

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBHAG, HYDERABAD-500031

DEPARTMENT OF CIVIL ENGINEERING

1. PO Attainment & Target (2018-22 Batch)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
Attainment	2.6	2.5	2.5	2.5	2.7	2.5	2.5	2.8	2.7	2.7	2.7	2.6
Target	2.1	2.2	2.4	2.4	2.0	2.4	2.3	1.9	2.0	2.0	2.5	2.2

2. PSO Attainment & Target (2018-22 Batch)

	PSO 1	PSO 2	PSO 3
Attainment	2.6	2.6	2.6
Target	2.1	2.4	2.2



HOD, Civil

PO ATTAINMENT DIRECT ASSESSMENT 2018-22 BATCH

S.No	Course code	Subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	U18HS110EH	English Language And Communication –I									2.9	2.9		2.9			2.9
2	U18BS120MA	Engineering Mathematics-I	2.5	2.5							2.9	2.5	2.5	2.5	2.5		
3	U18BS133PH	Oscillations, Waves and Optics	2.0	2.0	2.1		1.8					2.0		2.0	2.0		
4	U18BS140CH	CHEMISTRY-I	2.7	2.5				2.4						2.5	2.7		
5	U18ES150CS	Programming for Problem Solving	1.4	1.4	1.4	1.3	1.4				1.4			1.3	1.4		
6	U18ES160CE	Basic Engineering Mechanics	2.0	2.1							2.0			2.0	2.0	2.0	
7	U18ES180CE	Engineering Graphics-I	1.7	1.8								1.7		1.7	1.5		1.7
8	U18HS111EH	English Language And Communication Skills Lab-I					3.0				3.0	3.0		3.0			3.0
9	U18BS131PH	Physics Laboratory -1	3.0	3.0		3.0								3.0	3.0		
10	U18BS141CH	Chemistry Lab -I	3.0	3.0			3.0				3.0				3.0		
11	U18ES151CS	Programming for Problem Solving lab	3.0	3.0	3.0		3.0				3.0	3.0			3.0		
12	U18ES171ME	Workshop – I	3.0	3.0	3.0			3.0			3.0			3.0	3.0	3.0	3.0
13	U18HS210EH	English language and communication-II									2.9	2.9		2.9			2.9
14	U18BS220MA	Engineering Mathematics-II	2.4											2.5	2.5		
15	U18BS233PH	Applied Physics	2.1	2.1	2.0		2.0					2.1		2.1	2.1		
16	U18BS240CH	Chemistry – II	2.5	2.6				2.6						2.6	2.5		
17	U18ES260CE	Engineering Mechanics	2.3	2.3							2.3			2.3	2.3	2.3	
18	18ES250CE	Engineering Graphics-II	1.7	1.5	1.9		1.6								1.8	1.7	
19	U18ES160EE	BASIC ELECTRICAL ENGINEERING	2.6	2.6	2.6	2.6								2.6	2.6		
20	U18HS211EH	English Language and Communication Lab-II					3.0				3.0	3.0		3.0			3.0
21	U18BS231PH	Physics Lab-II	3.0	3.0		3.0								3.0	3.0		
22	U18BS241CH	Chemistry Lab-II	3.0				3.0				3.0				3.0		
23	U18ES161EE	BASIC ELECTRICAL ENGINEERING (BEE) LAB	3.0	3.0	3.0	3.0								3.0	3.0		
24	U18ES271ME	WORKSHOP -II	3.0	3.0	3.0	3.0		3.0			3.0			3.0	3.0	3.0	3.0
25	U18HS330EH	Skill Development-I Communication Skills in English – I										3.0		3.0			3.0
26	U18HS010EH	Human Values and Professional Ethics-I										3.0		3.0			3.0
27	U18BS310MA	Partial Differential Equations & Transform Techniques	1.3	1.3										1.3	1.3		

S.No	Course code	Subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
28	U18BS310CE	Geology	2.0		2.0	2.5			1.1						2.0	2.0	2.0
29	U18PC310CE	Strength of Materials – I	3.0	3.0		3.0										3.0	
30	U18PC320CE	Surveying-I	1.3	1.3	1.3		1.3									1.3	
31	U18OE310CS	OE- IPP : K. Bini / L. DIVYA (Introduction to Python Programming)	2.4	2.4	2.4	2.4	2.4							2.4	2.4		
32	U18OE320CS	OE- CS : S. SWETHA(Cyber Security)	2.4	2.4	2.4	2.4									2.4		
33	U18OE320ME	OE- MT : V. PRAMOD(Mechanical Technology)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0		
34	U18MC310ME	Introduction to Entrepreneurship		1.9		1.7				1.7	1.8	1.8	1.7	1.5		1.9	1.7
35	U18BS311CE	Geology Lab	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0
36	U18PC321CE	Surveying - I Lab	3.0	3.0		3.0	3.0				3.0			3.0			3.0
37	U18PC331C	Computer Aided Drafting Lab	3.0				3.0			3.0	3.0	3.0			3.0	3.0	3.0
38	U18HS430EH	Skill Development-II: Communication Skills in English – II												3.0			3.0
39	U18BS410MA	Numerical Methods, Probability and Statistics	1.9	1.9										1.9	1.9		
40	U18PC410CE	Strength of Materials – II	2.9	2.9		2.9										2.9	
41	U18PC420CE	Surveying-II	1.9	1.9	1.9		1.9									1.9	
42	U18PC430CE	Fluid Mechanics	3.0	2.6	2.4										3.0	2.7	
43	U18PC440CE	Building Technology	2.2					2.2	2.2					2.2		2.2	2.2
44	U18OE410CS	OE- IDS : K. Bini(Introduction to Data Structures)	3.0	3.0	3.0	3.0	3.0							3.0	3.0	3.0	
45	U18OE410ME	OE- OM : P. SUBHASHINI(Optimization Methods)	2.9	3.0	2.8								3.0		2.9	2.9	2.9
46	U18OE410IT	OE- IOOP : M. VISHNU CHAITANYA / S. Aruna(Introduction to Object Oriented Programming)	2.5	2.6	2.6										2.5		
47	U18OE420IT	OE- ISL : L. DIVYA(Introduction to Scripting Languages)	2.9	2.9	2.9		2.8							2.9			
48	U19OE430EH	OE- BE : K. Isaac Spurgeon(Basics of Entrepreneurship)		3.0	2.1					2.1	3.0	2.7	2.9	2.7	3.0	3.0	2.1
49	U19OE420EH	OE- CT : A. Jacqueline								2.9	2.9	2.9		2.9			
50	U19OE410MA	OE- LAIA : Y. BHANUPRAKASH / c. NAGA ANURADHA	2.4	2.4										2.4			

