

Walchand College of Engineering, Sangli

(An Autonomous Institute)



Draft Curriculum (Structure)

for

B.Tech. in Computer Science and

Engineering

Academic Year

FY B. Tech. 2018-2019

SY B. Tech. 2019-2020

TY B. Tech. 2020-2021

Final Year B. Tech. 2021-22

Walchand College of Engineering, Sangli
(An Autonomous Institute)

Teaching and Evaluation Scheme effective from 2018-19

First year B. Tech. Program in Computer Science and Engineering
Semester I

Course			Teaching Scheme				Evaluation Scheme			
Category	Code	Name	L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
BS	4CH103	Chemistry for Computer Professionals	3	-	-	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
BS	4MA101	Engineering Mathematics I	3	1	-	4	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
ES	4AM102	Introduction to Engineering Mechanics	2	-	-	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
ES	4CV101	Basic Civil Engineering	2	-	-	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
ES	4ME102	Engineering Graphics	1	-	4	3	ISE	100		40
BS	4BS10*	Elective on Basic Sciences	2	-	-	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
BS	4CH151	Engineering Chemistry Laboratory	-	-	2	1	ISE	100		40
ES	4CV151	Civil and Mechanics Laboratory	-	-	2	1	ISE	100		40
ES	4ME152	Workshop Practice	-	-	2	1				
Total			13	1	10	19	Total Credits: 19 Total Contact Hrs: 24			

Elective on Basic Sciences			
4BS101	Biology for Engineers	4BS102	Material Science
4BS103	Introduction to Geoscience	4BS104	Life Science

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First year B. Tech. Program in Computer Science and Engineering

Semester II

Course			Teaching Scheme				Evaluation Scheme			
Category	Code	Name	L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
BS	4PH103	Physics for Computer Professionals	3	-	-	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
BS	4MA102	Engineering Mathematics II	3	1	-	4	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
ES	4ME101	Basic Mechanical Engineering	2	-	-	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
ES	4EL101	Basic Electrical Engineering	2	-	-	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
ES	4EN101	Basic Electronics Engineering	2	-	-	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
HS	4HS101	English for Professional Communication	2	1	-	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
BS	4PH151	Engineering Physics Laboratory	-	-	2	1	ISE	100	40	
ES	4EN151	Electronics Engineering Laboratory	-	-	2	1	ISE	100	40	
ES	4CS153	Computer Programming	0	-	4	2	ISE	100	40	
Total			14	2	8	20	Total Credits: 20 Total Contact Hrs: 24			

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Semester I

Course			Teaching Scheme				Evaluation Scheme			
Category	Code	Name	L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
BS	4CS201	Applied Mathematics for Computer Science and Engineering	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS202	Discrete Mathematics	3	1	0	4	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS203	Data Structures	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS204	Data Communication	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS205	Computer Organization and Architecture	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
HS	4HS203	Environmental Science	2	1	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS251	Data Structures Laboratory	0	0	2	1	ISE	50	20	
							ESE	50	20	
PC	4CS252	Computer Organization and Architecture Lab	0	0	2	1	ISE	50	20	
							ESE	50	20	
PC	4CS253	Programming Laboratory 1	0	0	4	2	ISE	50	20	
							ESE	50	20	
Total			17	2	8	23	Total Credits: 23 Total Contact Hrs: 27			

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Semester II

Course			Teaching Scheme				Evaluation Scheme			
Category	Code	Name	L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
HS	4HS201/ 4HS202	Development of Societies/Philosophy	2	0	0	2	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS221	Software Engineering	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS222	Formal Language and Automata Theory	3	1	0	4	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS223	Operating Systems	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS224	Database Engineering	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS225	Computer Network	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS271	Database Engineering Laboratory	0	0	2	1	ISE	50	20	20
							ESE	50	20	
PC	4CS272	Computer Network Laboratory	0	0	2	1	ISE	50	20	20
							ESE	50	20	
PC	4CS273	Programming Laboratory 2	0	0	4	2	ISE	50	20	20
							ESE	50	20	
Total			17	1	8	22	Total Credits: 22 Total Contact Hrs: 26			

Walchand College of Engineering, Sangli

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Credit Systems for

TY B. Tech. (CSE)

Sem-V to VI

AY 2020-21



Walchand College of Engineering, Sangli
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Credit System for T.Y. B.Tech. CSE Sem V AY 2020-21

