



# SRI SRINIVASA EDUCATIONAL AND CHARITABLE TRUST®

## SAPTHAGIRI COLLEGE OF ENGINEERING

(Affiliated to Visvesvaraya Technological University, Belagavi and Approved by AICTE, New Delhi)

(Accredited by NAAC with "A" grade) Accredited by NBA (CSE, ECE, EEE, ISE, ME)

(An ISO 9001:2015 & ISO 14001:2015 Certified)



Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Experiential learning details through project work/field work/internship
<b>FIRST YEAR</b>				
Information Science and Engineering	IS	Mathematics for CSE Stream-I	BMATS101	Bank management
Information Science and Engineering	IS	Applied Physics for CSE Stream	BPHYS202	Racing car game using C++
Information Science and Engineering	IS	Principles of Programming Using C	BPOPS203	Billing in restaurant
Information Science and Engineering	IS	Principles of Programming Using C	BPOPS203	ATM Machine using C Programming
Information Science and Engineering	IS	Mathematics for CSE Stream-II	BMATS201	Unit conversion using PYTHON
Information Science and Engineering	IS	Chemistry for CSE Stream	BCHES102	TIC TAC TOE game using Java
Information Science and Engineering	IS	Computer-Aided Engineering Drawing	BCEDK103	Touch Sensor
Information Science and Engineering	IS	Basics of JAVA programming	BPLCK205C	Event web page using HTML
Information Science and Engineering	IS			Online Voting System
Information Science and Engineering	IS			Hotel Management System
Information Science and Engineering	IS			The Snake game
Information Science and Engineering	IS			SnapZ Buy
Information Science and Engineering	IS			Smart Irrigation System using Arduino Uno
Information Science and Engineering	IS			Security System using IoT
Information Science and Engineering	IS			Voice assistant: Alexa
Information Science and Engineering	IS			Hangman Game
Information Science and Engineering	IS			Agroculture
Information Science and Engineering	IS			Water Level Detector
Information Science and Engineering	IS			Soil Moisture Detector
Information Science and Engineering	IS			Door Security Alarm System
Information Science and Engineering	IS			LED Distance Indicator
Information Science and Engineering	IS			Automatic Street light
<b>SECOND YEAR</b>				
Information Science and Engineering	IS	Data Structures and its Applications	IPCC 21CS32	Page Replacement
Information Science and Engineering	IS	Analog and Digital Electronics	IPCC 21CS33	AI Chat Bot
Information Science and Engineering	IS	Object Oriented Programming with JAVA Laboratory	PCC 21CSL35	Pre-Emptive Scheduling Algorithm
Information Science and Engineering	IS	Design and Analysis of Algorithms	IPCC 21CS42	Implementation Of Round Robin Algorithm
Information Science and Engineering	IS	Microcontroller and Embedded System	IPCC 21CS43	First Come First Serve
Information Science and Engineering	IS	Python Programming Laboratory	PCC 21CSL46	Page Replacement Algorithms In Operating System
Information Science and Engineering	IS			Project Approval System
Information Science and Engineering	IS			Banker's Algorithm
Information Science and Engineering	IS			Implementation Of The Banker's Algorithm For Avoiding Deadlocks - Safety State
Information Science and Engineering	IS			Dining Philosopher's Problem Using Java
Information Science and Engineering	IS			Kernel Communication
Information Science and Engineering	IS			Round Robin Algorithm
Information Science and Engineering	IS			Chat Room Using Sockets And Threads In Java
Information Science and Engineering	IS			Junk File Organising

