	--	03	40	60	100	4
4	PEC	18CS64X	Professional Elective -1	CS / IS	3	--	--	03	40	60	100	3
5	OE	18CS65X	Open Elective –A	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CSL66	System Software Laboratory	CS / IS	--	2	2	03	40	60	100	2
7	PCC	18CSL67	Computer Graphics Laboratory with mini project	CS / IS	--	2	2	03	40	60	100	2
8	MP	18CSMP68	Mobile Application Development	CS / IS	--	--	2	03	40	60	100	2
9	INT	--	Internship	(To be carried out during the intervening vacations of VI and VII semesters)				--	--	--	--	--
TOTAL					15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project, INT: Internship.

Professional Elective -1

Course code under 18XX64X	Course Title
18CS641	Data Mining and Data Warehousing
18CS642	Object Oriented Modelling and Design
18CS643	Cloud Computing and its Applications
18CS644	Advanced JAVA and J2EE
18CS645	System Modelling and Simulation
Open Elective –A (Not for CSE / ISE Programs)	
18CS651	Mobile Application Development
18CS652	Introduction to Data Structures and Algorithms
18CS653	Programming in JAVA
18CS654	Introduction to Operating System

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS65X).

Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Adviser/Mentor.

Mini-project work: 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 senior faculty members of the Department, one of whom shall be 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 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 college. 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.

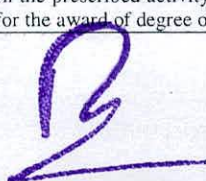
SEE for Mini-project:

(i) **Single discipline:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not takeup/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.


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(Effective from the academic year 2018 – 19)

VII SEMESTER

VII SEMESTER												
Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CS71	Artificial Intelligence and Machine Learning	CS / IS	4	--	--	03	40	60	100	4
2	PCC	18CS72	Big Data Analytics	CS / IS	4	--	--	03	40	60	100	4
3	PEC	18CS73X	Professional Elective – 2	CS / IS	3	--	--	03	40	60	100	3
4	PEC	18CS74X	Professional Elective – 3	CS / IS	3	--	--	03	40	60	100	3
5	OEC	18CS75X	Open Elective –B	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CSL76	Artificial Intelligence and Machine Learning Laboratory	CS / IS	--	--	2	03	40	60	100	2
7	Project	18CSP77	Project Work Phase – 1	CS / IS	--	--	2	--	100	--	100	1
8	INT	--	Internship	(If not completed during the vacation of VI and VII semesters, it has to be carried out during the intervening vacations of VII and VIII semesters)								
TOTAL					17	--	04	18	340	360	700	20

Note: PCC: Professional core, PEC: Professional Elective, OEC: Open Elective, INT: Internship.

Professional Elective - 2

Course code under 18CS73X	Course Title
18CS731	Software Architecture and Design Patterns
18CS732	High Performance Computing
18CS733	Advanced Computer Architecture
18CS734	User Interface Design

Professional Electives – 3

Course code under 18CS74X	Course Title
18CS741	Digital Image Processing
18CS742	Network management
18CS743	Natural Language Processing
18CS744	Cryptography
18CS745	Robotic Process Automation Design & Development

Open Elective –B (Not for CSE / ISE Programs)

Course code	Course Title
18CS751	Introduction to Big Data Analytics
18CS752	Python Application Programming
18CS753	Introduction to Artificial Intelligence
18CS754	Introduction to Dot Net framework for Application Development

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS75X).

Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Adviser/Mentor.

Project work: Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) **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 phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), 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.

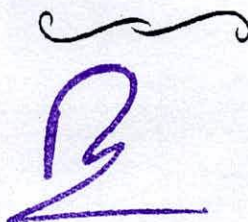
(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 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.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and/or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not takeup/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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(Effective from the academic year 2018 – 19)												
VIII SEMESTER												
Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CS81	Internet of Things	CS / IS	3	--	--	03	40	60	100	3
2	PEC	18CS82X	Professional Elective – 4	CS / IS	3	--	--	03	40	60	100	3
3	Project	18CSP83	Project Work Phase – 2	CS / IS	--	--	2	03	40	60	100	8
4	Seminar	18CSS84	Technical Seminar	CS / IS	--	--	2	03	100	--	100	1
5	INT	18CSI85	Internship	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
TOTAL					06	--	04	15	260	240	500	18
Note: PCC: Professional Core, PEC: Professional Elective, OEC: Open Elective, INT: Internship.												
Professional Electives – 4												
Course code under 18CS82X		Course Title										
18CS821		Mobile Computing										
18CS822		Storage Area Networks										
18CS823		NoSQL Database										
18CS824		Multicore Architecture and Programming										
Project Work CIE procedure for Project Work Phase - 2:												
(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.												
(ii) 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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:												
(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.												
(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.												
Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements												
AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card. Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).												



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