S.No	Course code	Subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
51	U18MC010CE	Environmental Science	2.1					2.0	2.2	2.2					2.2	2.2	
52	U18PC411CE	Strength of Materials Lab	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0
53	U18PC421CE	Surveying-II Lab	3.0	3.0	3.0		3.0				3.0			3.0		3.0	3.0
54	U18PC431CE	Fluid Mechanics Lab	3.0			3.0				3.0	3.0	3.0				3.0	3.0
55	U18HS510EH	Skill Development-III: Soft Skills												2.6			2.6
56	U18HS040EH	Economics & Finance for Engineers			1.8	1.5					1.8		1.6	1.5			1.6
57	U18HS020EH	Human Values and Professional Ethics-II										2.4		2.4			2.4
58	U18PC510CE	Structural Analysis	1.8	1.8		1.8					1.8	1.8		1.8	1.8	1.8	1.8
59	U18PC520CE	Hydraulics and Hydraulic Machinery	3.0	3.0	3.0	3.0									3.0	3.0	3.0
60	U18PC530CE	Environmental Engineering	2.0		2.4	2.3		1.8	2.0						1.8	2.0	2.0
61	U18PC540CE	Concrete Technology	2.8	2.8	2.8			2.8	2.9	2.9				2.8	2.8	2.8	
62	U18PE510CE	Skill Development-III: Technical Skills	3.0	3.0			3.0				3.0			3.0			3.0
63	U18OE510EE	OE- SPA : N. Uday Kumar	2.1	2.0			2.1									2.1	
64	U18OE510ME	OE- IR : P. SUBHASHINI(Introduction To Robotics)	3.0	3.0				3.0	3.0	3.0					3.0	3.0	
65	U18OE510IT	OE- IDMS : S. SREE LAKSHMI(Introduction To Database Management Systems)	3.0	3.0	3.0												
66	U18OE530EH	OE- ACE : K. Isaac Spurgeon(Advanced Course Entrepreneurship)			3.0		3.0				3.0	3.0	3.0		3.0	3.0	3.0
67	U18OE520CS	OE- WD : R. SUDHA(Web Design)	2.1	2.1	2.1	2.1	2.0								2.1		
68	U18OE520MA	OE- DME : R. HARI KISHORE(Discrete Mathematics for Engineers)	2.7	2.7										2.7	2.7		
69	U18OE010EH	OE- TWPP : G. Meena(Technical Writing and Professional Presentations)										2.4		2.4			2.4
70	U18PC521CE	Hydraulics & Hydraulic Machinery Lab	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0
71	U18PC531CE	Environmental Engineering Lab	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0
72	U18PC541CE	Concrete Lab	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0
73	U18PW519CE	Mini Project : Surveying Camp	3.0	3.0			3.0			3.0	3.0			3.0		3.0	3.0
74	U18HS610EH	Skill Development-IV: Soft Skill										3.0		3.0			3.0
75	U18PC610CE	Design of Steel Structures	2.7	2.7	2.7			2.7		2.7				2.7	2.7	2.7	2.7

[illegible]

S.No	Course code	Subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
102	U18PE851CE	Advanced Reinforced Concrete Design	2.6	2.6	2.6	2.6								2.6	2.6	2.6	
103	U18PE862CE	Ground Improvement Techniques	2.8		2.8	2.8		2.8				2.8		2.8	2.8	2.8	2.8
104	U18PE864CE	Construction Management and Administration	3.0	2.9	2.9	2.9	3.0	3.0		3.0	2.9		2.9	2.9	2.9	2.9	2.9
105	U18PW819CE	Project / Internship	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
		Number of courses mapped	86	72	50	36	43	24	20	26	41	40	14	73	67	57	54
		Direct PO Attainment	2.6	2.5	2.5	2.5	2.7	2.5	2.4	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.7
		Indirect PO Attainment	2.5	2.5	2.7	2.7	2.6	2.6	2.6	2.7	2.7	2.6	2.7	2.6	2.7	2.6	2.5
		Final PO Attainment	2.6	2.5	2.5	2.5	2.7	2.5	2.5	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6

