# 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)

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7 °	రీ <u>శ్రీ</u>	Course and	Course Title	Teaching nominged	Paper Settin based	Theory	Initial	Practical/ gaiward	ni nohrani sanod	eduals 31	obalé 33	estudd bist	stibasO
					Principles of	7	+	4	d	)	8	u	H
	BSC	ISMATH	Calculus and Linear Algebra	Mathematics	Mathematics	4	r)	1	(03	7	99	100	#
	BSC	SCHE12	Engitisering Chemistry	Chemistry	Chemistry	*	+)	1	10	40	00	100	7
	ISC	18CPS13	C Programming for Problem Solving	Computer Science and Engineering	Computer Science and Engineering	Ç1	(e)	1	69	9	8	8	· · · · · ·
	ESC	18ELN14	Basic Electronics	ECE E and I/	E and C Engineering	2	64	12	63	40	09	100	rej
	ESC	18ME15	Elements of Mechanical Engineering	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	Ci .	rı	- (	63	40	09	100	Hr.
	BSC	18CHEL16	Engineering Chemistry Laboratory	Chemistry	Chemistry	1	1	ri	(13	40	09	100	-
	ESC	18CPL17	C Programming Laboratory	Computer Science and Engineering	Computer Science and Engineering	1	1	in)	0.3	95	99	901	-
	HSMC	18EGH18	Technical English 1	Humanities	Humanities	1	e,	77	63	- 40	- 60	001	-
					TOTAL	12	12	70	71	320	480	800	20
	er BSC: Bax	ic Science Cour	Note: BSC: Basic Science Courses, ESC: Engineering Science Courses, HSMC: Humanity, Social Science and Management Courses,	ence Courses, IIS	SMC: Humanity, S.	octal Sc	icace :	and Mai	agemen	ar Cour	ses.		
	Definition of Coodie	Thou	Thour Lecture (L) per week per semester =1 Credit 2 hour Domind (T) are used, are semester =1 Credit	semester =1 Cred	14								

Sapthagiri College of Englneewing Chikktasandra, Hesaraghatta Road, Bangalore-560 057

Principal

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

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II SEMESTER B.E./B.Tech (PHYSICS GROUP)	b	nitte2 sequ¶ brandl		Mathematics	Physics	F md F Engineering	Civil Engineering	Mechanical Engineering	Physics	E and E Engineering	Humanities	TOTAL
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HSEMES		Course Title		Advanced Calculus and Numerical Methods	Engineering Physics	Basa, Licotrical Engineering	Elements of Civil Engineering and Mechanics	Engineering Graphics	Engineering Physics Laboratory	Basic Electrical Engineering Enforatory	Technical English-11	
		Course and		18MA121	IMPHY22	ISELE23	18CIV24	18EGDL25	18PHYL26	ISELEL27	ISCHIES	
September 1		Ĉ.		BSC	BSC	ESC	ESC	ESC	BSC	ESC	HSMC	
		7 ° °		-	1	-	19	wi	¢	ь	×	

Note: BNC: Basic Science Courses, ESC: Engineering Science Courses, HSMC: Humanity, Social Science and Management Courses.

| hour Lecture (L) per week per semester = 1 Credit
| hour Tutorial (T) per week per semester = 1 Credit
| 2 hour Practical/Laboratory Deaving (P) per week per semester = 1 Credit

Santhagiri College of Engineering Cnikkasandra, Hesaraghatta Road, Bangalore-560 057 Principal

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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)

Programme: CIVIL ENGINEERING

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	Tessching Department		Mathematics	Civil Engg.	Civil Engg.	Civil Engg.	Civil Engg.	Geology	Civil Engg.	Civil Engg.			HSMC	- Switter				TOTAL	
	Course Title		Transform Calculus, Fourier Series and Numerical Techniques	Strength of Materials	Fluid Mechanics	Building Materials and Construction	Basic Surveying	Engineering Geology	Computer Aided Building Planning & Drawing	Building Materials Testing Laboratory	Vyavaharika Kannada (Kannada for communication)/	OR	Aadalitha Kannada (Kannada for Administration)	OR	Constitution of India Professional Ethics and Cohar Law	Constitution of treated a rote solonial Edition and Cytos Law			
	Course and		18MAT31	18CV32	18CV33	18CV34	18CV35	18CV36	18CVL37	18CVL38	18KVK39		18KAK39		TRCPC30	100			
	<b>ర</b> ్రే		BSC	PCC	PCC	PCC	PCC	PCC	PCC	PCC			HSMC						
	3f. No		1	2	33	4	5	9	1	~			6						

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada for Administration) is for students who speak, read and write Kannada.

100 99 Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs 03 02 Mathematics Additional Mathematics - I NCMC 18MATDIP31

shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for (a) The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted, to III semester of BE/B. Tech programs,

Sapthagizi College of Engineering Chikksandra, Hesaraghatta Road, Bangalore-560 057

## 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)

Programme: CIVIL ENGINEERING

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Teachin	Тьеэгу	T.	5	3	6	3	3	ec.	1	1		1			1	E	1.1	OR	10
	gnidensT Insm#raqsG		Mathematics	Civil Engg.	Civil Engg.	Civil Engg.	Civil Engg.	Civil Engg.	Geology	Civil Engg.			HSMC	241124			TOTAL		
	Course Title		Complex Analysis, Probability And Statistical Methods	Analysis of Determinate Structures	Applied Hydraulies	Concrete Technology	Advanced Surveying	Water Supply & Treatment Engineering	Engineering Geology Laboratory	Fluid Mechanics and Hydraulic Machines Laboratory	Vyavaharika Kannada (Kannada for Communication)/	OR	Aadalitha Kannada (Kannada for Administration)	OR		Constitution of India, Professional Ethics and Cyoci Law			
	Course and Course code		18MAT41	18CV42	18CV43	18CV44	18CV45	18CV46	18CVL47	18CVL48	18KVK39/49		18KAK39/49		03/01/01/01	18CPC39/49			
	υg		BSC	PCC	PCC	PCC	PCC	PCC	PCC	PCC			HSMC	Carrier and Carrie					
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Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39/49Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39/49Aadalitha Kannada for Administration) is for students who speak, read and write Kannada.

NCMC   ISMATDIP41   Additional Mathematics - II   Mathematics   02   01     03   40   60   100   0   0   (a)The mandatory non - credit courses Additional Mathematics 1 and 11 proscribed for III and IV semesters respectively, to the lateral entry Diploma holders admined to III semester for the said programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed UIE marks, he/she shall be deemed to have secured F grade. In such a case, the students have to fulfill the requirements during subsequent			0	Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs	ers admitted to III	semester	of Engin	eering pr	ograms				
(a)The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the Taueral entry Diploma holders admined to programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any studen course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured F grade. In such a case, the students have to fulfill the requirement.	01	NCMC	18MATDIP41	Additional Mathematics - II	Mathematics	0.5	10		03	40	09	100	0
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Sapthagiri College of Engineering Childensandra, Hesaraghatta Road, Bangalore-560 057

