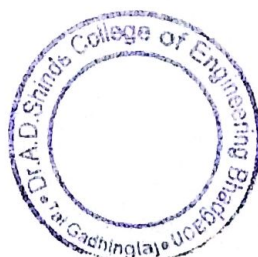
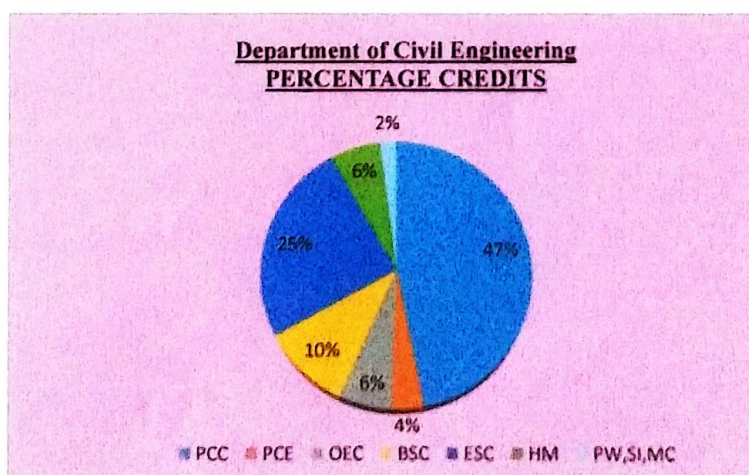




Dinkarrao K. Shinde Smarak Trusts
D.R.A. D. SHINDE COLLEGE OF ENGINEERING.
Bhadgaon, Gadhinglaj, Dist: Kolhapur Pin: 416502
Academic Year 2023-24



CREDIT STRUCTURE			
Department	Civil Engineering		
Sr. No.	COURSE NAME	ABBREVIATION	PERCENTAGE CREDITS
1	Professional Core Courses [PCC]	PCC	46.91
2	Professional Core Elective [PCE]	PCE	3.61
3	Open Elective Courses [OEC]	OEC	6.19
4	Basic Science Courses [BSC]	BSC	10.31
5	Engineering Science Courses [ESC]	ESC	24.74
6	Humanities [HM]	HM	6.19
7	Project Work, Field Training, Seminar [PW, SI, MC]	PW,SI,MC	2.07



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PRINCIPAL
D.A. Shinde College of Engineering
Bhadgaon, Tal. Gadhinglaj, Dist. Kolhapur



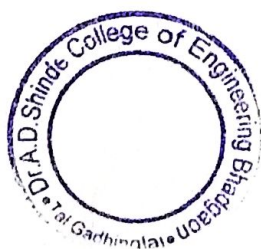
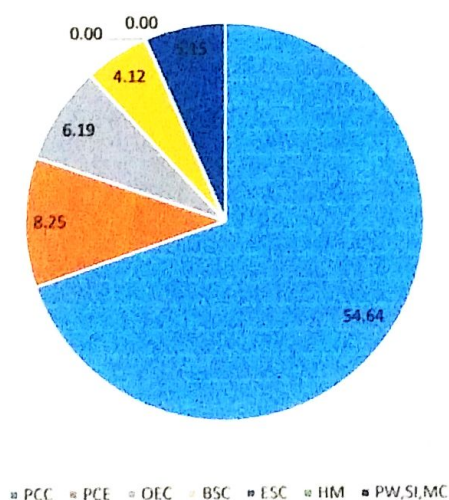
Dinkarrao K. Shinde Smarak Trusts
D.R.A. D. SHINDE COLLEGE OF ENGINEERING.
Bhadgaon, Gadhinglaj. Dist: Kolhapur Pin:416502
Academic Year 2023-24



CREDIT STRUCTURE

Department	Mechanical Engineering		
Sr. No.	COURSE NAME	ABBREVIATION	PERCENTAGE CREDITS
1	Professional Core Courses [PCC]	PCC	54.64
2	Professional Core Elective [PCE]	PCE	8.25
3	Open Elective Courses [OEC]	OEC	6.19
4	Basic Science Courses [BSC]	BSC	4.12
5	Engineering Science Courses [ESC]	ESC	0.00
6	Humanities [HM]	HM	0.00
7	Project Work, Field Training, Seminar [PW, SI, MC]	PW,SI,MC	5.15

Department of Mechanical Engineering
Percentage Credits



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Bhadgaon, Tal. Gadhinglaj, Dist. Kolhapur

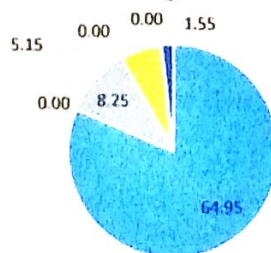


Dinkarrao K. Shinde Smarak Trusts
D.R.A. D. SHINDE COLLEGE OF ENGINEERING.
Bhadgaon, Gadhinglaj, Dist: Kolhapur Pin: 416502
Academic Year 2023-24

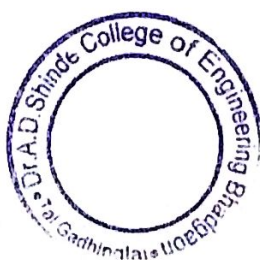


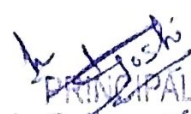
CREDIT STRUCTURE			
Department	Electrical Engineering		
Sr. No.	COURSE NAME	ABBREVIATION	PERCENTAGE CREDITS
1	Professional Core Courses [PCC]	PCC	64.95
2	Professional Core Elective [PCE]	PCE	0.00
3	Open Elective Courses [OEC]	OEC	8.25
4	Basic Science Courses [BSC]	BSC	5.15
5	Engineering Science Courses [ESC]	ESC	0.00
6	Humanities [HM]	HM	0.00
7	Project Work, Field Training, Seminar [PW, SI, MC]	PW,SI,MC	1.55

Department of Electrical Engineering
Percentage Credits



■ PCC ■ PCE ■ OEC ■ BSC ■ ESC ■ HM ■ PW,SI,MC




PRINCIPAL
A.D. Shinde College of Engineering
Bhadgaon, Tal. Gadhinglaj, Dist. Kolhapur



SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS

Third Year (B. Tech.) CBCS

In

CIVIL ENGINEERING

(To be implemented From JUNE 2020)