POs & PSOs Attainment Indirect Assessment (2018-2022 Batch)

POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Alumni survey	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Employer Survey	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Program Exit survey	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Course end survey	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Faculty Survey	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Guest Lectures	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Workshops	1.0	1.0			1.0	1.0	1.0	1.0						1.0	
Internships	3.0	3.0			3.0			3.0	3.0	3.0				3.0	
Industrial Visits	2.0	2.0			2.0				2.0	2.0		2.0		2.0	
Students Presentation	3.0	3.0		3.0		3.0	3.0	3.0		3.0				3.0	
Campus Recruitment Training	1.0	1.0								1.0		1.0			1.0
Extra -Curricular Clubs	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
NSS (includes Sahay, Street cause and all extension activities)	3.0					3.0	3.0	3.0	3.0	3.0		3.0			
Sports	3.0							3.0	3.0			3.0			
Entrepreneurship (Swayam / ED Cell)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0			3.0
Inter institute literary and cultural activities									2.0	2.0					
Indirect Attainment of POs & PSOs	2.5	2.5	2.7	2.7	2.6	2.6	2.6	2.7	2.7	2.6	2.7	2.6	2.7	2.6	2.5

Final Attainments POs & PSOs

POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Direct Attainment (80%) + Indirect Attainment (20%)	2.6	2.5	2.5	2.5	2.7	2.5	2.5	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6

VASAVI COLLEGE OF ENGINEERING , HYDERABAD
DEPARTMENT OF CIVIL ENGINEERING
2018-19 CO-PO MAPPING, CO-PSO MAPPING AND CO ATTAINMENT

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment	
B.E. I Year - I Semester																			
U18HS110 EH	English Language And Communication –I	Greet and converse with friends, teachers, and strangers appropriately.									3.0	3.0		3.0			3.0	3.0	
		Listen and respond to lectures, talks and take notes.										3.0	3.0		3.0			3.0	2.9
		Use language functionally and participate in classroom interactions and in simulated situations.										3.0	3.0		3.0			3.0	2.9
		Read, comprehend, and answer different types of texts and make notes.										3.0	3.0		3.0			3.0	2.9
		Write paragraphs on any given topic following the rules of grammar and using appropriate vocabulary.										3.0	3.0		3.0			3.0	2.9
		Simple Average									3.0	3.0		3.0			3.0	2.9	
		Weighted Average									2.9	2.9		2.9			2.9		
U18BS120 MA	Engineering Mathematics-I	Compute radius of curvature, evolute and envelope of a given curve and also to expand given function using Taylor’s series	3.0	1.0								2.0	1.0	1.0	3.0			2.4	
		Expand a given function in terms of Taylor’s series and find Maxima and minima of functions of several variables also using Lagrange’s method of multipliers.	2.0	1.0								2.0	1.0	1.0	3.0			2.4	
		Calculate the gradient and directional derivatives and Curl.	3.0	1.0								2.0	1.0	1.0	3.0			2.7	
		Apply given double, and triple integrals to evaluate area and volume and to use Green’s theorem to evaluate line integrals, Stokes’ theorem to give physical interpretation of the curl of a vector field and the divergence theorem.	3.0	1.0								2.0	1.0	1.0	3.0			2.4	
		Identify the given series and apply an appropriate test to check its nature	3.0	1.0								2.0	1.0	1.0	3.0			2.7	
		Simple Average	2.8	1.0							2.0	1.0	1.0	3.0			2.5		
		Weighted Average	2.5	2.5							2.5	2.5	2.5	2.5					
U18BS133 PH	Oscillations, Waves and Optics	Solve differential equations that describe the behaviour of mechanical oscillators under various conditions	3.0	3.0								1.0		1.0	1.0			2.1	
		Narrate the production and application of ultrasonic	3.0	3.0			1.0					1.0		1.0	1.0			1.8	
		Apply the fundamental principles of wave optics in relevant fields of engineering	3.0	2.0	1.0							1.0		1.0	1.0			2.1	
		Apply Maxwell’s equation to derive EM wave equation for different media.	3.0	2.0								1.0		1.0	1.0			1.8	
		Simple Average	3.0	2.5	1.0		1.0					1.0		1.0	1.0			2.0	
		Weighted Average	2.0	2.0	2.1		1.8				2.0		2.0	2.0					
U18BS140 CH	CHEMISTRY-I	Construct a galvanic cell and calculate its EMF and pH wherever applicable	3.0	2.0										1.0	3.0			2.7	
		Diagonize the type of corrosion in a given corrosion problem and suggest a suitable method of corrosion control.	3.0	2.0					2.0					1.0	3.0			2.4	
		Rationalise the properties of refractories and suggest a suitable refractory for a given application	3.0												3.0			2.7	
		Discuss the mechanism of lubrication, properties of lubricants and suggest a suitable lubricant for a given application	3.0												3.0			2.7	
		Rate the fuels and suggest methods for enhancement of the quality of fuels for the required output	3.0	2.0					2.0					1.0	3.0			2.4	
		Analyse microscopic chemistry in terms of atomic and molecular orbitals and construct molecular orbital diagrams for simple diatomic molecules	3.0												3.0			2.7	
		Interpret UV-Visible and Infrared spectra of simple organic molecules in order to understand their structure	3.0												3.0			3.0	
		Simple Average	3.0	2.0					2.0						1.0	3.0			2.9
		Weighted Average	2.7	2.5				2.4					2.5	2.7					
U18ES150	Programming for	Design flowcharts and algorithms for solving a given problem using the fundamentals of programming.	1.0	3.0	3.0	1.0	1.0				2.0			1.0	2.0			2.0	
		Apply decision making, looping constructs and functions to develop programs for a given problem.	1.0	3.0	3.0	2.0	1.0				2.0			1.0	2.0			2.0	