### 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)

Programme: CIVIL ENGINEERING

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	guidsesT InsmragaG			Civil Engg.	Civil Engg.	Civil Engg. Civil Engg.	Civil Engg. Civil Engg. Civil Engg. Civil Engg.	Civil Engg. Civil Engg. Civil Engg. Civil Engg. Civil Engg.	Civil Engg. Civil Engg. Civil Engg. Civil Engg. Civil Engg. Civil Engg.	Civil Engg.	Civil Engg.	Civil Engg.	Civil Engg.
	Course Title			Construction Management & Entrepreneurship	Construction Management & Entreprencurship Analysis of Indeterminate Structures	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering Municipal Wastewater Engineering	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering Municipal Wastewater Engineering Highway Engineering	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering Municipal Wastewater Engineering Highway Engineering Surveying Practice	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering Municipal Wastewater Engineering Highway Engineering Surveying Practice Concrete and Highway Materials Laboratory	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering Municipal Wastewater Engineering Highway Engineering Surveying Practice Concrete and Highway Materials Laboratory	Construction Management & Entrepreneurship Analysis of Indeterminate Structures Design of RC Structural Elements Basic Geotechnical Engineering Municipal Wastewater Engineering Highway Engineering Surveying Practice Concrete and Highway Materials Laboratory Environmental Studies
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Course and	Course code			18CV51 Con						25	12.00	88	8 6
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	% Si		-		2	2	3 4	2 6 4 8	5 4 4 3 2	2 6 4 8 9 5	2 6 4 5 9 5 8	2 6 4 6 9 5 8	21 K 4 K 9 L X 6

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, BE Scheme of Teaching and Examination 2018 – 19 Outcome Based Education(OBE) and Choice Based Credit Sys (Effective from the academic year 2018 – 19)	TECHNOLOGICAL UNIVERSITY, BELAGAVI of Teaching and Examination 2018 – 19 tion(OBE) and Choice Based Credit System (CB tive from the academic year 2018 – 19)	UNIVED nination Based (	RSITY, F 2018 – 1 Credit S 118 – 19)	BELAGAVI -19 System (CBCS)	VI BCS)				
Progr	amme: CIV	Programme: CIVIL ENGINEERING										
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					7	1	Ь	1	)	S	L	
-	PCC	18CV61	Design of Steel Structural Elements	Civil Engg.	33	2	.1	03	40	09	100	4
2	PCC	18CV62	Applied Geotechnical Engineering	Civil Engg.	33	2	4	.03	40	09	100	4
m	PCC	18CV63	Hydrology and Irrigation Engineering	Civil Engg.	3	2	1	03	40	09	100	4
4	PEC	18CV64X	Professional Elective -1	Civil Engg.	m		1	63	40	09	100	m
'n	OEC	18CV65X	Open Elective -A	Civil Engg.	3	1	1	03	40	09	100	m
9	PCC	18CVL66	Software Application Laboratory	Civil Engg.	-	CI	cı	03	40	09	100	2
7	PCC	18CVL67	Environmental Engineering Laboratory	Civil Engg.		2	7	03	40	09	100	2
00	EP	18CVEP68	Extensive Survey project	Civil Engg.	,	2	2	03	40	09	100	2
6	Internship	1	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters	out during th	he vacation	vs of VI and	VII semes	sters and	/or VII	and VIII	semesters.
				TOTAL	15	12	90	24	320	480	800	24
Note: P	CC: Profession	onal core, PEC	Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.	MP: Mini-project								
			Pr	Professional Elective -1	e-1							
Cou	Course code											
18	18CV641	Matrix Metho	Matrix Method of Structural Analysis		100						0.00	
18	18CV642	Solid Waste	Solid Waste Management									
18	18CV643	Alternate Bu	Alternate Building Materials									
18	18CV644	Ground Impr	Ground Improvement Techniques									
18	18CV645	Railway, Har	Railway, Harbours, Tunnelling & Airports									
				Open Elective -A								
Cou	Course code									H		(
18	18CV651	Remote Sensing & GIS	sing & GIS									
18	18CV652	Traffic Engineering	necring									1
18	18CV653	Occupational	Occupational Health & Safety									5

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18CV654 Sustainability Concepts in Civil Engineering

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X)

Selection of an open elective shall not be allowed if,

- 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 the 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/ Advisor/Mentor.

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 take-up/complete the internship shall be declared fail and shall have to complete during subsequent University 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 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. Sauthagiri Poffego of Engineering Childesandra, Hesaraghatta Road, Bangalore-550 057

Programme: CIVIL ENGINEERING	TVIL ENGI	INEERING									
THE SEMISORY	N.			Teachi	Teaching Hours /Week	Week		Exai	Examination		
St. No	Course and Course code	Course Title	Teaching Insumment	Theory	InirotuT	Practical/ gniwand	ni noiterné eruod	Sarks Marks	EE Marks	сац Магкс	Credits
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: DOI I	18CV71	Quality Surveying and Contract Management	Civil Engg.	en	ı	1	03	40	09	100	m
2 PCC	18CV72		Civil Engg.	3	-		03	40	- 09	100	3
3 PEC	18CV73X		Civil Engg.	m	i	1	03	40	09	100	65
4 PEC	18CV74X	X Professional Elective - 3	Civil Engg.	6.5	:	1	0.3	40	09	100	m
5 OEC	18CV75X	X Open Elective -B	Civil Engg.	10			03	40	- 60	100	en
DOG 9	18CVL76	6 Computer Aided Detailing of Structures	Civil Engg.	1	2	2	03	40	09	100	2
7 PCC	18CVL77		Civil Engg.	1	2	2	03	40	09	100	2
8 Project	18CVP78	8 Project Work Phase - 1		-	;	2	1	100	1	100	-
9 Internship	- di	Internship	(If not completed during the vacation vacation of VII and VIII semesters)	ed during t and VIII se	he vacation mesters)	of VI	and VII ser	VII semesters, it	shall be	carried out d	during the
			TOTAL	15	04	90	21	380	420	00	20
Note: PCC: Profess	ional core, PEC	Note: PCC: Professional core, PEC: Professional Elective.									
			Professional Elective	e-2							
Course code under 18CV73X	r 18CV73X	Course Title			THE REAL PROPERTY.					1000	
18CV731	The state of the s	Theory of Elasticity									
18CV732		Air Pollution and Control									
18CV733		Pavement Materials & Construction					271111111111111111111111111111111111111				
18CV734		Ground Water Hydraulies									
18CV735		Masonry Structures									
		Prot	Professional Electives	5-3				1			
Course code under 18CV74X	r 18CV74X	Course Title						>			
18CV741		Earthquake Engineering						/	4	)	
18CV742		Design Concepts of Building Services						7	1		
18CV743		Reinforced Earth Structures				T		1	1		

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18CV744	Design of Hydraulic Structures
18CV745	Urban Transport Planning
	Open Elective -B
Course code under 18CV75X	Course Title
18CV751	Finite Element Method
18CV752	Numerical Methods and Applications
18CV753	Environmental Protection and Management

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X)

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semi-sters of the programme.
- The syllabus content of open elective is similar to that of the 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, Advisor/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:

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 (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

(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 guides, if any, is 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.

desirable.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and 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 take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination 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 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. 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,

Sapthagiri College of Engineering shiktasandra, Hesaraghatta Read. Bangalore-560 057