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Information Science and Engineering	IS			Swap Space Management Using Python
Information Science and Engineering	IS			Round Robbin Algorithm
Information Science and Engineering	IS			Fcfs Algorithm Using Os
Information Science and Engineering	IS			Weather Report
Information Science and Engineering	IS			Cpu Scheduling Using Python
Information Science and Engineering	IS			Memory Allocation System
Information Science and Engineering	IS			Weather Report
Information Science and Engineering	IS			Cpu Scheduling Program
Information Science and Engineering	IS			Library Management System
Information Science and Engineering	IS			Fcfs Algorithm
Information Science and Engineering	IS			Virtual Memory Management For Page Replacement Using Gui
Information Science and Engineering	IS			Fcfs Algorithm Using Operating System.
Information Science and Engineering	IS			Process Scheduler Simulator
Information Science and Engineering	IS			Safety Banker's Algorithm For Deadlock Prevention
Information Science and Engineering	IS			File Management System
Information Science and Engineering	IS			Dining Philosopher's Problem Using Java Program
Information Science and Engineering	IS			Investment Calculator
Information Science and Engineering	IS			Banking Algorithm For Deadlock Prevention
Information Science and Engineering	IS			Image Generation
THIRD YEAR				
Information Science and Engineering	IS	Computer Network Laboratory	PCC 18CSL57	Online Food Ordering System
Information Science and Engineering	IS	DBMS Laboratory with mini project	PCC 18CSL58	Student Database Management System.
Information Science and Engineering	IS	Software Testing Laboratory	PCC 18ISL66	Online Banquet Booking System
Information Science and Engineering	IS	File Structures Laboratory with mini project	PCC 18ISL67	Law Firm Management System.
Information Science and Engineering	IS	Mobile Application Development	MP 18CSMP68	Pay Roll Management System
Information Science and Engineering	IS	Artificial Intelligence and Machine Learning Laboratory	PCC 18CSL76	Cruise Management.
Information Science and Engineering	IS			Hotel Management System
Information Science and Engineering	IS			Placement Management System
Information Science and Engineering	IS			Emergency Bed Management System
Information Science and Engineering	IS			movie Ticket Management System
Information Science and Engineering	IS			Cargo Management System
Information Science and Engineering	IS			Pet Shop Management System
Information Science and Engineering	IS			IFSC Code Finder Management System
Information Science and Engineering	IS			Income and Expense Management System
Information Science and Engineering	IS			Online Chocolate Management System
Information Science and Engineering	IS			Client Management System
Information Science and Engineering	IS			Dairy Farm Shop Management System
Information Science and Engineering	IS			Car Rental Management System
Information Science and Engineering	IS			Old Age Management System
Information Science and Engineering	IS			Car Wash Management System
Information Science and Engineering	IS			Employee leave Management System
Information Science and Engineering	IS			Bus Pass Management System
Information Science and Engineering	IS			Crime/ Complaint Report Management System
Information Science and Engineering	IS			Recruitment Management System
Information Science and Engineering	IS			Library Management System
Information Science and Engineering	IS			Party Hall Booking Management System
Information Science and Engineering	IS			ATM Management System