Third Year CIVIL ENGINEERING – CBCS PATTERN

SEMESTER – V

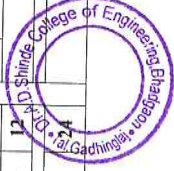
Sr. No	Course (Subject Title)	TEACHING SCHEME						EXAMINATION SCHEME															
		THEORY			TUTORIAL			PRACTICAL			THEORY				PRACTICAL			TERM WORK					
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max			
1	PCC-CV501	3	3	3	-	-	-	1	2	2		CIE 30 ESE 70	100	40	25	10	2	50	20				
2	PCC-CV502	4	4	4	-	-	-	1	2	2		CIE 30 ESE 70	100	40	-	-	2	25	10				
3	PCC-CV503	3	3	3	-	-	-	1	2	2		CIE 30 ESE 70	100	40	As per BOS Guidelines						2	25	10
4	PCC-CV504	4	4	4	-	-	-	1	2	2		CIE 30 ESE 70	100	40	25	10	2	50	20				
5	PCC-CV505	2	2	2	-	-	-	2	4	4		CIE 30 ESE 70	100	40	50	20	2	50	20				
6	OEC- CV506	3	3	3	-	-	-	-	-	-		CIE 30 ESE 70	100	40	-	-	-	-	-				
	TOTAL	19	19	19	-	-	-	6	12	12			500		100				200				

SEMESTER –VI

1	PCC-CV601	3	3	3	1	1	1	-	-	-		CIE 30 ESE 70	100	40	As per BOS Guidelines						-	-	2	25	10
2	HM-CV602	4	4	4	-	-	-	1	2	2		CIE 30 ESE 70	100	40	25	10	2	25	10						
3	PCC-CV603	4	4	4	-	-	-	1	2	2		CIE 30 ESE 70	100	40	25	10	2	25	10						
4	PCC-CV604	4	4	4	-	-	-	1	2	2		CIE 30 ESE 70	100	40	-	-	2	25	10						
5	OEC- CV605	3	3	3	-	-	-	-	-	-		CIE 30 ESE 70	100	40	-	-	-	-	-						
6	PCC-CV606	-	-	-	-	-	-	2	4	4		-	-	-	50	20	2	50	20						
7	MC-CV607	-	-	-	-	-	-	1	2	2		-	-	-	-	-	2	50	20						
8	*SI-CV707	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-						
	TOTAL	18	18	18	1	1	1	6	12	12			500		75				225						
	TOTAL	37	37	37	1	1	1	12	24	24			1000		175				425						

Dr. D. D. Shinde College of Engineering & Technology, Jalgaon

CIE- Continuous Internal Evaluation
ESE – End Semester Examination



SEMESTER - V					
Sr. No	Code No.	Course (Subject Title)		Semester	Credits
1	PCC-CV501	WRE-I	Water Resource Engineering-I	5	4
2	PCC-CV502	DSS	Design of Steel Structures	5	5
3	PCC-CV503	EE-I	Environmental Engineering-I	5	4
4	PCC-CV504	GTE-I	Geotechnical Engineering-I	5	5
5	PCC-CV505	BPD	Building Planning and Design	5	4
6	OEC-CV506	OE-I	Open Elective-I	5	3
TOTAL					25

SEMESTER -VI					
Sr. No	Code No.	Course (Subject Title)		Semester	Credits
1	PCC-CV601	TOS	Theory of Structures	6	4
2	HM-CV602	EM	Engineering Management	6	5
3	PCC-CV603	EE-II	Environmental Engineering-II	6	4
4	PCC-CV604	GTE-II	Geotechnical Engineering-II	6	5
5	OEC-CV605	OE-II	Open Elective-II	6	4
6	PCC-CV606	SDD-I	Structural Design and Drawing-I	6	2
7	MC-CV607		SEMINAR	6	1
8	*SI-CV707	FT	Field Training	-	-
TOTAL					25





SHIVAJI UNIVERSITY, KOLHAPUR-416 004. MAHARASHTRA
PHONE : EPABX-2609000 website- www.unishivaji.ac.in
FAX 0091-0231-2691533 & 0091-0231-2692333 - BOS - 2609094
शिवाजी विद्यापीठ, कोल्हापूर - 416004.
दुरध्वनी (ईपीएबीएक्स) २६०९००० (अभ्यास मंडळे विभाग- २६०९०९४)
फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३.e-mail:bos@unishivaji.ac.in

SU/BOS/Sci. & Tech/

No 0 0 3 5 8

Date: 15/09/2021

To,

17 SEP 2021

The Principal/ Director,
All-affiliated Engineering Colleges/ Institute,
Shivaji University, Kolhapur.

Subject : Regarding revised Syllabus and equivalence of CBCS Final Year B.Tech.
Part-IV Sem-VII-VIII Program under Faculty of Science and Technology.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the University Authorities have accepted and granted approval to structure and Syllabus of CBCS Final Year B.Tech. Part-IV Sem-VII-VIII under the Faculty of Science & Technology.

B. Tech. Programme (Branch)

1.	Civil Engineering & Technology
2.	Mechanical Engineering & Technology
3.	Electrical Engineering & Technology
4.	Chemical Engineering & Technology
5.	Electronics Engineering & Technology
6.	Electronics and Telecommunication Engineering & Technology
7.	Computer Science Engineering & Technology
8.	Information Technology Engineering & Technology
9.	Production

This revised syllabus and equivalence shall be implemented with effect from the academic year 2021-2022 (i.e. from June 2021) onwards. A soft copy containing syllabus is attached herewith and it is available on university website- www.unishivaji.ac.in.

The question papers on the pre-revised syllabi of above mentioned course will be set for the examinations to be held in October /November 2021 & March/April 2022. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,



Yours faithfully,
Dy. Registrar

Copy to:

1	The I/c Dean, Faculty of Science & Technology	7	Computer Centre
2	The Chairman, Respective Board of Studies	8	Affiliation Section (T.1)
3	Director, Examination and Evaluation	9	Affiliation Section (T.2)
4	Eligibility Section	10	P.G. Admission Section
5	O.E. - 4	11	P.G Seminar Section



SHIVAJI UNIVERSITY, KOLHAPUR

FINAL YEAR (B.Tech.) CBCS

In

CIVIL ENGINEERING

(To be implemented from JUNE 2021)