## 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)

Programme: CIVIL ENGINEERING

Programme; CIVIL ENGI VIII SEMESTER

	Credits		3	60	00		m	8
			0				0	
ш	sank late	1.	100	100	100	100	100	200
Examination	sarah 333	s	09	09	09	:	09	240
E)	SHARIN 31.	)	40	40	40	001	40	260
	ni noiteruC eruod	1	03	03	0.3	03	03	15
Week	Practical/ gniward	2	1	1	91	2	and VII ers.)	18
Teaching Hours /Week	IsinotuT	-	1	1	:	ŀ	1/s of VI semeste	1
Teachir	Theory Lecture	1	3	en			g the vacation/s of VI and VII VII and VIII semesters.)	90
	guidaraT tuamtarqaQ		Civil Enge.	Civil Engg	Civil Engg.	Civil Enge.	Completed during t semesters and /or V	TOTAL
	Course Title		Design of Pre-stressed Concrete	Professional Elective - 4	Project Work Phase - 2	Technical Seminar	Internship	
	Course and Course code	The second second	18CV81	18CV82X	18CVP83	18CVS84	18CV185	
	ŏ 8		PCC	PEC	Project	Seminar	Internship	
	SI. No			2	3	4	9	

Note: PCC: Professional Core, PEC: Professional Elective,

and the second s	TIMESSIMIAL ERCHINGS - 4
Course code under 18CV82X	Course Title
18CV821	Bridge Engineering
18CV822	Prefabricated Structures
18CV823	Advanced Foundation Engineering
18CV824	Rehabilitation & Retrofitting
18CV825	Payament Design

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 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 guides, 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:

Sapinagiri Collega of Enriceering Childranandra, Hesaraghana Road, Bangalure-560 057

Scheme of Teaching and Examination 2018 – 19
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

1113	EMESTE		NO DESTRUCTION OF THE PARTY OF		Teaching	Hours /	Week		Exami	nation		
SI. No		irse and rse Code	Course Title	Teaching	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
	W. Link				L	T	P	-	~			
1	BSC	18MAT31	Transform Calculus, Fourier Series And Numerical Techniques	Mathematics	- 2	2		03	40	60	100	3
2	PCC	18CS32	Data Structures and Applications	CS/IS	3	2	**	03	40	60	100	4
3	PCC	18CS33	Analog and Digital Electronics	CS / IS	3	-0		03	40	60	100	3
4	PCC	18CS34	Computer Organization	CS / IS	3	-0	94	03	40	60	100	3
5	PCC	18CS35	Software Engineering	CS/IS	3	0		03	40	.60	100	3
6	PCC	18CS36	Discrete Mathematical Structures	CS / IS	3	0	9-9	03	40	60	100	3
7	PCC	18CSL37	Arabg and Digital Electronics Laboratory	CS/IS		2	2.	03	40	60	100	2
8	PCC	18CSL38	Deta Structures Laboratory	CS/IS		2	2	03	40	60	100	2
Ì		18KVK39	Vrareharika Kannada (Kannada for communication)/		1	2	22		100			
9	HSMC	18KAK39	A_dalitha Kannada (Kannada for Adn inistration)	HSMC							100	1
	100000000000000000000000000000000000000	OR OR			100					23.77		
		(ecpcan	Canatitution of India, Professional		1	100		02	40	60		
	HHIDI	18CPC39	Ethizs and Cyber Law				is by obj		pe ques			
115	THE				17	08		24	420	480		
				TOTAL	OR	OR	04	OR	OR	OR	900	24
					18	10		26	360	540		

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course

18KVK39 Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha
Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

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

10 NCMC | 18MATDIP31 | Additional Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0

(a) The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree

Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs

Lateral entrant students from B.Sc. Stream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

AICTE Activity Points to be earned by students admitted to BE/B.Tech/B. Plan day college programme (For more details refer to Chapter 6,AICTE Activity Point Programme, Model Internship Guidelines): Over and above the academic grades, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Programme. Students transferred from other Universities to 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 can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, minimum hours' requirement should be fulfilled. Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression. In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after parning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Principal
Principal
Sapthagiri College of Engineering
Chilessandra, Hesaraghatta Road.
Bangalore-560 057

### 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)

	EMESTEI				Teaching	Hours /	Week		Exami	nation		
Sl. No		arse and rse Code	Course Title	Teaching	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
	TEST!				L	т	P	_	ŭ			
1	BSC	18MAT41	Cemplex Analysis, Probability and Statistical Methods	Mathematics	2	2		03	40	60	100	2
2	PCC	18CS42	Design and Analysis of Algorithms	CS / IS	3	2	-	03	4C	60	100	4
3	PCC	18CS43	Operating Systems	CS/IS	3	0	**	03	40	60	100	3
4	PCC	18SC44	M crocontroller and Embedded Systems	CS/IS	3	0	- 5	03	40	60	100	3
5	PCC	18CS45	Object Oriented Concepts	CS/IS	3	0		0.3	40	.60	100	3
6	PCC	18CS46	Data Communication	CS/IS	3	0		03	40	60	100	3
7	PCC	18CSL47	Desi⊋n and Analysis of Algorithm Laboratory	CS/IS		2	2	03	40	60	100	2
8	PCC	18CSL48	Microcontroller and Embedded S*st≥ms Laboratory	CS/IS		2	2	03	40	60	100	2
		18KVK49	Vyazaharika Kannada (Kannada for communication)/			2			100	-22		
9	HSMC	18KAE49	Aadalitha Kannada (Kannada for Administration)	HSMC		-					100	1
	OR	OR	CS/IS 3 2 - 03 40  CS/IS 3 0 - 03 40  CS/IS - 2 2 03 40  CS/IS - 2 2 03 40  CS/IS - 2 2 03 40  TOTAL OR OR 04 OR 04			H						
	F. B. B.	18CPC39 Constitution of India, Professional	1822	1	1	1		40	60		100	
	E.hizs and Cyber Law				is by obj							
					_		-		420	480		
				TOTAL	-		04	- Annual Section (Section )	OR	NA CONTRACTOR OF THE PARTY OF T	900	24
					18	10		26	360	540		

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course 18KVK49 Vyavaharika Kannada (Fannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK49 Audalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs 18MATDIP41 Additional Mathematics - II Mathematics 02 01 + 03 40 60 (a)The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/ fails to secure the minimum 40 % of the prescribed CIE marks, be/she shall be deemed to have secured F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree

Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs Lateral entrant students from B.Sc. Stream, shall clear the non-credit courses Engineering Graph cs and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the aware of degree.

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 serrester Grade Card.

> Sapthagiri College of Engineering Chillessandra, Hesaraghalta Road, Bengalore-560 057

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 SE	MESTER					ing Ho Week	iurs		Exami	nation	J. W.	
SL No	100,000	rse and rse code	Course Title	Teaching Department Theory		Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Fotal Marks	Credits
					L	Т	P	-	0	٠.		1117
-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	44	03	40	60	100	4
4	PCC	18CS54	Automata theory and Computability	CS / IS	3	**	**	0.3	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	24		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
				Civil/ Environmental								119
9	HSMC	HSMC 18CIV59		1	2	-	02	40	60	100		
				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.