Sr.No.	AICTE Category	Course Code	Course Name	L	T	P	Hrs	Credits	ISE-1	MSE*	ISE-2	ESE
Professional Core (Theory)												
1	PC	4CS301	Compiler Design	3	1	0	4	4	10	30	10	50
2	PC	4CS302	Design and Analysis of Algorithms	3	0	0	3	3	10	30	10	50
4	PC	4CS303	Computer Graphics	2	0	0	2	2	10	30	10	50
Professional Core (Lab)												
3	PC	4CS352	Design and Analysis of Algorithms Lab	0	0	2	2	1	25	25	25	25
4	PC	4CS353	Computer Graphics Lab	0	0	2	2	1	25	25	25	25
5	PC	4CS341	Mini Project 1	0	0	2	2	1	25	25	25	25
6	PC	4CS354	Programming Lab 3	0	0	4	4	2	25	25	25	25
Mandatory Life Skill Courses												
7	HS	4HS307/401	Fundamentals of Management and Economics for Engineers	4	0	0	4	4	10	30	10	50
Professional Elective												
8	PE	4CS3**	Professional Elective 1	3	0	0	3	3	10	30	10	50
Open Elective												
9	OE	4OE3**	Open Elective 1	3	0	0	3	3	10	30	10	50
Value Added Professional Courses												
10	VAPC	Refer list	Value Added Professional Courses				2	# 2				
Value Added Life-Skill Courses												
11	VALS	Refer list	Value Added Life Skill Courses				2	# 2				
Total				18	1	10	29	24				

M. A. Shah
Dr. M. A. Shah
Head

Department of Computer Science & Engineering

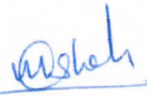
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Course List for T.Y. B.Tech. CSE Sem V AY 2020-21

Sr.No.	Course Code	Course Name
Professional Elective I		
1	4CS311	Machine Learning
2	4CS312	Digital Image Processing
3	4CS313	Internet (Web) of Things


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Credit System for T.Y. B.Tech. CSE Sem VI AY 2020-21

Sr.No.	AICTE Category	Course Code	Course Name	L	T	P	Hrs	Credits	ISE-1	MSE*	ISE-2	ESE
Professional Core (Theory)												
1	PC	4CS321	Cloud Computing	3	0	0	3	3	10	30	10	50
2	PC	4CS322	Advanced Database System	3	0	0	3	3	10	30	10	50
Professional Core (Lab)												
3	PC	4CS372	Advanced Database System Lab	0	0	2	2	1	25	25	25	25
4	PC	4CS342	Mini Project 2	0	0	2	2	1	25	25	25	25
Mandatory Life Skill Courses												
5	HS	4HS3**	Elective Foundation Course in Humanities	3	0	0	3	3	10	30	10	50
Professional Elective												
6	PE	4CS3**	Professional Elective 2	3	0	0	3	3	10	30	10	50
Professional Elective Laboratory												
7	PE	4CS3**	Professional Electives 1 Lab	0	0	4	4	2	25	25	25	25
Open Elective												
8	OE	4OE3**	Open Elective 2	3	0	0	3	3	10	30	10	50
Value Added Professional Courses												
9	VAPC	Refer list	Value Added Professional Courses				2	# 2				
Value Added Life-Skill Courses												
10	VALS	Refer list	Value Added Life Skill Courses				2	# 2				
Total				15	0	8	23	19				

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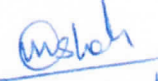


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Course List for T.Y. B.Tech. CSE Sem VI AY 2020-21

Professional Elective 2		
1	4CS331	Soft Computing
2	4CS332	Computer Vision
3	4CS333	Advanced Computer Network
4	4CS334	Remote Sensing and Geographic Information System
5	4CS335	Deep Learning

Professional Electives 1 Laboratory		
1	4CS381	Advanced Web and Mobile Application Development Laboratory
2	4CS382	Software Engineering tools Laboratory


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TY BTech Sem V

Open Elective I			Department
1	4OE 315	Remote Sensing & GIS, GPS	Civil
2	4OE330	Energy Engineering	Mechanical
3	4OE 343	Electrical Machine Technology	Electrical
4	4OE 357	Electronic Systems	Electronics
5	4OE 371	Software Engineering and Database Essentials	CSE
6	4OE385	The Joy of Computing using Python	IT

TY BTech Sem VI

Open Elective 2			Department
1	4OE309	Theory of Structures (C)	Civil
3	4OE337	Joining Technology (Mechanical)	Mechanical
4	4OE338	Mechanical Power Transmission (Mechanical)	Mechanical
5	4OE350	Renewable Energy (Electrical)	Electrical
6	4OE366	Biomedical Instrumentation (Electronics)	Electronics
7	4OE378	Artificial Intelligence and Machine Learning	CSE
8	4OE395	Modern Application Development	IT