Final Year Civil Engineering - CBCS Pattern

SEMESTER-VII																		
Sr.No	Course/Subject (Title)	TEACHINGSCHEME						EXAMINATIONS SCHEME										
		THEORY			TUTORIAL			PRACTICAL			THEORY			PRACTICAL				
		Credits	No. of Lectures	Hours	Credits	No. of Lectures	Hours	Credits	No. of Lectures	Hours	Hours	Mode	Marks	Total Marks	Min	Max	Hours	Min
1	PCC-CV701	4	4	4	-	-	-	1	2	2	CIE 30 ESE 70	100	40	-	-	2	25	20
2	PCC-CV702	3	3	3	1	1	1	-	-	-	CIE 30 ESE 70	100	40	-	-	2	25	10
3	PCC-CV703	3	3	3	-	-	-	1	2	2	CIE 30 ESE 70	100	40	25	10	2	25	10
4	PCC-CV704	3	3	3	-	-	-	1	2	2	CIE 30 ESE 70	100	40	25	10	2	25	10
5	PCE-CV705	3	3	3	1	1	1	-	-	-	CIE 30 ESE 70	100	40	25	10	2	25	20
6	PCC-CV706	2	2	2	-	-	-	1	2	2	CIE 30 ESE 70	100	40	25	10	2	25	20
7	SI-CV707	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	25	20
8	PW-CV708	-	-	-	-	-	-	1	2	2	-	-	-	-	-	2	50	20
	TOTAL	18	18	18	2	2	2	5	10	10	500	75	225	AsperBOSGuidelines				
SEMESTER-VIII																		
1	PCC-CV801	4	4	4	-	-	-	1	2	2	CIE 30 ESE 70	100	40	-	-	2	25	10
2	PCC-CV802	3	3	3	-	-	-	1	2	2	CIE 30 ESE 70	100	40	-	-	2	25	10
3	PCC-CV803	3	3	3	-	-	-	1	2	2	CIE 30 ESE 70	100	40	-	-	2	25	10
4	PCE-CV804	3	3	3	1	1	1	-	-	-	CIE 30 ESE 70	100	40	-	-	-	-	-
5	PCE-CV805	3	3	3	1	1	1	-	-	-	CIE 30 ESE 70	100	40	-	-	-	-	-
6	PCC-CV806	-	-	-	-	-	-	2	4	4	-	-	-	25	10	2	50	10
7	PW-CV807	-	-	-	-	-	-	1	2	2	-	-	-	100	40	2	50	20
	TOTAL	16	16	16	2	2	2	7	14	14	500	125	175	AsperBOSGuidelines				
	TOTAL	35	35	35	3	3	3	12	24	24	1000	200	400					



SEMESTER-VII					
Sr. No	CodeNo.	Course(SubjectTitle)		Semester	Credits
1	PCC-CV701	DCS-I	Design of Concrete Structures-I	7	5
2	PCC-CV702	EQ	Earthquake Engineering	7	4
3	PCC-CV703	QSV	Quantity Survey and Valuation	7	4
4	PCC-CV704	TR-I	TransportationEngineering-I	7	4
5	PCE-CV705	EL-I	Professional Elective-I	7	4
6	HM-CV706	LACE	Legal Aspect in Civil Engineering	7	3
7	SI-CV707	FT	Field Training	7	-
8	PW-CV708	PP-I	Project Phase-I	7	1
TOTAL					25

SEMESTER-VIII					
Sr. No	CodeNo.	Course(SubjectTitle)		Semester	Credits
1	PCC-CV801	DCS-II	Design of Concrete Structures-II	8	5
2	PCC-CV802	WRE-II	WaterResourceEngineering-II	8	4
3	PCC-CV803	TR-II	TransportationEngineering-II	8	4
4	PCE-CV804	EL-II	Professional Elective-II	8	4
5	PCE-CV805	EL-III	Professional Elective-III	8	4
6	PCC-CV806	SDD-II	StructuralDesignandDrawing-II	8	2
7	PW-CV708	PP-II	Project Phase-II	8	2
TOTAL					25





SHIVAJI UNIVERSITY KOLHAPUR

REVISED SYLLABUS AND STRUCTURE
FINAL YEAR (FINAL YEAR B. Tech) BACHELOR OF
TECHNOLOGY

IN

Computer Science and Engineering

To be introduced from the academic year 2021-22

(w.e.f. June 2021) onwards

FINAL YEAR COMPUTER SCIENCE AND ENGINEERING - CBCS PATTERN																
SEMESTER - VII																
Sr. No.	Course Subject / Title	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			TUTORIAL		PRACTICAL		THEORY				ORAL / PRACTICAL		TERMWORK	
		Credits	NO. Of Lectures	Hours	Credits	No. of Hours	Credits	No. of Hours	mode	marks	Total Marks	MIN.	MAX	MIN.	MAX	MIN.
1	PCC-CS701 Advanced Computer Architecture	4	4	4	1	1			CIE	30	100	40			25	10
								ESE	70							
2	PCC- CS702 Cloud Computing	3	3	3			1	2	CIE	30	100	40			25	10
								ESE	70							
3	PCC- CS703 Advanced Database Systems	3	3	3			1	2	CIE	30	100	40	50	20	25	10
								ESE	70							
4	PCE- CS704 Elective-I	3	3	3	1	1			CIE	30	100	40			25	10
								ESE	70							
5	PCC- CS705 Web Technologies	3	3	3			2	4					50	20	50	20
6	PW- CS706 Project – I						2	4					50	20	50	20
7	SI-CS707 Internship						1								50	20
	Total (SEM –VII)	16	16	16	2	2	7	12			400		150		250	



FINAL YEAR COMPUTER SCIENCE AND ENGINEERING - CBCS PATTERN																
SEMESTER - VIII																
Sr. No.	Course Subject / Title	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			TUTORIAL		PRACTICAL		THEORY				ORAL / PRACTICAL		TERMWORK	
		Credits	No. Of Lectures	No. of Hours	Credits	No. of Hours	Credits	No. of Hours	mode	marks	Total Marks	MIN.	MAX	MIN.	MAX	MIN.
1	PCC- CS801 Big Data Analytics	4	4	4			1	2	CIE ESE	30 70	100	40	50	20	25	10
2	PCC- CS802 Deep Learning	3	3	3	1	1			CIE ESE	30 70	100	40			25	10
3	PCE- CS803 Elective-II	3	3	3	1	1			CIE ESE	30 70	100	40			25	10
4	PCE- CS804 Elective-III	3	3	3	1	1			CIE ESE	30 70	100	40			25	10
5	PCC- CS805 Mobile Application Development	3	3	3			2	4					50	20	50	20
6	PW- CS806 Project – II						2	4					50	20	50	20
7	HM-CS807 Professional Skills				1	1									50	20
	Total (SEM –VIII)	16	16	16	4	4	5	10			400		150		250	
	Total	32	32	32	6	6	12	22			800		300		500	

CIE- Continuous Internal Evaluation

ESE – End Semester Examination



• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for Final Yr. Sem VII & VIII : 800 + 800 =1600
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for Final Yr. Sem VII & VIII: 50 (SEM-VII: 25 + SEM-VIII: 25)
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	

Note:

1. **PCC-CS:** Professional Core Course – Computer Science and Engineering are compulsory.
2. **PCE-CS:** Professional Core Elective–Computer Science and Engineering are compulsory
3. **HM-CS:** Humanities and Management- Computer Science and Engineering are compulsory.
4. **PW-CS:** Domain Specific Mini Project — Computer Science and Engineering are compulsory.
5. **SI-CS:** Internship-Computer Science and Engineering are compulsory.