Sapthagiri Codeye of Engineering Childrasandra, Hesaraghatta Road, Bangalore-560 057

Scheme of Teaching and Examination 2018-19

Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)

(Effective from the academic year 2018 - 19)

	EMESTE			8.3997	Teachir	ng Hours	/Week		Exami	nation	11641	4119
SL No		ourse and ourse code	Lourse Lille	Teaching Department	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
	MALE.			in the	1,	Т	P	54.4	0	9.	-	
1	PCC	18CS61	System Software and Compilers	CS/IS	3	2		03	40	60	100	4
2	PCC	18CS62	Computer Graphies 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	OEC	18CS65X	Open Elective -A	CS/IS	- 3	-	44	0.3	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	0.3	40	60	100	2
9	INT	+	Internship	(To be carring intervening semesters)	g vacation			-	-	-		-
				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	THELIT
Course code under18XX64X	Course Title	
18CS641	Data Mining and Data Warehousing	
18CS642	Object Oriented Modelling and Design	STATE THE
18CS643	Cloud Computing and its Applications	
18CS644	Advanced JAVA and J2EE	
18CS645	System Modelling and Simulation	BHUN
	Open Elective -A (Not for CSE / ISE Programs)	
18CS651	Mobile Application Development	11/2/1911
18CS652	Introduction to Data Structures and Algorithms	HALL
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 190S65

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 disc pline 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 arrawer 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 works 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/complets 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 senester Grade Cerd 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 broth semester Grade Card.

Principal Engineering Road.

Principal Engineering Road.

College area 9.51

Scheme of Teaching and Examination 2018-19

Choice Based Credit System (CBCS) AND Outcome Based Education (OBE) (Effective from the academic year 2018 - 19)

VII S	EMESTER				Teachi	ng Hou's	/Wezk		Exami	nation		μF
SL No		rse and rse code	Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
	The LEVE				I.	Т	P	300		M#I	8	
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 / 1S	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 con carried out	pleted du	ring the	vacation ening vac	cf VI and ∎ions of	d VII ser VII and	nesters, I VIII se	it has to mesters	
1120	1		Vice and the second	TOTAL	17		04	18	340	360	700	20

	EC: Professional Elective, OEC: Open Elective, INT: Internship.  Professional Elective - 2	
Course code unde: 18CS73X	Course Title	100
18CS731	Software Architecture and Design Patterns	
18CS732	High Performance Computing	
18CS733	Advanced Computer Architecture	12.1
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	
18C5752	Python Application Programming	
18CS753	Introduction to Artificial Intelligence	11319
18CS754	Introduction to Dot Net framework for Application Development	

Students can select any one of the spen electives offered by any Department (Please refer to the list of open electives uncer 180875X). Selection of an open elective is no a lowed provided,

- The candidate has studied the came zourse 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 cacegory, is prescribed in the higher semesters of the programme.
 Registration to electives shall be discarrented under the guidance of Programme Coordinator/ Adviser/Mentor.

Project work: Based on the ability/cbi ities 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 statents from different disciplines, the project student strength car 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 Laterature Survey, Problem i Sentification, Objectives and Methodology), project presentation skill and questionanc 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 gardes of the college. Participation of external guide/s, if any, is desirable. The CE 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 sess on 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 admirted so III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and for 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/con plete 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 a orderts fail to earn the prescribed activity Points, Eighth semester Grade Cash 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.

> Sapthagiri College of Engineering Cinitassandra, Hesaraghatta Road, Bangalore-560 057

Scheme of Teaching and Examination 2018-19

Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)

(Effective from the academic year 2018 - 19)

				2 1 200	Teachir	g Hour	s/Week		Examin	ation	1	
Sl. No	Course and Course code		Course Title	Contacting Teaching Theory	Theory	Tintorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Fotal Marks	Credits
					L	T	P	-				
1	PCC	18CS81	Internet of Things	CS/IS	3	100		0.3	40	60	100	3
2	PEC	18CS82X	Professional Elective - 4	CS/IS	3			03	40	60	100	3
3	Project	18CSP33	Freject Work Phase - 2	CS/IS			2	03	40	60	100	8
4	Seminar	18CSS34	Technical Seminar	CS/IS	**		2	03	100		100	- 1
5	INT	18CS185	Internship	interveni VII seme	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)		03	40	60	100	3	
	-			TOTAL	06	- 22	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 basch males.

(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 guides, 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 icompleted 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).

Sapthagiri College of Engineering Childrensandra, Hesaraghatta Rosu, Bangalore-560 057

Scheme of Teaching and Examination 2018-19

Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 - 19)

IIIS	EMESTER	(			Teaching	Hours /	Week		Exami	nation		
SI. No		rse and rse Code	Course Title	Teaching	Theory	Tutorial	Practical/ Drawing	Duradon in hourd	CIE Marks	SEE Marks	Fotal Marks	Credits
				197	L	Т	P			100	€7	
1	BSC 18MAT31  PCC 18CS32  PCC 18CS33  PCC 18CS34		Transform Calculus, Fourier Series And Numerical Techniques	Mathematics	2	2		03	40	60	100	3
2	PCC	18CS32	Data Structures and Applications	CS/IS	3	2	-	C3	40	.60	100	4
3		- Control of the Cont	Analog and Digital Electronics	CS / IS	3	0	-	C3	40	60	100	3
4			Computer Organization	CS/IS	3	0		C3	40	60	100	3
5	PCC	18CS35	Software Engineering	CS/IS	3	0		(6	40	60	100	3
6	PCC	18CS36	Discrete Mathematical Structures	CS/IS	3	0		03	40	60	100	3
7	PCC	18CSL37	Analog and Digital Electronics Laboratory	CS/IS	-	2	2	05	40	60	100	2
8	PCC	18CSL38	Data Structures Laboratory	CS/IS	**	2	2	03	40	60	100	2
		18KVK39	Vya zaharika Kannada (Kannada for communication)/			2	_		100			
9	HSMC	18KAK39	Aadali ha Kannada (Kannada for Administration)	HSMC		Ĩ					100	1
		OR	OR			-	1 33	10	60			
		10CDC20	Constitution of India, Professional		1	-	-	)2	40	0.0		
		18CPC39	Ethics and Cyber Law				is by oo	jestive ty				
	VIII I			100000000000000000000000000000000000000	17	08		24	420	480	000	24
				TOTAL	OR	OR	04	OR	OR	OR	900	24
					18	10		26	360	540		

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit marcatory course
18KVK39 Vyavaharika Kannada (Eaanada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha
Kannada (Kannada for Administrations is for students who speak, read and write Kannada.

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

10 NCMC 18MATDIP31 Additional Mathematics - I Mathematics 02 01 - 03 40 60 100 0

(a)The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B.Tech. programs, shall attend the classes during the respective semesters to complete all the formalities of the

holders admitted to III semester of BE/B.Tech. programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandakery for the award of degree

Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs

Lateral entrant students from B.Sc. S ream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

AICTE Activity Points to be earned by students admitted to BE/B.Tech./B. Plan. day college programme. [For more details refer to Chapter 6,AICTE Activity Point Programme, Model Internship Guidelines): Over and above the academic graces, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Programme. Students transferred from other Universities to 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, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, minimum hours' requirement should be fulfilled. Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression. 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.