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
CS	Problem Solving	Store data using arrays and perform searching and sorting operations on the data.	1.0	3.0	3.0	3.0	1.0				2.0			2.0	2.0			1.0
		Design programs on string handling and operations on arrays using dynamic memory management techniques.	1.0	3.0	3.0	3.0	1.0				2.0			2.0	2.0			1.0
		Develop programs to store data and perform operations using structures and files.	1.0	3.0	3.0	3.0	1.0				2.0			2.0	2.0			1.0
		Simple Average	1.0	3.0	3.0	2.4	1.0				2.0			1.6	2.0			1.4
		Weighted Average	1.4	1.4	1.4	1.3	1.4				1.4			1.3	1.4			
U18ES160 CE	Basic Engineering Mechanics	Determine resultant of forces acting on a body.	3.0	1.0							1.0			1.0	3.0	2.0		2.1
		Analyse equilibrium of a body subjected to a system of forces.	3.0	1.0							1.0			1.0	3.0	2.0		1.8
		Perform analysis of trusses using method of joints and method of sections.	3.0	2.0							1.0			1.0	3.0	2.0		2.4
		Solve problem of bodies subjected to friction.	3.0	1.0							1.0			1.0	3.0	2.0		2.1
		Find the location of centroid and calculate moment of inertia and polar moment of inertia of a given section.	3.0	1.0							1.0			1.0	3.0	2.0		1.5
		Simple Average	3.0	1.2							1.0			1.0	3.0	2.0		2.0
		Weighted Average	2.0	2.1							2.0			2.0	2.0	2.0		
U18ES180 CE	Engineering Graphics-I (Civil, Mech. & EEE)	Identify the qualities of precision and accuracy.	2.0	2.0								1.0		1.0	1.0		1.0	3.0
		Convey technical information effectively through sketches / drawings.	3.0	1.0								1.0		1.0	1.0		1.0	1.8
		Construct engineering curves with different methods.	2.0	1.0								1.0		1.0	2.0		1.0	1.2
		Develop the conics using different methods, cycloidal and involutes.	1.0	2.0								1.0		1.0	2.0		1.0	1.2
		Draw the orthographic projection of points, lines, planes and solids.	2.0	1.0								1.0		1.0	1.0		1.0	1.2
		Simple Average	2.0	1.4								1.0		1.0	1.4		1.0	1.7
		Weighted Average	1.7	1.8								1.7		1.7	1.5		1.7	
U18HS111 EH	English Language And Communication Skills Lab-I	Use language with appropriate pronunciation.					3.0				3.0	3.0		3.0			3.0	3.0
		Modify language use as per the needs of peers					2.0				3.0	3.0		3.0			3.0	3.0
		Take and make notes in a class room lecture					1.0				3.0	3.0		3.0			3.0	3.0
		Participate effectively in group discussions, debates, and role plays.					1.0				3.0	3.0		3.0			3.0	3.0
		Use language coherently using Simple language									3.0	3.0		3.0			3.0	3.0
		Use dictionary for pronunciation And transcription of words									3.0	3.0		3.0			3.0	3.0
		Simple Average					1.3				3.0	3.0		3.0			3.0	3.0
		Weighted Average					3.0				3.0	3.0		3.0			3.0	
U18BS131 PH	Physics Laboratory -I	Conduct experiments, take measurement independently	3.0	2.0		2.0								1.0	1.0			3.0
		Write appropriate laboratory reports	3.0	2.0		2.0								1.0	1.0			3.0
		Compute and compare the experimental results and draw the relevant conclusions	3.0	2.0		2.0								1.0	1.0			3.0
		Use the graphical representation of data and estimate results from graphs.	3.0	2.0		2.0								1.0	1.0			3.0
		Simple Average	3.0	2.0		2.0								1.0	1.0			3.0
		Weighted Average	3.0	3.0		3.0								3.0	3.0			
U18BS141 CH	Chemistry Lab - I	Estimate the amount of the given acid by pH metry.	3.0				1.0				2.0				3.0			3.0
		Construct the galvanic cell and measure the variation or EMF of the cell with the change in concentration	3.0	1.0			1.0								3.0			3.0
		Assess the estimation of iron by instrumental and volumetric techniques.	3.0	1.0											3.0			3.0
		Determine the rate constant of a chemical reaction	3.0	1.0											3.0			3.0
		Measure molecular/system properties such as viscosity, partition coefficient.	3.0	1.0											3.0			3.0
		Simple Average	3.0	1.0			1.0				2.0				3.0			3.0
		Weighted Average	3.0	3.0			3.0				3.0				3.0			
U18EC121	Programming for	Choose appropriate data type for implementing programs in C language	1.0		1.0										2.0			3.0
		Design and implement modular programs involving input output operations, decision making and looping constructs	1.0	2.0	1.0						2.0	2.0			2.0			3.0