Professional Core Elective – I

1. Artificial Intelligence
2. Software Testing & Quality Assurance
3. Image Processing

Professional Core Elective – II

1. Project Management
2. Natural Language Processing
3. Ad-Hoc Wireless Sensor Networks

Professional Core Elective – III

1. High Performance Computing
2. Blockchain Technologies
3. Human computer Interaction





SHIVAJI UNIVERSITY KOLHAPUR

REVISED SYLLABUS AND STRUCTURE

SECOND YEAR (B. Tech) CBCS

Computer Science and Engineering

To be introduced from the academic year 2019-20

(i.e. from June 2019) onwards

(Subject to the modifications will be made from time to time)

**SECOND YEAR COMPUTER SCIENCE AND ENGINEERING - CBCS
PATTERN**

SEMESTER - III

SEMESTER - III																						
Sr. No	Course Subject / Title	TEACHING SCHEME									EXAMINATION SCHEME											
		THEORY			TUTORIAL			PRACTICAL			THEORY					PRACTICAL			TERMWORK K			
		Credits	N0. Of Lectures	Hours	Credits	No. of Hours	Hours	Credits	No. of Hours	Hours	Hours	mode	marks	Total Marks	MIN.	Hours	MAX	MIN.	Hours	MAX	MIN	
1	BSC - CS301 Applied Mathematics	3	3	3	1	1	1					CIE	30	100	40	AS PER BOS GUIDELINES				25	10	
2	PCC-CS302 DiscreteMathematics &Structures	3	3	3	1	1	1					ESE	70							25	10	
												CIE	30	100	40							
												ESE	70									
3	PCC- CS303 Data Structures	3	3	3								CIE	30	100	40							
												ESE	70									
4	PCC- CS304 Computer Networks - I	3	3	3				1	2	2		CIE	30	100	40			50	20		25	10
												ESE	70									
5	PCC- CS305 Microprocessors	3	3	3				1	2	2		CIE	30	100	40						25	10
												ESE	70									
6	PCC- CS306 C programming	3	3	3				2	4	4						AS PER BOS GUIDELINES	50	20		50	20	
7	HM- CS307 Soft Skills							1	2	2							25	10		25	10	
	Total (SEM –III)	18	18	18	2	2	2	5	10	10				500			125			175		



SECOD YEAR COMPUTER SCIENCE AND ENGINEERING - CBCS PATTERN

SEMESTER - IV

SEMESTER - IV																						
Sr. No	Course Subject / Title	TEACHING SCHEME										EXAMINATION SCHEME										
		THEORY			TUTORIAL			PRACTICAL				THEORY					PRACTICAL			TERMWORK		
		Credits	No. Of Lectures	Hours	Credits	No. of Hours	Hours	Credits	No. of Hours	Hours	Hours	mode	marks	Total Marks	MIN.	Hours	MAX	MIN.	Hours	MAX	MIN	
1	PCC-CS401 Automata Theory	3	3	3								CIE	30	100	40	AS PER BOS GUIDELINES						
2	PCC- CS402 Computer Networks - II	3	3	3				1	2	2		CIE	30	100	40			50	20		25	10
											ESE	70										
3	PCC- CS403 Computer Organization and Architecture	3	3	3								CIE	30	100	40							
											ESE	70										
4	PCC- CS404 Operating Systems - I	3	3	3				1	2	2		CIE	30	100	40						25	10
											ESE	70										
5	PCC- CS405 Software Engineering	3	3	3								CIE	30	100	40							
											ESE	70										
6	PCC- CS406 Object Oriented Programming	2	2	2				2	4	4								50	20		50	20
7	PW- CS407 Mini Project							1	2	2							50	20		50	20	
8	MC-CS408 Environmental Studies	2	2	2	1	1	1					CIE	30	100	40							
	Total (SEM –IV)	19	19	19	1	1	1	5	10	10				600			150			150		
	Total	37	37	37	3	3	3	10	20	20				1100			275			325		

CIE- Continuous Internal Evaluation

ESE – End Semester Examination



• Candidate contact hours per week : 30 Hours(Minimum)	• Total Marks for S.E. Sem III & IV : 800 + 900 =1700
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for S.E. Sem III & IV : 50 (SEM-III: 25 + SEM -IV:25)
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	

Note:

1. **BSC-CS:** Basic Science Course – Computer Science and Engineering are compulsory.
2. **ESC-CS:** Engineering Science Course - Computer Science and Engineering are compulsory.
3. **PCC-CS:** Professional Core Course – Computer Science and Engineering are compulsory.
4. **HM-CS:** Humanities and Management- Computer Science and Engineering are compulsory.
5. **PW-CS:** Project Work-- Computer Science and Engineering are compulsory.
6. **MC-CS:** Mandatory Course -Environmental Studies which is compulsory for theory 70 marks and project work 30 marks.