Sapthagiri College of Engineering Childresandra, Hesaraghatta Road, Bangalore-530 057

Scheme of Teaching and Examination 2018-19

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 15)

	EMESTE:	THE REAL	EILER VERSES BIRT		Teaching	Hours !	Week	V III)	Exami	ination		
SL No	- 1000	urse and rse Code	Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	otal Marks	Credits
					L	T	P		ŭ		-	
1	BSC	18MAT41	Complex Analysis, Probability And Statistical Methods	Mathematics	2	2	_	03	40	60	100	3
2	PCC	18C342	Design and Analysis of Algorithms	CS/IS	3	2	=	03	40	60	100	4
3	PCC	18CS43	Cperating Systems	CS/IS	3	0		03	40	60	100	3
4	PCC	18SC44	Microcontroller and Embedded Systems	CS / IS	3	0	-	03	40	60	100	3
5	PCC	18CS45	Object Oriented Concepts	CS / IS	3	0	( m)	03	40	60	100	3
6	PCC	18CS4€	Data Communication	CS/IS	3	0	-	03	40	60	100	3
7	PCC	18CSL=7	Design and Analysis of Algorithm Laboratory	CS/IS		2	2	03	40	60	100	2
8	PCC	18CSL48	Microcontroller and Embedded Systems Laboratory	CS / IS		2	2	03	40	60	100	2
		18EVK49	Vyavaharika Kannada (Kannada for communication)/			,			100		MA	
9	HSMC	18EAK49	Aadalitha Kannada (Kannada for Administration)	HSMC	-	2		_	100	-	100	1
	TIDITC	DR	OR					115				100
			Constitution of India, Professional	1	1		-	02	40	60	100 100 100 100 100 100 100	33
		1001039	Ethics and Cyber Law		The second secon	ination i	is by obj	ective ty	pe quest	tions		
					17	08		24	420	480		
				TOTAL	OR	OF	04	OR	OR	OR	900	24
					10	100	26	360	540			

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course

18KVK49 Vyavahar ka Eannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 15KAK49 Addali ha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

411	, Y	Course prescril	bed to lateral entry Diploma								
10	NCMC	18MATDIP41	Additional Mathematics - II	Mathematics	02	01	 03	40	60	100	0

(a)The mandatory non-credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the student have to fulfil the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mancatory for the awarc of degree

Courses prescribed to lateral entry B. Sc degree holders admitted to III seriester of Engineering programs

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 sempster Grade Card.

Principal
Sapthagiri College of Engineering
Childrasandra, Hesaraghatta Road,
Bangalore-560 057

Scheme of Teaching and Examination 2018-19

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

						ing H Week	eurs		Exam	ination		
SL No		irse and irse code	Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	Т	P	1	)	· s	T	
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	-	175	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	7+4	-	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
				Civil/ Environmental							80.96	
9	HSMC	18CIV59	Environmental Studies	[Paper setting: Civil Engineering Board]	1	+	-	02	40	60	100	1
	W=1=1=1=1=1	100		TOTAL	18	1)	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.

Sapthagiri Collego of Engine C

Scheme of Teaching and Examination 2018-19

Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 – 19)

72.03	EMESTE	**			Teachi	ng Hours	/Week	100	Exami	nation		
St. No	1000	ourse and ourse code	Course Title	Teaching Department	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
-	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	125	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
3	MP	18CSMP68	Mobile Application Development	CS/IS	-2	-	2	03	40	60	100	2
9	INT	-	Internship	(To be carr intervening semesters)				-	-	-	-	_
		DECEMBER OF THE PERSON NAMED IN	HOUSE THE RESIDENCE OF THE PARTY OF THE PART	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 under18XX64X	Course Title	er blosse
18CS641	Data Mining and Data Warehousing	
18CS642	Object Oriented Modelling and Design	
18CS643	Cloud Computing and its Applications	14-170-101
18CS644	Advanced JAVA and J2EE	
18IS645	Information Management System	
	Open Elective -A (Not for CSE / ISE Programs)	STEEL STREET
18CS651	Mobile Application Development	
18CS652	Introduction to Data Structures and Algorithms	14111112
18CS653	Programming in JAVA	TIME BUT
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.

(i) 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: Contribut on 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.

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road,
Bangalore-560 057

Scheme of Teaching and Examination 2018-19

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

		772 11411			Teachi	ng Hours	/Week		Exami	nation		
SI. No		rse and rse code	Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					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	1 7000		03	40	60	100	3
5	OEC	18CS75X	Open Elective -B	CS/IS	3	223		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	28	100	1
8	INT		Internship	(If not com carried out								be
				TOTAL	17	-	04	18	340	360	700	20

Note: PCC: I	rofessional	core, PE	C: Pr	rofessional	Elective,	OEC	: 0	pen	Elect	ive,	INT: Interns	hip.

	Professional Elective - 2	
Course code under 18CS73X	Course Title	
18CS731	Software Architecture and Design Patterns	- 11/5 U. 24 U
18CS732	High Performance Computing	
18CS733	Advanced Computer Architectures	
18CS734	User Interface Design	ALTERNATION AND ADDRESS.
	Professional Electives - 3	
Course code under 18CS74X	Course Title	
18CS741	Digital Image Processing	
18CS742	Network management	10,000,000,000
18CS743	Natural Language Processing	
18CS744	Cryptography	
18CS745	Robotic Process Automation Design & Development	Roduniii
	Open Elective -B (Not for CSE / ISE Programs)	
18CS751	Introduction to Big Data Analytics	
18CS752	Python Application Programming	HEREAL PRINTS
18CS753	Introduction to Artificial Intelligence	
18CS754	Introduction to Dot Net framework for Application Development	Place of U.S. V.

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 snall 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.

> Principal Sapthagiri College of Engineering Ciniktrasandra, Hesaraghatta Road. Bangalore-560 057

Scheme of Teaching and Examination 2018-19

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective	from	the academic	venr 20	18_10	À
TEHICCHIVE	HOIL	me academic	vear zo	10 - 12	

AL PERSON NAMED IN	Sidness of Sil		THE REPORT OF THE PARTY OF THE		Teachi	ng Hour	s/Week		Exami	nation		
SI. No	100000000000000000000000000000000000000	Course and Course code Course Title		Teaching	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
$\Omega$					L	T	P	-	٥	62	1	
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	**	220	2	03	100	- 22	100	1
5	INT	18CSI85	Internship	(Completintervenii) VII seme VIII seme	ng vacati sters and	ons of	VI and	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	ALL-PARTING OF
18CS821	Mobile Computing	SALT IT DESCRIPTION
18CS822	Storage Area Networks	PRINCIPLE TO SERVICE PRINCIPLE PRINC
18CS823	NoSQL Database	
18CS824	Multicore Architecture and Programming	et dural Pa

### 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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Sapthagiri College of Engineering Children and Hesaraghatta Road, Bangalore-560 057

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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)

111 5	SEMES	TER			Teachi	ng Hom	rs					
					/Week		2		Exami	nation		
SL No	1	Course and Course Code	Course Title	Teaching	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Fotal Marks	Credits
					L	Т	P	-	0	2,	-	
1	BSC	18MAT31	Mathematics (Title as per the decision of BoS in Sciences)	Mathematics	2	2	*	03	40	60	100	3
2	PCC	18EC32	Electronic Devices		3	2		03	40	60	100	4
3	PCC	18EC33	Digital System Design	THE ROLL OF	3	0		03	40	60	100	3
4	PCC	18EC34	Network Theory		3	0		03	40	60	100	3
5	PCC	18EC35	Probability Theory and Statistics		3	0	-	03	40	60	100	3
6	PCC	18EC36	Power Electronics & Instrumentation		3	0	-	03	40	60	100	3
7.	PCC	18ECL37	Electronic Devices Laboratory		- 22	2	2	03	40	60	100	2
8.	PCC	18ECL38	Digital System Design Laboratory	THE SEAR		2	2	03	40	60	100	2
		18KVK39/49	Vyavaharika Kannada (Kannada for communication)/			2			100			
9		18KAK39/49 Aadalitha Kannada (Kannada for Administration)		HSMC			The second		100		100	1
	5		OR			-	ZER HE	and the		Time		
	TS	OR  Ethics and Coher Loss  18CPH39  Constitution of India, Professional  Ethics and Coher Loss	1		03	40	60					
	-	10011133	Ethics and Cyber Law		Exam	ination	is by ob	jective t	ype que	stions		
				2012111200	17	10		24	420	480		-
				TOTAL	OR	OR	04	OR	OR	OR	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39 Vyavaharika Kannaca (Kannada for communication) is for non-kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write kannada.