Course Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18ES171 CS	Problem Solving lab	Implement search and sort operations on arrays	1.0		2.0										2.0			3.0
		Apply the concept of pointers for implementing programs on dynamic memory management and string handling.	1.0				3.0								2.0			3.0
		Design and implement programs to store data in structure and files	1.0				3.0								2.0			3.0
		Simple Average	1.0	2.0	1.3		3.0				2.0	2.0			2.0			3.0
		Weighted Average	3.0	3.0	3.0		3.0			3.0	3.0			3.0				
U18ES171 ME	Workshop – I	Interpret and use marking and cutting tools in Carpentry, Fitting, Electrical & Electronics and Tin smithy trades for engineering applications.	3.0		1.0			2.0			1.0			1.0	2.0	2.0	2.0	3.0
		Create models in Carpentry, Fitting, Electrical & Electronics and Tin smithy trades by using the relevant tools.	3.0	3.0	1.0			2.0			1.0			1.0	2.0	2.0	2.0	3.0
		Measure and Inspect the finished components using suitable measuring instruments.	2.0	2.0	1.0			2.0			2.0			1.0	2.0	2.0	2.0	3.0
		apply basic electrical and electronics engineering knowledge to make simple electrical circuits and check their functionality along with practice in soldering of electronic components.	2.0		1.0			2.0			2.0			1.0	2.0	1.0	1.0	3.0
		Simple Average	2.5	2.5	1.0			2.0			1.5			1.0	2.0	1.8	1.8	3.0
		Weighted Average	3.0	3.0	3.0			3.0			3.0			3.0	3.0	3.0	3.0	
B.E. I Year - II Semester																		
U18HS210 EH	English Language And Communication –II	Adapt and cooperate with people in varied contexts to function effectively in teams.									3.0	3.0		3.0			3.0	3.0
		Give and receive clear messages to communicate effectively, individually as well as in groups.									3.0	3.0		3.0			3.0	2.7
		Compose coherent letters, essays and resumes for varied situations.									3.0	3.0		3.0			3.0	3.0
		Interpret and write a piece of text with coherence and cohesion.									3.0	3.0		3.0			3.0	2.7
		Identify words for use both in informal and formal contexts.									3.0	3.0		3.0			3.0	3.0
		Construct sentences accurately for speaking and writing.									3.0	3.0		3.0			3.0	2.9
		Simple Average									3.0	3.0		3.0			3.0	2.9
	Weighted Average									2.9	2.9		2.9			2.9		
U18BS220 MA	Engineering Mathematics-II	Find rank of a given matrix, diagonalize a given matrix and reduce a quadratic form to canonical form and find its nature.	2.0											1.0	3.0			3.0
		Identify the differential equations and solve them, model the real time electrical engineering problems viz., RC Circuits into differential equations and solve.	3.0											1.0	3.0			2.7
		Solve various higher order Linear Differential Equations, model the real time electrical engineering problems viz., LC and LCR circuits into differential equations and solve them by using the various applicable techniques learnt.	3.0											1.0	3.0			2.4
		Apply the condition(s) for a complex variable function to be analytic and/or harmonic and to construct an Analytic function.	3.0											1.0	3.0			2.1
		Apply Cauchy's theorem and Cauchy's Integral formula to evaluate complex integrals and define singularities of a function, know the different types of singularities and to expand a given function as a Taylor's / Laurent's series.	3.0											1.0	3.0			2.1
		Simple Average	2.8											1.0	3.0			2.5
		Weighted Average	2.4											2.5	2.5			
U18BS233 PH	Applied Physics	acquaint with various types of lasers and their applications	3.0	2.0								1.0		1.0	1.0			2.4
		summarize various merits, demerits and applications of optical fibers	3.0	2.0								1.0		1.0	1.0			2.1
		apply the principles of acoustics to minimize the reverberation	3.0	2.0	1.0							1.0		1.0	1.0			2.1
		appreciate liquefaction of air & He and applications of low temperature	3.0	2.0	1.0		1.0					1.0		1.0	1.0			1.8
		identify different properties and applications of magnetic and superconducting materials	3.0	2.0			1.0					1.0		1.0	1.0			2.1
		Simple Average	3.0	2.0	1.0		1.0					1.0		1.0	1.0			2.1
		Weighted Average	2.1	2.1	2.0		2.0					2.1		2.1	2.1			
		Describe the construction, functioning and applications of the selected primary, secondary batteries and the fuel cells	3.0	1.0										2.0	3.0			2.6
		Categorise the polymers and discuss the synthesis of a few polymers and their applications.	3.0	2.0					2.0						2.0	3.0		