Final Year BTech Sem VII

Open Elective 3			Department
1	1OE402	Finite Element Method (Applied Mechanics)	Civil
2	1OE416	Concrete Engineering and Technology (Civil)	Civil
3	1OE417	Computational Methods and Optimization Techniques (Civil)	Civil
4	1OE 429	Automobile Engineering (Mechanical) *	Mechanical
5	1OE 443	Industrial Automation (Electrical)	Electrical
6	1OE 457	Cyber Physical Systems (Electronics)	Electronics
7	1OE471	Business Intelligence (Computer Science and Engineering)	CSE
8	1OE 485	Data Visualization & Interpretation (Information Technology)	IT

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Notes:

* For Lab courses, there will be only internal continuous assessment. ESE is a separate head of passing for both theory and lab courses.

The Value Added Courses are Optional Courses. The mode of teaching (LTPI) is decided by the resource person. The list of Value added courses will be updated from time to time. The course may be on paid basis. The credits earned from these courses will be shown on grade card. For SPI and CPI calculation, these courses will be excluded. These courses will be offered as per availability of faculty.

@ Minimum 2 mandatory life skill courses are to be completed for award of degree.

For further details refer to Academic and Examination rules and regulations.

Walchand College of Engineering, Sangli
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Teaching and Evaluation Scheme from year 2021-22
Final year B. Tech. Program in Computer Science and Engineering
Semester I

Course			Teaching Scheme				Evaluation Scheme			
Category	Code	Name	L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
OE	4OE4**	Open Elective 3	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS401	Information Security	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PE	4CS4**	Professional Elective 3	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PE	4CS4**	Professional Elective 4	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS451	Information Security Laboratory	0	0	2	1	ISE	50	20	20
							ESE	50		
PE	4CS4**	Professional Elective 2 Laboratory	0	0	2	1	ISE	50	20	20
							ESE	50		
PC	4CS441	Project 1 and Seminar	0	0	6*	3	ISE	100		40
MC	4IC402	Essence of Indian Traditional Knowledge	2	0	0	0	ISE 1	35	20	40
							MSE	30		
							ISE 2	35		
Total			14	0	10	17	Total Credits: 17 Total Contact Hrs: 24			

*Indicates contact hours per week per project batch of 8-10 students.

Professional Electives 2 Laboratory	
4CS461	High Performance Computing Laboratory
4CS462	Data Mining Laboratory
Professional Elective 3	
4CS411	High Performance Computing
4CS412	Data Mining
Professional Elective 4	
4CS413	Advanced Machine Learning
4CS414	Software Defined Network
4CS415	Intelligent Systems

Open Elective 3		
Course Code	Course Name	Offered by
4OE 402	Finite Element Method	APM
4OE 416	Concrete Engineering and Technology	Civil
4OE 429	Auto. Engg	Mechanical
4OE 430	Aerospace Engg	Mechanical
4OE 431	Ind. Automation	Mechanical
4OE 443	Industrial Automation	Electrical
4OE 457	Cyber Physical Systems	Electronics
4OE458	Automobile Electronics	Electronics
4OE 471	Cyber Security	CSE
4OE 485	Data Visualization & Interpretation	IT
4OE 486	Social Network Analysis	IT
4OE 487	Basics of Soft Computing	IT

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Teaching and Evaluation Scheme from year 2021-22
Final year B. Tech. Program in Computer Science and Engineering
Semester II

Course			Teaching Scheme				Evaluation Scheme			
Category	Code	Name	L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
PE	4CS4**	Professional Elective 5	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PE	4CS4**	Professional Elective 6	3	0	0	3	ISE 1	10	20	40
							MSE	30		
							ISE 2	10		
							ESE	50		
PC	4CS491	Project 2	0	0	8*	8	ISE	50	20	
							ESE	50	20	
PC	4CS492	Summer internship [#]	0	0	0	1	ISE	100	40	
PC	4CS493	Techno-Socio Outreach	0	0	2	1	ISE	100	40	
MC	4IC401	Indian Constitution	2	0	0	0	ISE 1	35	20	40
							MSE	30		
							ISE 2	35		
Total			8	0	10	16	Total Credits: 16 Total Contact Hrs: 18			

indicates internship to be completed during summer vacations after second year but before Final year semester I.

Professional Electives 5	
4CS431	Computer Forensic
4CS432	Search Engine Design and Optimization
Professional Electives 6	
4CS433	Human Computer Interaction
4CS434	Social Networks

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Credits	19	20	23	22	24	19	17	16	160