		Course prescri	bed to lateral entry Diploma b	olders admitted	to III s	emeste	r of En	gineeri	ng pro	grams		
10	NC MC	18MATDIP31	Additional Mathematics - I	Mathematics	02						100	0

(a)The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B.Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the student have to fulfil the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Courses prescr bed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs

Lateral entrant students from B.Sc. Stream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

AICTE Activity Points to be earned by students admitted to BE/B.Tech/B. Plan day college programme (For more details refer to Chapter 6,AICTE Activity Point Programme, Model Internship Guidelines):

Over and above the academic grades, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Programme. Students transferred from other Universities to 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 can be spread over the years, anytime during the semester weekends and holicays, as per the liking and convenience of the student from the year of entry to the programme. However, minimum hours' requirement should be fulfilled. Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression.

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.

Principal
Southagiri College of Engineering
andra, Hesaraghatta Road,

Scheme of Teaching and Examination 2018 - 19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 – 19)

				- Fagi	Teachin	g Hours	/Week		Exami	nation		
SI. No		Course and Course code	Course Title	Teaching Department	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	Т	P	-	0	×	-	
ī	BSC	18MAT41	Mathematics (Title as per the decision of BoS in Sciences)	Mathematics	2	2	**	€3	40	60	100	3
2	PCC	18EC42	Principles of Communication Systems		3	2	- 77	(3	40	60	100	4
3	PCC	18EC43	Analog Circuits		3	0		(3.	40	60	100	3
4.	PCC	18EC44	Verilog HDL		3	0	++	7.3	40	60	100	3
5	PCC	18EC45	Signals & Systems		3	0	**	53	40	60	100	3
6	PCC	18EC46	Computer Architecture		3.	0		113	40	60	100	3
7	PCC	18ECL47	Analog Circuits and Communication Laboratory		-	2	2	- 03	40	60	100	2
8	PCC	18ECL48	HDL Lab			2	2	03	40	60	100	2
		18KVK39/49	Vyavaharika Kannada (Kannada for communication)			2			100			
9	HSMC	18KAK39/49	Aadalitha Kannada (Kannada for Administration)	HSMC		2		-	100		100	1
	233			==/;,(=-1		0.0						
		18CPH49	Constitution of India, Professional Ethics and Cyber Law		Evens		== is dy obj	D3	40	60	Het	
	TOT				17	10	E - y 50p	24	420	480		-
				TOTAL	OR	OF.	04	OR	OR	OR	900	24
					18	08		27	360	540	3.00	

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Nor-crazit mandatory course.

18KVK39/49 Vyavaharika Kannada (Kannada for communication) is for non-kannada speaking, reading and writing students and 18KAK39/49

Adalitha Kannada (Kannada for Administration) is for students who speak, read and write kannada.

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

10 NCMC | 18MATDIP41 | Additional Mathematics - II | Mathematics | 02 | 01 | - | 03 | 40 | 60 | 100 | 0

((a) The mandatory non - credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the student have to fulfil the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mor datory for the award of degree.

Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs

Lateral entrant students—from—B.Sc. Stream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme, These Courses shall not be considered for vertical progression, but completion of the courses

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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shall be mandatory for the award of degree.

Scheme of Teaching and Examination 2018-19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

					Feaching Hours /Week								
SL No	Course and Course code		Course Title	Teaching Department	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits	
		r			L	T	P				100		
1	HSMC	18ES51	Management and Entrepreneurship Development		3	0		03	40	60	100	3	
2	PCC	18EC52	Electromagnetic Waves	HE I Note and the	3	2		03	40	.60	100	4	
3	PCC	18EC53	Digital Signal Processing		3	2		03	40	60	100	4	
4	PCC	18EC54	Information Theory & Coding		- 3	***	944	03	40	60	100	3	
5	PCC	18EC55	Control Systems		3			03	40	60	100	3	
6	PCC	18EC56	Microcontroller (8051)		3		**	03	40	60	100	3	
7	PCC	18ECL57	Microcontroller Laboratory			2	2	03	40	60	100	2	
8	PCC	18ECL58	Digital Signal Processing Laboratory			2	2	03	40	60	100	2	
				Civil/ Environmental				1					
9	HSMC 18CIV	MC 18CIV59 Environmental Studies		Li di Maria de La Carta de Car	Civil Engineering	1	-	-	02	40	60	100	1
				TOTAL	18	10	4	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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Scheme of Teaching and Examination 2018-19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

					Teachi	ng Heurs	/Week	Examination				
SI. No			Course Title	Teaching Department	Theory	H Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
11	PCC	18EC61	Digital Communication		100		-	03	40	60	100	4
2	PCC	18EC62	Embedded Systems (includes ARM Controller)		3	2		03	40	60	100	4
3	PCC	18EC63	Computer Networks		3	2		03	40	60	100	4
4	PEC	18XX64X	Professional Elective -1	100	3			03	40	60	100	3
5	OEC	18XX65X	Open Elective -A		3			03	40	60	100	3
6	PCC	18ECL66	Embedded Systems Laboratory	TO STATE OF	44	2	2	0.3	40	60	100	2
7	PCC	18ECL67	Computer Networks Laboratory	TUTTE ET		2	2	03	40	60	100	2
8	MP	18ECMP68	Mini-project		**		2	03	40	60	100	2
9	Internship	4 4	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VI and VIII semesters.								
	Dec		24									

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

c	Professional Elective -1
Course code under 18XX64X	Course Title
18EC641	Operating System
18EC642	Artificial Neural Networks
18EC643	Satellite Communication / Microelectronics
	Open Elective -A

(i) Signal Processing (ii) Automotive Electronics (iii) Sensors & Actuators

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- 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 the 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/ Advisor Mentor.

### Mini-project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinery 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 baseh 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 €IE 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 basel 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 take-up/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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Scheme of Teaching and Examination 2018-19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

					Teachi	ng Hours	/Week					
SL No	Course and Course code		Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	Т	P					
1	PCC	18EC71	Microwave & Antenna		3		**	03	40	60	100	3
2	PCC	18EC72	VLSI Design		3	44	22	0.3	40	60	100	3
3	PEC	18XX73X	Professional Elective - 2		3	**		03	40	60	100	3
4	PEC	18XX74X	Professional Elective - 3		3		**	03	40	60	100	3
5	OEC	18XX75X	Open Elective -B		3		- 14	03	40	60	100	3
6	PCC	18ECL7€	Advanced Communication Laboratory		+-	-	2	03	40	60	100	2
7	PCC	18ECL77	VLSI Laboratory				2	03	40	60	100	2
7	Project	18ECP7E	Project Work Phase - 1			-	2		100		100	-1
8	Internship		Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters.)								
		24-1-1-1		TOTAL	17		4	18	340	360	700	20

Note: PCC: Professional core, PEC: Professional Elective.