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18BS240 CH	Chemistry – II	Suggest appropriate treatment methods of water to make it fit for domestic and industrial applications	3.0	2.0					2.0					2.0	3.0			2.6
		Discuss the properties, synthesis and applications of nano materials and composite materials & properties and applications of liquid crystals.	3.0	2.0										2.0	3.0			2.6
		Analyse a few materials by using instrumental methods namely Atomic Absorption Spectroscopy, Flame Photometry, Visible spectroscopy, Thermogravimetry and Differential Scanning Calorimetry.	3.0												3.0			2.3
		Simple Average	3.0	2.0					2.0					2.0	3.0			2.5
		Weighted Average	2.5	2.6					2.6					2.6	2.5			
U18ES260 CE	Engineering Mechanics	Compute mass moment of inertia and product of inertia of standard and composite section	3.0	1.0							1.0			1.0	2.0	1.0		2.4
		Distinguish between statics and dynamics and differentiate between kinematics and kinetics.	3.0	1.0							1.0			1.0	2.0	1.0		2.7
		Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion	3.0	1.0							1.0			1.0	2.0	1.0		2.1
		Solve problems using work energy equations for translation, fixed axis rotation and plane motion	3.0	1.0							1.0			1.0	2.0	1.0		2.1
		Solve problems using impulse momentum equation	3.0	1.0							1.0			1.0	2.0	1.0		2.1
		Simple Average	3.0	1.0							1.0			1.0	2.0	1.0		2.3
		Weighted Average	2.3	2.3							2.3			2.3	2.3	2.3		
I8ES250C E	Engineering Graphics-II	Draw sectional views of simple solids	2.0	1.0	2.0			1.0							2.0	1.0		3.0
		Develop the lateral surfaces of simple solids	2.0	2.0	1.0			2.0							2.0	2.0		1.8
		Prepare orthographic views of intersection of solids.	1.0	2.0	1.0			1.0							2.0	1.0		1.2
		Visualize isometric view of simple planes, solids and combined solids	2.0	2.0	1.0			2.0							1.0	1.0		1.2
		Construct orthographic views of simple objects from their pictorial views	2.0	2.0	1.0			2.0							1.0	1.0		1.2
		Simple Average	1.8	1.8	1.2			1.6							1.6	1.2		1.7
U18ES160 EE	BASIC ELECTRICAL ENGINEERING	Weighted Average	1.7	1.5	1.9			1.6							1.8	1.7		
		To analyze Electrical circuits to compute and measure the parameters of Electrical Energy.	3.0	3.0	1.0	1.0								1.0	3.0			3.0
		To comprehend the working principles of Electrical DC Machines.	3.0	3.0	1.0	1.0								1.0	3.0			2.8
		To Identify and test various Electrical switch gear, single phase transformers and assess the ratings needed in given application.	3.0	3.0	1.0	1.0								1.0	3.0			2.1
		To comprehend the working principles of electrical AC machines	3.0	3.0	1.0	1.0								1.0	3.0			2.3
U18HS211 EH	English Language and Communication Lab-II	Simple Average	3.0	3.0	1.0	1.0								1.0	3.0			2.6
		Weighted Average	2.6	2.6	2.6	2.6								2.6	2.6			
		Pronounce words in isolation as well as in spoken discourse.					3.0				3.0	3.0		3.0			2.0	3.0
		Research and sift information to make presentations.					2.0				3.0	3.0		3.0			2.0	3.0
		Comprehend the tone and tenor of various types of speeches from media and classroom lectures					1.0				3.0	3.0		3.0			2.0	3.0
U18BS231 PH	Physics Lab-II	Listen for gist and make inferences from various speeches.					1.0				3.0	3.0		3.0			2.0	3.0
		Identify connectives and transitions in various speeches.									3.0	3.0		3.0			2.0	3.0
		Use connectives and make transitions effectively while speaking.									3.0	3.0		3.0			2.0	3.0
		Simple Average					1.3				3.0	3.0		3.0			2.0	3.0
		Weighted Average					3.0				3.0	3.0		3.0			3.0	
U18BS231 PH	Physics Lab-II	Conduct experiments, take measurements independently.	3.0	2.0		2.0								1.0	1.0			3.0
		Write appropriate laboratory reports.	3.0	2.0		2.0								1.0	1.0			3.0
		Compute and compare the experimental results and draw relevant conclusions.	3.0	2.0		2.0								1.0	1.0			3.0
		Use the graphical representation of data and estimate results from graphs.	3.0	2.0		2.0								1.0	1.0			3.0
		Simple Average	3.0	2.0		2.0								1.0	1.0			3.0
		Weighted Average	3.0	3.0		3.0								3.0	3.0			