**SHIVAJI UNIVERSITY,
KOLHAPUR**

REVISED SYLLABUS AND STRUCTURE
THIRD YEAR (C.B.C.S.) BACHELOR OF TECHNOLOGY

IN

**Computer Science and
Engineering**

To be introduced from the academic year 2020-21

(w. e. f. June 2020) onwards

THIRD YEAR COMPUTER SCIENCE AND ENGINEERING - CBCS PATTERN																	
SEMESTER - V																	
Sr. No.	Course Subject / Title	TEACHING SCHEME								EXAMINATION SCHEME							
		THEORY			TUTORIAL		PRACTICAL			THEORY				ORAL / PRACTICAL		TERMWORK	
		Credits	No. Of Lectures	Hours	Credits	No. of Hours	Credits	No. of Hours	mode	marks	Total Marks	MIN.	MAX	MIN.	MAX	MIN.	
1	PCC-CS501 Information Security	3	3	3			1	2	CIE	30	100	40			50	20	
								ESE	70								
2	PCC- CS502 System Programming	3	3	3			1	2	CIE	30	100	40	25	10	50	20	
								ESE	70								
3	PCC- CS503 Object-Oriented Modeling & Design	3	3	3					CIE	30	100	40					
								ESE	70								
4	PCC- CS504 Computer Algorithms	4	4	4	1	1			CIE	30	100	40			25	10	
								ESE	70								
5	OEC- CS505 Computer Graphics & Multimedia	3	3	3					CIE	30	100	40					
	OEC-CS506 Internet of Things								ESE	70							
6	PCC- CS507 Java Programming	3	3	3			2	4					50	20	50	20	
7	HM- CS508 Business English				1	2							25	10	25	10	
	Total (SEM -V)	19	19	19	2	3	4	8			500		100		200		



THIRD YEAR COMPUTER SCIENCE AND ENGINEERING - CBCS PATTERN																
SEMESTER - VI																
Sr. No.	Course Subject / Title	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			TUTORIAL		PRACTICAL		THEORY				ORAL / PRACTICAL		TERMWORK	
		Credits	No. Of Lectures	No. of Hours	Credits	No. of Hours	Credits	No. of Hours	mode	marks	Total Marks	MIN.	MAX	MIN.	MAX	MIN.
1	PCC-CS601 Compiler Construction	3	3	3			1	2	CIE	30	100	40			25	10
								ESE	70							
2	PCC- CS602 Operating System-II	4	4	4			1	2	CIE	30	100	40			25	10
								ESE	70							
3	PCC- CS603 Database Engineering	4	4	4			1	2	CIE	30	100	40	50	20	25	10
								ESE	70							
4	PCC- CS604 Machine Learning	3	3	3	1	1			CIE	30	100	40			25	10
								ESE	70							
5	OEC- CS605 E-Commerce & Digital Marketing OEC - CS606 ii) Cyber Security	3	3	3					CIE	30	100	40				
								ESE	70							
6	PCC- CS607 C# Programming	2	2	2			1	2					50	20	25	10
7	PW- CS608 Domain Specific Mini Project						1	2					50	20	25	10
Total (SEM –VI)		19	19	19	1	1	5	10			500		150		150	
Total (SEM - V+ SEM - VI)		38	38	38	3	4	9	18			1000		250		350	

CIE- Continuous Internal Evaluation

ESE – End Semester Examination



• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for T.Y. Sem V & VI : 800 + 800 =1600
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for T.Y. Sem V & VI : 50 (SEM-V: 25 + SEM -VI: 25)
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	

Note:

1. **PCC-CS:** Professional Core Course – Computer Science and Engineering are compulsory.
2. **HM-CS:** Humanities and Management- Computer Science and Engineering are compulsory.
3. **PW-CS:** Domain Specific Mini Project – Computer Science and Engineering are compulsory.
4. **#OEC-CS: Open Elective Course** – To be offered to Inter departmental students.
 - # - 60% of the students from other branches to be chosen on merit.
 - 40% of the students may be from same branch based on merit.
 - Number of students to be allowed should be 72(Max.) for the branch with intake of 60 students.
 - The above ratio should be followed in proportionate to the sanctioned intake.

OPEN ELECTIVE COURSE-I

Sr. No.	Name of the Subject	Name of the concern Branch
1	i) Computer Graphics & Multimedia ii) Internet of Things	Computer Science and Engineering

OPEN ELECTIVE COURSE-II

Sr. No.	Name of the Subject	Name of the concern Branch
1	i) E-Commerce & Digital Marketing ii) Cyber Security	Computer Science and Engineering



SHIVAJI UNIVERSITY, KOLHAPUR-416 004, MAHARASHTRA
PHONE : EPABX-2609000 website- www.unishivaji.ac.in
FAX 0091-0231-2691533 & 0091-0231-2692333 - BOS - 2609064
शिवाजी विद्यापीठ, कोल्हापूर - 416004.
दुरध्वनी (ईपीएबीएक्स) २६,०९,००० (अभ्यास मंडळे विभाग- २६,०९,०९४)
फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३ e-mail: bos@unishivaji.ac.in

SU/BOS/Sci. & Tech/7400

Date: 21/07/2018

To,

The Principal/ Director,
All affiliated Engineering Colleges/ Institute,
Shivaji University, Kolhapur.

Subject : Regarding Guidelines, structure, of CBCS B. Tech. Program and syllabus of First Year B. Tech. Program under Faculty of Science and Technology.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the University Authorities have accepted and granted approval to Guidelines, structure of CBCS B. Tech. Program and syllabus of First Year B. Tech. Program to following branches under Faculty of Science and Technology:

B. Tech. Programme (Branch)

1.	Civil Engineering & Technology
2.	Mechanical Engineering & Technology
3.	Production Engineering & Technology
4.	Automobile Engineering & Technology
5.	Electrical Engineering & Technology
6.	Chemical Engineering & Technology
7.	Electronics Engineering & Technology
8.	Electronics and Telecommunication Engineering & Technology
9.	Biotechnology Engineering & Technology
10.	Information Technology Engineering & Technology
11.	Environmental Engineering & Technology
12.	Computer Science Engineering & Technology

The revised syllabi shall be implemented from the academic year 2018-19 (i.e. from July 2018) onwards. A soft copy containing CBCS Guidelines, structure, and syllabus of First Year B. Tech. is enclosed herewith. The syllabus is also made available on university website www.unishivaji.ac.in.

Further, it is hereby informed that the question papers on the pre-revised syllabi shall be set for the examination to be held in October/November 2018 and April/May 2019. These chances are available for repeater students, if any.

You are therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

Dy. Registrar

Encl.: as above.

Copy to-

- 1) I/c Dean, Faculty of Science & Technology
 - 2) Director, Examination and Evaluation
 - 3) The Chairman, respective BOS / Co-ordinating Committee
 - 4) O.E. 4 Section
 - 5) Appointment Section
 - 6) Eligibility Section
 - 7) Meeting Section
- For information & necessary action.