	Professional Elective - 2
Course code under 18XX73X	Course Title
18EC731	Real Time System / Low Power Microcontroller (with MSP430)
18EC732	OOPs
18EC733	Digital Israge Processing

	Professional Electives - 3
Course code under 18XX74X	Course Title
18EC741	IOT & Wireless Sensor Networks
18EC742	Cryptography and Network Security
18EC743	Multimedia Communication
	Open Elective -B

(i) Communication Theory (iii) MEMS (iii) Mobile Cperating Systems

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under (FXX75X)).

Selection of an open elective shall not be allowed if,

- 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 the 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/ Advisor/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 take-up/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 a ter 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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Scheme of Teaching and Examination 2018-19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

		RELEASE IN			Teach	ing Hou	rs/Week					
SL No	Course and Course 2000		Course Title	Teaching Department	Theory	Tutarial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Fotal Marks	Credits
					L	T	p	-	~		-	
1	PCC	18EC8	Wireless Communication		3		**	03	40	60	100	3
2	PEC	18XX82X	Professional Elective - 4	CHOICE STIFF	3	-		03	40	-60	100	3
3	Project	18ECP33	Project Work Phase - 2				2	03	40	60	100	- 8
4	Seminar	18ECS34	Technical Seminar	To let let 1			2	03	100	199	100	1
5	Internship	18ECI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VI and VIII semesters.)			03	40	60	100	3	
	VV	4		TOTAL	06		4	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

	Professional Electives - 4
Course code under 18XX82X	Course Title
18EC821	Digital System Design Using Verilog
18EC822	Cp ica Communication Networks
18EC823	Advanced Cellular Communication (includes 4G)

### Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CE 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 sess on 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 sess on 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 andividually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Consibution 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 fai 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 temester 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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Sapthagiri College of Engineering Chikkasandra, Hesaraghatta Road, Bangalore-560 057

Scheme of Teaching and Examination 2018 - 19

III SEMESTER

18MEL37B

18MEL38A

8

PCC

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

					/Week				Exam	ination		
SI. No		Course and Course Code	Course Title	Teaching	. Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
	BSC	TONGATOL	Mathematics		L	Т	P		1000			
1	Bac	18MAT31		Mathematics	2	2		03	40	60	100	
2	PCC	18ME32	Mechanics of Materials		-	100.00			-10	.00	100	3
3	PCC	18ME33	Basic Thermodynamics		3	2		03	40	60	100	4
4	PCC	18ME34	Material Science		3	0		03	40	60	100	3
5	PCC	18ME35A or	Metal cutting and forming		3	0	***	03	40	60	100	3
	1.00	18ME35B	Matel Costing and forming		3	0		02	40	60	100	3
6	PCC	18ME36A or	Metal Casting and Welding		3	U		03	1110	777	100	~
0	rec	10 MOCHING	Computer Aided Machine Drawing/		1	4						
		18ME36B	Mechanical Measurements and Metrology		3	0		03	40	60	100	3
	PCC	18MEL37A	Material Testing lab									

Mechanical Measurements and

Workshop and Machine Shop

Metrology lab

Practice (Consists of

Fitting, and Machining) 2 2 03 40 60 100 2 18MEL38B Foun-fry, Forging and Welding lab Vyavaharika Kannada (Kannada for 18KVK39/49 communication)/ Aadalitha Kannada (Kannada for HSMC 2 100 18KAK39/49 100 9 Administration) HSMC OR Constitution of India, Professional 18CPC39 02 40 Ethics and Cyber Law Examination is by objective type questions 17 10 24 420 480 TOTAL OR OR OR OR OR 900 24 19 14 26 360 540 Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

2

03

40

60

100

2

18KVK39 Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada for Administration) is for students who speak, read and write Kannada.

a) The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of EE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for 3EE.

b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs

Lateral entrant students from B.Sc. Stream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Principal
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Scheme of Teaching and Examination 2018 - 19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

IVCEMPETER

	Hi				Teach /Week	ing Hoa	n		Exa	nination		
SI. No		Course and Course Code	Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CTE Marks	SEE Marks	Total Marks	Cradite
	Dag		Mathematics		L	T	P	-	0	S	F	
1	BSC	18MAT41	Placientalics	Mathematics	2	2		03	40	60	100	3
2	PCC	18ME42	App_ied Thermodynamics		3	2		03	40	1 22	0.77	-
3	PCC	18ME43	Fluid Mechanics		3	0		03	40	60	100	4
4	PCC	18ME44	Kinematics of Machines		3	0		03	40	60	100	3
5	PCC	18ME45A	Metal cutting and forming		-	0		03	40	60	100	3
		18ME45B	Metal Casting and Welding		3	0		03	40	60	100	3
6	PCC	18ME46A or	Computer Aided Machine Drawing/		1	4			- 3			
		18ME46B	Mechanical Measurements and Metro ogy		3	0		03	40	60	100	3
	PCC	18MEL47A or	Material Testing lab				Egith!					
		18MEL47B	Mechanical Measurements and Metrology lab			2	2	03	40	60	100	2
8	PCC	18MEL48A	Workshop and Machine Shop Practice (Consists of Fitting, and Machining)			2	2	03	40	60	100	2
		18MEL48B	Foundry, Forging and Welding lab		100							100
		18KVK49/49	Vyavaharika Kannada (Kannada for communication)/									
		18KAK49/49	Aada itha Kannada (Kannada for Administration)	HSMC	-	2	-	-	100	-	100	1
	5	THE PARTY OF THE	OR	Howic								
	HSMC	18CPH49	Constitution of India, Professional	7 - 11112	1 1			02	40	60		
	-	10011149	Ethics and Cyber Law		Exami		4,745.0		02 40 60 tive type questions			
			There are viewing of the latest		17	10	by object	24	420	480		
				TOTAL	OR	OR	04	OR	OR OR	480 OR	000	
					19	14	-	26	360	540	900	24

18KVK39 Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 alitha Kannada (Kannada for Adm nistration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs 10 NCMC 18MATDIP31 Additional Mathematics - I Mathematics 02 01 ---

(a) The mandatory non - cred: 1 courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BEB. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/ fails to secure the minimum 40 % of the prescribed CIE marks, he shall be deemed to have secured F grade. In such a case, the student have to fulfill the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Courses prescribed to ateral entry B. Sc degree holders admitted to III semester of Engineering programs

Lateral entrant students from B.Sc. St-eam, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

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Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

					Teaching Hours /Week			Examination				
SI. No	10000	urse and urse code	Course Title	Teaching	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	100000000				L	Т	P	Δ .	0	20	J.	
	PCC	18ME51	Management and Economics		2	2		03	40	60	100	3
2	PCC	18ME52	Design of Machine Elements I				++	1000	40	00	100	3
3	PCC	18ME53	Dynamics of Machines		3	2		03	40	60	100	4
4	PCC	18ME54	Turbo Machines		3	2		03	40	60	100	4
5	PCC	18ME55	Fluid Power Engineering		3	**		.03	40	60	100	3
6	PCC	18ME55	Operations Management		3			03	40	60	100	3
7	PCC	18MEL57	Fluid Mechanics/Machines lab		3			03	40	60	100	3
8	PCC	18MEL58				2	2	03	40	60	100	2
		101112233	Energy Conversion Lab			2	2	03	40	60	100	2
0	HSMC	180mics		Civil/ Environmental						EUB		
9	HSMC 18CIV59	Environmental Studies	[Paper setting: Civil Engineering Board]	1		-	02	40	60	100	1	
-				TOTAL	18	10	04	26	360	540	900	25

Note: PCC: Professional Ccre, HSMC: Humanity and Social Science.