Program	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18BS241 CH	Chemistry Lab-II	Analyse the hardness and chloride content of a given water sample	3.0				1.0				2.0				2.0			3.0
		Determine the capacity of a given ion exchange resin	3.0				1.0				2.0				2.0			3.0
		Measure the cell constant of any given conductivity cell and estimate the amount of acid in a given solution by conductometry	3.0												2.0			3.0
		Use the principle of colorimetry in the estimation of Copper(II) and Iron (II) in any given solution	3.0												2.0			3.0
		Synthesize a polymer	3.0												2.0			3.0
		Simple Average	3.0				1.0				2.0				2.0			3.0
		Weighted Average	3.0				3.0				3.0				3.0			3.0
U18ES161 EE	BASIC ELECTRICAL ENGINEERING (BEE) LAB	Get an exposure to common electrical components and their ratings.	3.0	2.0	1.0	1.0								1.0	1.0			3.0
		Analyze the performance of DC and AC Machines.	3.0	2.0	1.0	1.0								1.0	1.0			3.0
		Comprehend the usage of common electrical measuring instruments.	3.0	2.0	1.0	1.0								1.0	1.0			3.0
		Test the basic characteristics of transformers and electrical machines.	3.0	2.0	1.0	1.0								1.0	1.0			3.0
		Simple Average	3.0	2.0	1.0	1.0								1.0	1.0			3.0
		Weighted Average	3.0	3.0	3.0	3.0								3.0	3.0			
U18ES271 ME	WORKSHOP-II	1. identify and apply suitable tools for Smithy, Welding, Plumbing and Machining trades for engineering applications.	2.0	1.0	1.0			2.0			1.0			1.0	2.0			3.0
		2. create models in Smithy, Welding, and Plumbing and Machining trades by using the relevant tools.	2.0	1.0	1.0			2.0			1.0			1.0	3.0			3.0
		3. measure and inspect the finished components using suitable measuring instruments.	2.0	2.0		3.0		1.0			2.0			1.0	3.0			3.0
		Simple Average	2.0	1.3	1.0	3.0		1.7			1.3			1.0	2.7	2.0	1.0	3.0
		Weighted Average	3.0	3.0	3.0	3.0		3.0			3.0			3.0	3.0	3.0	3.0	3.0

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Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment	
U18PC331C	Computer Aided Drafting Lab	Understand functional planning & orientation of the buildings. Navigate the drafting software user interface. Learn basic tools of the software. Apply the fundamental features of drafting software in a practical situation Prepare civil engineering drawings in a detailed and visually impressive way	2.0 2.0				3.0 3.0 3.0								1.0 1.0 1.0	2.0 2.0 2.0	3.0 3.0 3.0	3.0 3.0 3.0	
		Simple Average	2.0				3.0			1.0		2.0		3.0	1.0	2.0	3.0	3.0	
		Weighted Average	3.0				3.0			1.0	3.0	2.0		3.0	1.0	2.0	3.0	3.0	
B.E. II Year - II Semester																			
U18HS430EH	Skill Development-II: Communication Skills in English – II	Students will be trained to enhance their employability skills. Students will be introduced to higher order thinking and problem solving skills in the following areas - Arithmetic Ability, Numerical Ability and General Reasoning. Students will be trained to work systematically with speed and accuracy while problem solving. Students will be trained to apply concepts like percentages and averages to solve complex problems. Students will be trained to use effective methods like elimination of options and shortcuts to solve problem accurately. Get students proficient in both receptive and productive skills Enable students to build strategies for effective group interaction and help them in developing decisive awareness and personality while maintaining emotional balance.													2.0 3.0		3.0	3.0	
		To introduce students to an ideal structure for a presentation. To develop and improve writing and study skills needed for college work.										3.0 2.0 2.0					3.0 3.0 3.0	3.0 3.0 3.0	
		Simple Average										2.3			2.2		3.0	3.0	
		Weighted Average												3.0			3.0	3.0	
U18BS410MA	Numerical Methods, Probability and Statistics	Solve algebraic and transcendental equations using Bisection method Regula-Falsi, Newton-Raphson and apply numerical methods to interpolate. Solve problems using numerical differentiation using interpolation approach and differential equations using numerical methods Apply various probability distributions to solve practical problems. Estimate unknown parameters of populations and apply the tests of hypotheses for large and small samples. Solve problems to fit various curves to the given data using curve fitting, and also to find co-efficient of correlation and to determine regression lines and their applications	3.0 3.0 3.0 3.0	2.0 2.0 2.0											1.0 1.0 1.0 1.0	3.0 3.0 3.0 3.0		2.1 1.8 1.5 1.8	
		Simple Average	3.0	2.0											1.0	3.0		2.1	
		Weighted Average	1.9	1.9										1.9	3.0			1.9	
U18PC410CE	Strength of Materials – II	Express understanding of methods of double integration, conjugate beam and Mohr's theorems to solve problems of deflection of beams and construct shear force and bending moment diagrams. Determine shear centre for simple sections. Compute the torsional shear stress across the cross section of circular shafts. Compute stresses in helical springs and compute strain energy in bars subjected to axial and flexural deformation Compute the axial and bending stresses in columns using various formulae	3.0 3.0 3.0 3.0	2.0 2.0 2.0		1.0 1.0										2.0 2.0 2.0		2.8 3.0 2.9 3.0	
		Simple Average	3.0	2.0		1.0										2.0		2.9	
		Weighted Average	2.9	2.9		2.9										2.9		2.9	
PC420CE	Surveying-II	Determine the elevations and horizontal distances of any point on the surface of the earth using concepts of trigonometric leveling and geodetic observations Compute the parameters required for setting out simple circular curve, reverse curve, compound curves and introduce the concepts of transition curves and vertical curves required for layout of roads and railways Compute area of regular / irregular land from field measurements and volume of the earthwork from cross sections, spot levels and contours	3.0 3.0 3.0	2.0 2.0 2.0	2.0	3.0											2.0 2.0 2.0		1.5 1.4 3.0