SHIVAJI UNIVERSITY, KOLHAPUR



Accredited by NAAC 'A' Grade

Syllabus for

Bachelor of Technology

(B. Tech.) Program

(To be implemented from June, 2018 onwards)

SHIVAJI UNIVERSITY, KOLHAPUR
FIRST YEAR ENGINEERING AND TECHNOLOGY
Structure and Syllabus
(From the Academic Year 2018-2019)

(Course common to all branches except Architecture and Textile Engineering)

INSTRUCTIONS:

There are two groups in each semester:

1. Physics Group and

2. Chemistry Group

Allotment of groups to students:

a) Semester I: 50% students from each college will be admitted to Physics Group and remaining 50% will be admitted to Chemistry Group. The concerned College will decide the number and names of the students to be admitted in physics and chemistry groups and inform the same to the University.

b) Semester II: The students for Physics group in semester-I will be admitted to Chemistry Group in semester-II. The students for Chemistry Group in semester-I will be admitted to Physics Group in semester-II.



First Year Engineering and Technology – CBCS PATTERN (All Branches) (Sem I & II)

SEMESTER - I																			
Sr. No		TEACHING SCHEME									EXAMINATION SCHEME								
		THEORY			TUTORIAL			PRACTICAL			THEORY					PRACTICAL (Term wok)			
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	%Min	Hours	Max	%Min	
1	BSC-P-101 BSC-C-101	3	3	3	-	-	-	1	2	2		CIE	30	100	40%	As per BOS Guidelines	25	40%	
2	BSC-M-I-102	3	3	3	1	1	1	-	-	-		CIE	30	100	40%		25	40%	
3	ESC-103	3	3	3	-	-	-	1	2	2		ESE	70	100	40%		25	40%	
4	ESC-104	3	3	3	-	-	-	1	2	2		CIE	30	100	40%		25	40%	
5	ESC-105	3	3	3	-	-	-	1	2	2		ESE	70	100	40%		25	40%	
6	HM-I-106	1	1	1	-	-	-	1	2	2		CIE	30	100	40%		25	40%	
7	ESC-W-I-107	1	1	1	-	-	-	1	2	2		ESE	70	100	40%		25	40%	
	TOTAL	17	17	17	1	1	1	6	12	12		-	-	-	-		50	40%	
SEMESTER -II																			
1	BSC-P-201 BSC-C-201	3	3	3	-	-	-	1	2	2		CIE	30	100	40%		As per BOS Guidelines	25	40%
2	BSC-M-II-202	3	3	3	1	1	1	-	-	-		ESE	70	100	40%			25	40%
3	ESC-203	3	3	3	-	-	-	1	2	2		CIE	30	100	40%	25		40%	
4	ESC-204	3	3	3	-	-	-	1	2	2		ESE	70	100	40%	25		40%	
5	ESC-205	3	3	3	-	-	-	1	2	2		CIE	30	100	40%	25		40%	
6	HM-II-206	1	1	1	-	-	-	1	2	2		ESE	70	100	40%	25		40%	
7	ESC-W-II-207	1	1	1	-	-	-	1	2	2		CIE	30	100	40%	25		40%	
	TOTAL	17	17	17	1	1	1	6	12	12		-	-	-	-	50		40%	
	TOTAL	34	34	34	2	2	2	12	24	24				1000		400			

CIE – Continuous Internal Evaluation ESE – End Semester Examination



Candidate contact hours per week : 30 Hours(Minimum)
Total Marks for B.Tech I. Sem I & II :1400
Theory and Practical Lectures : 60 MinutesEach
Total Credits for B.Tech.-I (Semester I & II) :48
IntheoryexaminationtherewillbeapassingbasedonseparateheadofpassingforexaminationofCIEandESE
There shall be separate passing for theory and practical (term work)courses
Non-Credit Self Study Course : Compulsory Civic Courses(CCC)
For Sem I: CCC – I : Democracy, Elections and Good Governance
Non-Credit Self Study Course : Skill Development Courses (SDC) For Sem II: SDC – I :
Any one from following (i) to(v)
i) Business Communication & Presentation ii) Event management iii) Personality Development, iv)
Yoga & Physical Management v) Resume, Report & proposal writing

Note:
1.BSC : Basic Science Course arecompulsory.
2.HM : Humanities and Management arecompulsory.
3.ESC : Engineering Science Course : ESC- P for courses (subjects) are mandatory Physics group, while ESC – C courses (subjects) are mandatory for Chemistry group.
4. There will be two groups for Sem I & II Physics and Chemistry. The Candidate's those opting Physics group in Sem I shall appear for Chemistry group in Sem II andVice-versa.
5.ESC-W: Engineering Science Course-Workshop arecompulsory.



Course List

Semester – I

Physics Group			
Sl. No	Code No.	Subject	Credits
1.	BSC-P-101	Engineering Physics	4
2.	BSC-M-I-102	Engineering Mathematics-I	4
3.	ESC-P-103	Basic Electrical Engineering	4
4.	ESC-P-104	Basic Civil Engineering	4
5.	ESC-P-105	Engineering Graphics	4
6.	HM-I-106	Professional Communication-I	2
7.	ESC-W-I-107	Workshop Practice-I	2
		Total	24

Chemistry Group			
Sl. No	Code No.	Subject	Credits
1.	BSC-C-101	Engineering Chemistry	4
2.	BSC-M-I-102	Engineering Mathematics-I	4
3.	ESC-C-103	Fundamentals of Electronics and Computer Programming	4
4.	ESC-C-104	Applied Mechanics	4
5.	ESC-C-105	Basic Mechanical Engineering	4
6.	HM-I-106	Professional Communication-I	2
7.	ESC-W-I-107	Workshop Practice-I	2
		Total	24



Semester II

Chemistry Group			
Sl. No	Code No.	Subject	Credits
1.	BSC-C-201	Engineering Chemistry	4
2.	BSC-M-II-202	Engineering Mathematics-II	4
3.	ESC-C203	Fundamentals of Electronics and Computer Programming	4
4.	ESC-C204	Applied Mechanics	4
5.	ESC-C205	Basic Mechanical Engineering	4
6.	HM-II-206	Professional Communication-II	2
7.	ESC-W-II-207	Workshop Practice-II	2
Total			24

Physics Group			
Sl. No	Code No.	Subject	Credits
1.	BSC-P-201	Engineering Physics	4
2.	BSC-M-II-202	Engineering Mathematics-II	4
3.	ESC-P-203	Basic Electrical Engineering	4
4.	ESC-P-204	Basic Civil Engineering	4
5.	ESC-P-205	Engineering Graphics	4
6.	HM-II -206	Professional Communication-II	2
7.	ESC-W-II-207	Workshop Practice-II	2
Total			24





SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS AND STRUCTURE
SECOND YEAR (B. Tech.)