V SEMESTER

AICTE activity Points: In case students feil 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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Scheme of Teaching and Examination 2018 - 19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

### VISEMESTER

	NOTE OF				Teachi	ng Hour	s/Week		Exan	ination		
SL No	Course and Course code		Course Title	Teaching Department	Theory	Tutorial	Practical/ Drawing	Duration in hours	CTE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME61	Finite Element Methods		L	T	P				-	
2	PCC	18ME62			3	2		03	40	60	100	4
3	PCC	18ME63	Design of Machine Elements II Heat Transfer		3	2	**	03	40	60	100	4
4	PEC	18ME64X			3	2	***	03	40	60	100	4
5	OEC	11.500.000.000.000	Professional Elective -1		3	**		03	40	60	100	3
-		18ME65X	Open Elective -A		3			03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab			2	2	03	40	60	100	2
7.	PCC	18MEL€7	Heat Transfer Lab			2	2	02	10	70		
8	MP	18MEM=€8	Mini-project				2	03	40	60	100	2
9	Internship	-	Internship	To be carried out during the vacation/s of VI and VII semesters and /or V and VIII semesters.							r VII	
			GENERAL MANAGEMENT AND	TOTAL	15	10	06	24	320	480	800	24

### ote: PCC: Professional core PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

	rofessional Elective -1	
Course Title	Course code under 18XX64X	Course Title
Non-Traditional Machining		Vibrations and Nata E. 1.
		Vibrations and Noise Engineering
Theory of Elasticity		Composite Materials Technology
		Entrepreneurship Development
	Course Title  Non-Traditional Machining  Refrigeration and Air conditioning  Theory of Elasticity	Non-Traditional Machining 18ME644  Refrigeration and Air conditioning 18ME645

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- 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 the 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/ Adviscr/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 studer or to a group having not more than 4 students. CIE procedure for Mini-project:

Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty mbers 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 ad tted 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 durir g 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 take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

> Childrasandra, Hesaraghatta Road, Bangalore-560 057

Scheme of Teaching and Examination 2018 - 19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

E	ALC: Y	SEM	

					Teachi	ng Hour	s/Week		Exan	ination		
SI. No	E-070,2550	rse and rse code	Course Title	Teaching	Theory	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Fotal Marks	Credits
1	PCC	18ME71	Control Engineering		L	T	P			-	-	
2	PCC	10241271			3			03	40	60	100	3
		18ME72	Computer Aided Design and Manufacturing	Paris	. 3		-	03	40	60	100	3
3	PEC	18ME73X	Professional Elective - 2		3			02	40	7.0		-
4	PEC	18ME74X	Professional Elective - 3		3		**	03	40	60	100	3
5	OEC	18ME75X	Open Elective -B			***		03	40	60	100	3
6	PCC				3	22	77	03	40	60	100	3
350 E		18MEL76	Computer Integrated Manufacturing Lab			2	2	03	40	60	100	2
	PCC	18MEL77	Design Lab			2	2	03	40	70	160	-
7	Project	18MEP78	Project Work Phase - 1				2		1.4	60	100	2
8	Internship	*	Internship	(If not con	npleted du	ring the	vacation :	of VI and	d VII so	emesters	, it shall	be
	AND COMM			TOTAL	15	04	06	18	340	360	700	20

Pro	fessional	Elective	- 2

Course code under 18XX73X	Course Tiffe	Course code under 18XX73X	Course Title
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	
18ME733	Computational Fluid Dynamics	100015755	Operations Research

### Professional Floations 2

Course code under 18XX74X	Course Tit.e	Course code under 18XX74X	Course Title	
18ME741	Additive Manufacturing	18ME744	Mechatronics	
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management	
18ME743	Theory of Plasticity			

Open Elective -B

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open elect ves under 18XX75X).

election of an open elective shall not be allowed if,

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 the Departmental core courses or professional elect ves.

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### 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 stucent strength can be 5 or6.

### 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 (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.

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 take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the Internship requirements.

Scheme of Teaching and Examination 2018 - 19

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2018 - 19)

SEM	

					Teach	ing Hou	ırs/Week		Exam	ination		
Sl. No	80,000,00	rse and rse code	Course Title	Teaching	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	TE Marks	SEE Marks	Total Marks	Credits
	PCC	1.00 (00)			L	T	P	-	0	S.	H	N.
1	1.000	18ME81	Energy Engineering		3			03	40	60	100	3
2	PEC	18ME82X	Professional Elective - 4	Date of the last	-3			03	40	60	100	3
3	Project	18MEP83	Project Work Phase - 2				2	03	40	110000000000000000000000000000000000000		
4	Seminar	18MES84	Technical Seminar				- 2		The same	60	100	8
		101.1200.1	Technical Seminal		***	**	2	03	100		100	1
5	Internship	18XXI85	Internship	of VI an VII and	d VII ser	nesters	and /or	03	40	60	100	3
- > -				TOTAL	06		04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

	Professi	onal Electives - 4	A STREET OF COURSE OF STREET
Course code under 18XX82X	Course Title	Course code under 18XX82X	Course Title
18ME821	CNC Machine Tools	18ME824	Automobile Engineering
18ME822	Tribology	18ME825	Tool Design
18ME823	Non-Destructive Testing and Evaluation	18ME826	Fracture Mechanics

### 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.

Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end mination (SEE) conducted separately at the departments to which the student/s belongs 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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### B.E. Mechanical Engineering

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

SEMESTER - VI

	OPEN ELECTIVE - A		
Course Code	18ME65X	CIE Marks	40
Teaching Hours/Week (L:T:P)	3:0:0	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned programme syllabus book or VTU website vtu.ac.in may be visited.).

Selection of an open elective shall not be allowed if.

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open e ertive is similar to that of the 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/ Advisor/Mentor.

				Course	Course Title	
Sl. No.	E	loard and the Department offering the Electives	Sl. No.	code under 18XX65X		
	1 .5		1	18ME651	Non-Conventional Energy Sources	
1	ME	Mechanical Engineering	2	18ME652	World Class Manufacturing	
	-		3	18ME653	Supply Chain Management	
			4	18ME654	Advanced Materials Technology	

### B.E Mechanical Engineering

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

SEMESTER - VII

OPEN ELECTIVE - B							
Course Code	18ME75X	CIE Marks	40				
Teaching Hours/Week (L:T:P)	3:0:0	SEE Marks	60				
Credits	03	Exam Hours	03				

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned programme syllabus book or VTU website vtu.ac.in may be visited.). Selection of an open elective shall not be allowed if,

- 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 the 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/ Advisor/Mentor.

SINO	Board and the Department offering the Electives		Course		Course Title
			SI No	code under 18XX75X	
2	ME	Mechanical Engineering	1	18ME751	Energy and Environment
			2	18ME752	Automotive Engineering
			3	18ME753	Industrial Safety
			4	18ME754	Optimization Techniques



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