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Information Science and Engineering	IS		Crime Report Management System
Information Science and Engineering	IS		Crop Management System
Information Science and Engineering	IS		Stock Market Management System
Information Science and Engineering	IS		Fest System Management
Information Science and Engineering	IS		Healthcare Management System
Information Science and Engineering	IS		Travel agency Management System
Information Science and Engineering	IS		Apartment Visitor Base Management System
Information Science and Engineering	IS		IPL Database Management System
Information Science and Engineering	IS		E-Commerce Management System
Information Science and Engineering	IS		Book Store Management system
Information Science and Engineering	IS		Art Gallery Management System
Information Science and Engineering	IS		Badminton Court Management System
Information Science and Engineering	IS		Tourism Management System
Information Science and Engineering	IS		Men's Salon Management System
Information Science and Engineering	IS		Payment Gateway
Information Science and Engineering	IS		Online Course Registration
Information Science and Engineering	IS		Salon Management System
Information Science and Engineering	IS		Courier Management System
Information Science and Engineering	IS		Fitness Management System
Information Science and Engineering	IS		Electricity Bill Management System
Information Science and Engineering	IS		Project Submission System
Information Science and Engineering	IS		Curfew Pass Management System
Information Science and Engineering	IS		Farm irrigation Management System
Information Science and Engineering	IS		Online News Portal
Information Science and Engineering	IS		Amusement Park Management System
Information Science and Engineering	IS		Theme Park Management System
Information Science and Engineering	IS		Toll Tax Management System
Information Science and Engineering	IS		Online Birth Certificate
Information Science and Engineering	IS		Bakery Shop Management System
Information Science and Engineering	IS		Online Bank Management System
Information Science and Engineering	IS		Vehicle Parking Management System
<b>FINAL YEAR</b>			
Information Science and Engineering	IS	Artificial Intelligence and Machine Learning Laboratory	PCC 18CSL76
Information Science and Engineering	IS	Project Work Phase – 1	18CSP77
Information Science and Engineering	IS	Project Work Phase – 2	18CSP83
Information Science and Engineering	IS	Internship	18CSI85
Information Science and Engineering	IS		Brain hemorrhage detection in CT scans using deep learning and CNN
Information Science and Engineering	IS		Dyslexia detection using machine learning
Information Science and Engineering	IS		Forest fire and fire hawk response system using deep learning based approaches using Deep learning
Information Science and Engineering	IS		Real time emotion based music player using Deep learning
Information Science and Engineering	IS		Sign language recognition using machine learning
Information Science and Engineering	IS		Farmers assistant using AI voice BOT
Information Science and Engineering	IS		Stress detection in IT professional by image processing and machine learning
Information Science and Engineering	IS		Criminals and missing children identification using HAAR Cascade
Information Science and Engineering	IS		Potholes detection with driver assistance
Information Science and Engineering	IS		Smart facial recognition attendance system
Information Science and Engineering	IS		Image forgery detection using convolution neural networks.
Information Science and Engineering	IS		Malware Detection using Machine Learning
Information Science and Engineering	IS		Epileptic seizure detection using EEG signals
Information Science and Engineering	IS		Decentralized social network using block chain
Information Science and Engineering	IS		Ubiquitous monitoring based smart fish farming aquaculture system

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Information Science and Engineering	IS		Pharmaceutical supply chain management using block chain technology
Information Science and Engineering	IS		Livestock management with unmanned aerial vehicles
Information Science and Engineering	IS		Crop yield prediction based on Indian agriculture using machine learning
Information Science and Engineering	IS		Information security by biometric water marking using-AI&ML
Information Science and Engineering	IS		Self driving automobile for disabled people using machine learning
Information Science and Engineering	IS		YOLO G: - Detection of military targets and enhancing performances with light weighted network model
Information Science and Engineering	IS		Nano tree based charging system using IOT
Information Science and Engineering	IS		Smart wearable device for women safety using IOT
Information Science and Engineering	IS		Asthma risk prediction and inhaler monitoring using IOT
Information Science and Engineering	IS		Diabetic retinopathy clarification from retinal images
Information Science and Engineering	IS		Secure electronic medical record sharing using block chain technology
Information Science and Engineering	IS		Vehicle emissions and Traffic violation detection system using deep learning
Information Science and Engineering	IS		Charity and donation tracking system using block chain
Information Science and Engineering	IS		Intrusion Detection and prevention system with honey pot using cloud computing
Information Science and Engineering	IS		Dynamic cloud resource allocation considering demand uncertainty
Information Science and Engineering	IS		MyPass : A secured password manager
Information Science and Engineering	IS		False recruitment pasting prediction using ML
Information Science and Engineering	IS		Automated agrobot for smart farming using ubiquitous computing
Information Science and Engineering	IS		Emotion detection analysis using CNN algorithm
Information Science and Engineering	IS		Automatic smart voting system using HAAR cascade algorithm

H R Ranga

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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	
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 BKBKK107	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-													