Electronics & Computer Science Engineering.

To be introduced from the academic year 2023-24
(i.e., from June 2023) onwards

Semester III

Sr. No	Code No.	Subject	Semester	Credits
1	BSC-ECS-301	Engineering Mathematics – III	3	4
2	PCC-ECS-301	Electronic Devices	3	5
3	PCC-ECS-302	Digital Electronics	3	4
4	PCC-ECS-303	Data Structures and Algorithms	3	4
5	PCC-ECS-304	Database Management System	3	4
6	PCC-ECS-305	Programming in C	3	3
		Total		24

Semester IV

Sr. No	Code No.	Subject	Semester	Credits
1	PCC-ECS-401	Electronic Circuits	4	4
2	PCC-ECS-402	Controls and Instrumentation	4	4
3	PCC-ECS-403	Computer Network	4	4
4	PCC-ECS-404	Microprocessors and Microcontrollers	4	4
5	PCC-ECS-405	Discrete Structure & Automata Theory	4	4
6	PCC-ECS-406	Programming in C++	4	3
7	MC-ECS-401	Environment Studies	4	3
		Total		26

*****For Theory CIE 30 Marks,**

Two tests of 30 marks at college should be conducted and best of two marks should be communicated to university.

*****Guidelines to paper setter:**

In theory ESE examination of 70 marks following points should be considered,

1. First question of 10 marks should be allotted to Objective type questions.
2. In Remaining 60 marks, four questions of 15 marks should be considered.

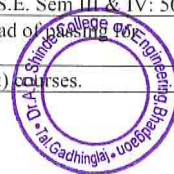


**SECOND YEAR ELECTRONICS & COMPUTER SCIENCE ENGINEERING –
CBCS PATTERN
Semester Examination**

SEMESTER III																				
Sr No	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME									
		THEORY			TUTORIAL			PRACTICAL			THEORY					PRACTICAL			TERM WORK	
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max
1	BSC- ECS-301	3	3	3	1	1	1	-	-	-	CIE	30	100	40	As per BOS Guidelines	-	-		25	10
2	PCC- ECS-301	4	4	4	-	-	-	1	2	2	ESE	70								
3	PCC- ECS-302	3	3	3	-	-	-	1	2	2	CIE	30								
4	PCC- ECS-303	3	3	3	1	1	1				ESE	70								
5	PCC- ECS-304	3	3	3	-	-	-	1	2	2	CIE	30								
6	PCC- ECS-305	2	2	2	-	-	-	1	2	2	ESE	70								
	TOTAL	18	18	18	2	2	2	4	8	8			500							
SEMESTER IV																				
1	PCC- ECS-401	3	3	3	-	-	-	1	2	2	CIE	30	100	40	As per BOS Guidelines	50	20		25	10
2	PCC- ECS-402	3	3	3	-	-	-	1	2	2	ESE	70								
3	PCC- ECS-403	3	3	3	-	-	-	1	2	2	CIE	30								
4	PCC- ECS-404	3	3	3	-	-	-	1	2	2	ESE	70								
5	PCC- ECS-405	3	3	3	1	1	1	-	-	-	CIE	30								
6	PCC-ECS- 406	2	2	2	-	-	-	1	2	2	ESE	70								
7	MC-ECS- 401	2	2	-	1	1	1	-	-	-	CIE	30								
	TOTAL	19	19	19	2	2	2	5	10	10			600			150			150	
TOTAL		37	37	37	4	4	4	9	18	18			1100			300			300	

CIE- Continuous Internal Evaluation, ESE – End Semester Examination

• Candidate contact hours per week: 30 Hours (Minimum)	• Total Marks for S.E. Sem III & IV: 1700
• Theory and Practical Lectures: 60 Minutes	• Total Credits for S.E. Sem III & IV: 50
• In theory examination there will be a passing based on separate head of examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	



Note:

1. **BSC-ECS:** Basic Science Course- Electronics & Computer Science Engineering are compulsory.
2. **PCC-ECS:** Professional Core course –Electronics & Computer Science Engineering are compulsory.
3. **MC-ECS:** Mandatory Course: Environmental Studies which is compulsory for theory 70 marks and project work 30 marks.





SHIVAJI UNIVERSITY KOLHAPUR

REVISED STRUCTURE AND SYLLABUS

THIRD YEAR (B. Tech) CBCS

ELECTRICAL ENGINEERING

To be introduced from the academic year 2020-21

(i.e. from June 2020) onwards

(Semester V and Semester VI)



SHIVAJI UNIVERSITY, KOLHAPUR
CBCS STRUCTURE FOR T.Y.B. TECH. ELECTRICAL ENGINEERING
(Semester V and Semester VI)

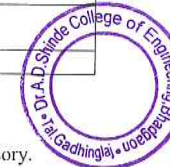
SEMESTER – VI (Duration – 6 Months)																						
Sr. No.	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME											
		THEORY			Tutorial			PRACTICAL			THEORY					PRACTICAL						
		Credits	No. of lectures	Hours	Credits	No. of lectures	Hours	Credits	No. of lectures	Hours	Hours	Mode	Marks	Total Marks	Min	Max	Min	Max	Min			
1	PCC-EE307/ DSP	4	4	4	-	-	-	-	-	-	CIE	30	100	40	-	-	-	-				
2	OCE-EE302/ OE - II	2	2	2	-	-	-	1	2	2	ES E	70							ES E	70	100	40
3	PCC-EE308/ EMD	4	4	4	1	1	1	1	2	2	CIE	30	100	40	50	20	50	20				
4	PCC-EE309/ PSSC	4	4	4	-	-	-	1	2	2	ES E	70							CIE	30	ES E	70
5	PCC-EE310/ ED	3	3	3	-	-	-	1	2	2	CIE	30	100	40	25	10	50	20				
6	BSC-EE311/ EITM	-	-	-	2	2	2	1	2	2	ES E	70							-	-	-	50
TOTAL		17	17	17	3	3	3	5	10	10			500		200		100					

CIE- Continuous Internal
Evaluation ESE – End Semester
Examination

• Candidate contact hours per week : 30 Hours(Minimum)	• Total Marks for T.E. Sem V & VI :1725
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for T.E. Sem V & VI :50
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work)courses.	

Note:

1. **BSC-EE:** Basic Science Course- Electrical Engineering are compulsory.
2. **PCC-EE:** Professional Core course –Electrical Engineering are compulsory.
3. **OCE-EE:** Open Course Elective for the students from other discipline



Semester V

Sr. No	Code No.	Subject	Credits
1.	PCC-EE301	Digital Electronics And Micro Processor	4
2.	OCE-EE301	Open Elective – I	3
3.	PCC-EE302	AC Machines	4
4.	PCC-EE303	Power System-II	4
5.	PCC-EE304	Advanced Control System	4
6.	PCC-EE305	Signals & Systems	4
7.	PCC-EE306	MATLAB	2
Total			25

Semester VI

Sr. No	Code No.	Subject	Credits
1.	PCC-EE307	Digital Signal Processing	4
2.	OCE-EE302	Open Elective – II	3
3.	PCC-EE308	Electrical Machine Design	6
4.	PCC-EE309	Power System Stability And Control	5
5.	PCC-EE310	Electrical Drives- I	4
6.	PCC-EE311	Electrical Installations testing and maintenance	3
Total			25

Open Elective – I (Any One)

1	Electrical Appliances And Luminaries
2	Domestic /Industrial Electrical Installation, Estimation And Costing

Open Elective – II (Any One)

1	Electrical Energy Audit And Conservation
2	PLC & SCADA





SHIVAJI UNIVERSITY KOLHAPUR

REVISED STRUCTURE AND SYLLABUS

FINAL YEAR (B. Tech) CBCS

ELECTRICAL ENGINEERING

To be introduced from the academic year 2021-

22 (i.e. from June 2021) onwards

**CBCS STRUCTURE FOR FINAL YEAR B.TECH. ELECTRICAL
ENGINEERING**

SEMESTER – VII (Duration – 6 Months)																			
Sr. No.	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME								
		THEORY			TUTORIAL			PRACTICAL			THEORY				PRACTICAL				
		Credits	No. of lectures	Hours	Credits	Conduction Hours	Hours	Credits	Conduction Hours	Hours	Hours	Mode	Marks	Total Marks	Min	TW		POE	
1	PCC-EE401/ FACTS	03	03	03	--	--	--	--	--	--		CIE	30						
2	OCE-EE401/ OE-I	03	03	03	01	01	01	--	--	--		ESE	70	100	40	--	--	--	--
3	PCC- EE402/PQH	03	03	03	01	01	01	--	--	--		CIE	30						
												ESE	70	100	40	25	10	--	--
4	PCC- EE403/CMPs	03	03	03	--	--	--	01	--	02		CIE	30						
												ESE	70	100	40	25	10	--	--
5	PCC-EE404/ SAP	03	03	03	--	--	--	01	--	02		CIE	30						
6	PCC-EE405/ ITP	01	01	01	01	01	01					ESE	70						
												CIE	30	100	40	25	10	50	20
7	PCC- EE406/PP-I	--	--	--	--	--	--	04	04	04		ESE	70	100	40	50	20	--	--
											-	-	-	-	-	50	20	50	20
	TOTAL	16			03			06						600		200		150	
TOTAL CREDIT										25	TOTAL MARKS								950



SHIVAJI UNIVERSITY, KOLHAPUR
**CBCS STRUCTURE FOR FINAL YEAR B.TECH. ELECTRICAL
ENGINEERING**

SEMESTER – VIII (Duration – 6 Months)																			
Sr.	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME								
		THEORY			TUTORIAL			PRACTICAL			THEORY				PRACTICAL				
		Credits	No. of lectures	Hours	Credits	Conduction Hours	Hours	Credits	Conduction Hours	Hours	Hours	Mode	Marks	Total Marks	Min	TW		POE	
																Max	Min	Max	Min
1	PCC-EE407/ MED	03	03	03	--	--	--	--	--	--	CIE	30	100	40	50	20	--	--	
2	OCE-EE402/ OE-II	03	03	03	01	01	01	--	--	--	ESE	70							
3	PCC- EE408/HVDC	03	03	03	--	--	--	01	02	02	CIE	30	100	40	25	10	50	20	
4	PCC- EE409/EHVA C	03	03	03	01	01	01	--	--	--	ESE	70							
5	PCC-EE410/ EGUT	03	03	03	01	01	01	--	--	--	CIE	30	100	40	--	--	--	--	
6	PCC-EE411/ Seminar	--	--	--	02	02	02	--	--	--	ESE	70							
7	PCC- EE412/PP-II	--	--	--	--	--	--	04	04	04	CIE	30	--	--	50	20	--	--	
											ESE	70							
TOTAL		15			05			05			-	-	-	-	100	40	100	40	
TOTAL CREDIT										25	TOTAL MARKS							950	

• Candidate contact hours per week : 30 Hours(Minimum)	• Total Marks for T.E. Sem V & VI:1725
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for T.E. Sem V & VI:50
• In theory examination there will be a passing based on separate head of passing for examination of CIEand ESE.	
• There shall be separate passing for theory and practical (termwork)courses.	

Note:

1. **PCC-EE:** Professional Core course –Electrical Engineeringare compulsory.
2. **OCE-EE:** Open Course Elective for the students from otherdiscipline



Semester VII

Sr. No	Code No.	Subject	Credits
1.	PCC-EE401	FACTS	03
2.	OCE-EE401	Open Elective-I	04
3.	PCC-EE402	Power Quality and Harmonics	04
4.	PCC-EE403	Computer Methods in Power Systems	04
5.	PCC-EE404	Advanced Switchgear and Protection	04
6.	PCC-EE405	Industrial Training & Presentation	02
7.	PCC-EE406	Project Phase-I	04
Total			25

Semester VIII

Sr. No	Code No.	Subject	Credits
1.	PCC-EE407	Management & Entrepreneurship Development	03
2.	OCE-EE402	Elective II	04
3.	PCC-EE408	HVDC Systems	04
4.	PCC-EE409	EHVAC	04
5.	PCC-EE410	Electrical Generation, Utilization & Traction	04
6.	PCC-EE411	Seminar	02
7.	PCC-EE412	Project Phase-II	04
Total			25

Open Elective – I (Any One)

1	Smart Grid
2	Electric Vehicle
3	Integrated Resource planning
4	Restructured Power System

Open Elective – II (Any One)

1	PLC and SCADA Application
2	VLSI Design & Embedded System
3	Electrical Maintenance and Electrical Energy Audit
4	Advanced Microcontrollers & Its applications

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