Emerging Technology Course, <b>AEC</b> - Ability Enhancement Course, <b>HSMS</b> -Humanity and Social Science and management Course, <b>SDC</b> - Skill Development Course, <b>CIE</b> -Continuous Internal Evaluation, <b>SEE</b> - Semester End Examination, <b>IC</b> – Integrated Course (Theory Course Integrated with Practical Course)	
<b>Credit Definition:</b> 1-hour Lecture ( <b>L</b> ) per week= <b>1Credit</b> 2-hours Tutorial( <b>T</b> ) per week= <b>1Credit</b> 2-hours Practical / Drawing ( <b>P</b> ) per week= <b>1Credit</b> 2-hous Skill Development Actives ( <b>SDA</b> ) per week = <b>1 Credit</b>	04-Credits courses are to be designed for 50 hours of Teaching-Learning Session 04-Credits (IC) are to be designed for 40 hours' theory and 12-14 hours of practical sessions 03-Credits courses are to be designed for 40 hours of Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 12-15 hours of Teaching-Learning sessions
<b>Student's Induction Program:</b> Motivating (Inspiring) Activities under the Induction program – The main aim of the induction program is to provide newly admitted students a broad understanding of society, relationships, and values. Along with the knowledge and skill of his/her study, students' character needs to be nurtured as an essential quality by which he/she would understand and fulfill the responsibility as an engineer. The following activities are to be covered in 21 days. Physical Activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to Local areas, Familiarization with Department/Branch and Innovation, etc. For details, refer the ANNEXURE-I of Induction Programs notification of the University published at the beginning of the 1 <sup>st</sup> semester.	
<b>AICTE Activity Points</b> to be earned by students admitted to BE/ B.Tech., / B. Plan day college program (For more details refer to Chapter 6, AICTE Activity Point Program, Model Internship Guidelines): Over and above the academic grades, every regular student admitted to the 4 years Degree program and every student entering 4 years Degree programs through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Program. Students transferred from other Universities to the fifth semester are required to earn 50 Activity Points from the year of entry to VTU. The Activity Points earned shall be reflected on the student's eighth semester Grade Card. The activities can be spread over the years, any time during the semester weekends, and holidays, as per the liking and convenience of the student from the year of entry to the program. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression. In case students fail to earn the prescribed activity Points, an Eighth Semester Grade Card shall be issued only after earning the required activity points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.	
*- <b>BMATS101</b> Shall have the 03 hours of theory examination (SEE), however, practical sessions question shall be included in the theory question papers. ** <b>The mathematics subject should be taught by a single faculty member per division, with no sharing of the course(subject)module-wise by different faculty members.</b> #- <b>BPHYS102</b> SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination <b>ESC or ETC of 03 credits Courses</b> shall have only a theory component (L:T :P:S=3:0:0:0) or if the nature then, of course, required practical learning syllabus shall be designed as an <b>Integrated course (L:T:P:S= 2:0:2:0 )</b> . <b>All 01 Credit-</b> courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ	


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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 1<sup>st</sup> or 2<sup>nd</sup> semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> 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)

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)														
II Semester (CSE Stream)				(For students attended 1 <sup>st</sup> semester under 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)	BMATS201	Mathematics-II for CSE Stream	Maths	2	2	2	0	03	50	50	100	04	
2	#ASC(IC)	BCHE202	Applied Chemistry for CSE Stream	Chemistry	2	2	2	0	03	50	50	100	04	
3	ESC	BCEDK203	Computer-Aided Engineering Drawing	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	03	
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg. Dept	3	0	0	0	03	50	50	100	03	
5	PLC-II	BETCK205x	Programming Language Course-II	Any Dept	2	00	2	0	03	50	50	100	03	
	OR													
	ETC-II	BPLCK205x	Emerging Technology Course-II		3	0	0	0	03					
6	AEC	BPWSK206	Professional Writing Skills in English	Humanities	1	0	0	0	01	50	50	100	01	
			OR											
		BENGK206	Communicative English											
7	HSMS	BICOK207	Indian Constitution	Humanities	1	0	0	0	01	50	50	100	01	
		OR												
		BKSKK207/ BKBKK207	Sanskritika Kannada/ Balake Kannada		1	0	0	0						
8	HSMS	BSFHK258	Scientific Foundations of Health	Any Dept	1	0	0	0	01	50	50	100	01	
			OR											
		KIDTK258	Innovation and Design Thinking		1	0	0	0	01					
TOTAL										400	400	800	20	

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


**SDA**-Skill Development Activities, **TD/PSB**- Teaching Department / Paper Setting Board, **ASC**-Applied Science Course, **ESC**- Engineering Science Courses, **ETC**- Emerging Technology Course, **AEC**- Ability Enhancement Course, **HSMS**-Humanity and Social Science and management Course, **SDC**- Skill Development Course, **CIE**-Continuous Internal Evaluation, **SEE**- Semester End Examination, **IC** - Integrated Course (Theory Course Integrated with Practical Course)

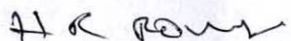
**\*- BMATS201** Shall have the 03 hours of theory examination(SEE), however, practical sessions question shall be included in the theory question papers. **\*\* The mathematics subject should be taught by a single faculty member per division, with no sharing of the course(subject)module-wise by different faculty members.**

**#- BCHES202**- SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination

**ESC or ETC of 03 credits Courses** shall have only a theory component (L:T :P:S=3:0:0:0) or if the nature the of course required experimental learning syllabus shall be designed as an Integrated course (L:T:P:S= 2:0:2:0 ),

**All 01 Credit-** courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ

  
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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**, BESCK245E-Introduction to C Programming
- The students have to opt for the courses from ESC group without repeating the course in either 1<sup>st</sup> or 2<sup>nd</sup> semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> semester and vice-versa

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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**B.E. in Information 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 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	1		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										
	OR											
	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

**21KSK37/47** 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 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

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**21INT49 Inter/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 has 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 II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics I and II shall 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 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 subsequent semester/s to earn the qualifying CIE marks.

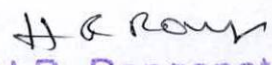
(4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.

(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**

21CSL381	Mastering Office	21CS383	
21CS382	C++ Programming	21CS384	

  
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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**B.E. in Information 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)**

**IV SEMESTER**

IV SEMESTER												
Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question 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 System		3	0	2		03	50	50	100	4
4	PCC 21CS44	Operating System		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/21CS48LX	Ability Enhancement Course- IV	TD and PSB: Concerned department	If offered as theory Course				01	50	50	100	1
				1	0	0						
				If offered as lab. course				02				
				0	0	2						
9	UHV 21UH49	Universal Human Values	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 of II 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.

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**Non – credit mandatory course (NMC):****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 fulfil the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and has 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 II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics II shall be indicated as Unsatisfactory.

**Ability Enhancement Course - IV**

21CSL481	Web Programming	21CSL483	R Programming
21CS482	Unix Shell Programming	21CS484	

**Internship of 04 weeks during the intervening period of IV and V semesters; 21INT68 Innovation/ Entrepreneurship/ Societal based 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 during subsequently after satisfying the internship requirements.

(2) Innovation/ Entrepreneurship Internship shall be carried out at industry, State and Central Government /Non-government organizations (NGOs), small and medium enterprise (MSME), Innovation centers or Incubation centers. 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 offers a chance to gain hands on experience in the world of entrepreneurship and helps 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 endeavours. Start-ups and small companies are a preferred place to learn the business ticks for future entrepreneurs as learning 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 the minds to creativity and innovation. Entrepreneurship internship can be from several sectors, including technology, small and medium-sized, 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 enjoy. 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.

As proposed under the AICTE rural internship programme, activities under Societal or social internship, particularly in rural areas, shall be considered for 40 points under AICTE activity point programme.



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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**Scheme of Teaching and Examination 2018 – 19**  
**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**  
**(Effective from the academic year 2018 – 19)**

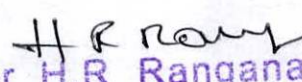
**V SEMESTER**

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 Industry	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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**VI SEMESTER**

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	18IS61	File Structures	CS / IS	3	2	--	03	40	60	100	4
2	PCC	18IS62	Software Testing	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	OEC	18CS65X	Open Elective –A	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18ISL66	Software Testing Laboratory	CS / IS	--	2	2	03	40	60	100	2
7	PCC	18ISL67	File Structures 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
18IS645	Information Management System
<b>Open Elective –A (Not for CSE / ISE Programs)</b>	
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:**

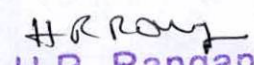
(i) **Single discipline:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(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 belong 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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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**Scheme of Teaching and Examination 2018 – 19**  
**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**  
**(Effective from the academic year 2018 – 19)**

**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 Architectures
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)**

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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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**Scheme of Teaching and Examination 2018 – 19**  
**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**  
**(Effective from the academic year 2018 – 19)**

**VIII 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	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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