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18PC430CE	Fluid Mechanics	Apply the concepts of modern tools such as GPS and aerial photogrammetry for measurement of details on surface of earth and relate to civil engineering problems	3.0	1.0	1.0		3.0									2.0		2.1
		Understand the concepts of Remote sensing, GIS and outline the techniques for measurement of sounding in water by various hydrographic surveying techniques	3.0	1.0	2.0		3.0									2.0		1.5
		Simple Average	3.0	1.6	1.8		3.0									2.0		1.9
		Weighted Average	1.9	1.9	1.9		1.9									1.9		
		Compute properties of fluid and discuss about fluid statics	3.0												2.0	3.0		3.0
	Building Technology	Understand various aspects of Fluid kinematics	3.0	2.0											2.0	3.0		3.0
		Formulate equations based on conservation of mass, energy and momentum. Analyse forces on nozzles and describe devices use for discharge.		3.0												3.0		2.3
		Compute Reynolds number, formulate equations for laminar and turbulent flow through pipes and water hammer in pipes.		2.0	3.0											3.0		2.4
		Discuss and solve problems on compressible flow and dimensional analysis and model studies.	2.0	2.0												3.0		3.0
		Simple Average	2.7	2.3	3.0										2.0	3.0		2.7
	Environmental Science	Weighted Average	3.0	2.6	2.4										3.0	2.7		
		Apply the principles of planning and bylaws for planning of building	3.0					3.0	2.0					1.0		2.0	3.0	3.0
		Explain the characteristics of stones, bricks, timber and steel	3.0					3.0	2.0					1.0		2.0	3.0	2.7
		Describe the properties of cement, aggregate, concrete, mortar	3.0					3.0	2.0					1.0		2.0	3.0	1.8
		Illustrate the application of emerging building materials and paints, varnishes and water proofing materials in buildings	3.0					3.0	2.0					1.0		2.0	3.0	1.8
	Open Elective-II	Review construction practices like scaffolding, form work brick bands and types & terminology of stair cases.	3.0					3.0	2.0					1.0		2.0	3.0	1.8
		Simple Average	3.0					3.0	2.0					1.0		2.0	3.0	2.2
		Weighted Average	2.2					2.2	2.2					2.2		2.2	2.2	
		Attached separately																
	Strength of Materials Lab	Simple Average																
		Weighted Average																
		Describe the various types of natural resources.	3.0					2.0	3.0						2.0			1.8
		Differentiate between various biotic and abiotic components of ecosystem.	2.0					3.0	3.0						2.0			2.4
		Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India.	2.0						3.0	2.0					2.0	1.0		2.4
	U18PC411CE	Illustrate causes, effects, control measures of various types of environmental pollutions.	2.0					2.0	3.0	2.0					2.0	1.0		2.4
		Explain the methods of water conservation, causes, effects of climate change, global warming, acid rain and ozone layer depletion, population explosion.	2.0					2.0	3.0	2.0					2.0	1.0		1.8
		Simple Average	2.2					2.0	3.0	2.0					2.0	1.0		2.2
		Weighted Average	2.1					2.0	2.2	2.2					2.2	2.2		2.2
		Determine Young's Modulus of materials of beams by conducting deflection tests.	2.0				3.0								1.0	3.0	3.0	3.0
	U18PC440CE	Assess the properties of materials by conducting hardness test, impact test, tension test and compression test.	2.0				3.0								1.0	3.0	3.0	3.0
		Determine modulus of rigidity of materials by conducting torsion test and tests on springs.	2.0				3.0								1.0	3.0	3.0	3.0
		Practise working as a team member and lead a team								2.0	3.0						3.0	3.0
		Demonstrate professional behaviour in conducting the experiments and presenting the results effectively								2.0	2.0						3.0	3.0
		Simple Average	2.0				3.0			2.0	2.5	3.0		2.0	1.0	3.0	3.0	3.0
		Weighted Average	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0

VASAVI COLLEGE OF ENGINEERING (A) : : DEPARTMENT OF CIVIL ENGINEERING
CO-PO MAPPING FOR THE ACADEMIC YEAR 2020-2021 (III Year)

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
B.E. III Year - I Semester (R18)																		
U18HS040EH	ECONOMICS AND FINANCE FOR ENGINEERS	1 Enable students to identify the essential components such as production quantity limits, elasticity, demand and supply in business decision making			2.0						1.0						1.0	1.8
		2 Facilitate students in calculation of cost components to enable control of costs.									1.0		1.0				1.0	1.8
		3 Make better investment decisions both in short and long run by understanding the financial viability of given investment proposals.											3.0				1.0	1.5
		4 Analyze the given financial statements of a firm to understand the past performance and to make decisions for future.				2.0											1.0	1.5
		5 Identify the impact of the new tax policies on the company's financial structure/ individual's incomes.			2.0	2.0					1.0		2.0	1.0			1.0	1.5
		Simple Average			1.8	1.5					1.8		1.6	1.5			1.6	
		Weighted Average																
U18HS020EH	HUMAN VALUES AND PROFESSIONAL ETHICS-II	1 Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations												2.0			3.0	2.4
		2 Understand professionalism in harmony with self and society.										3.0					3.0	2.4
		3 Develop ethical human conduct and professional competence.										2.0					3.0	2.4
		4 Enrich their interactions with the world around, both professional and personal.										2.0					3.0	2.4
		Simple Average										2.3		2.0			3.0	
		Weighted Average										2.4		2.4			2.4	
U18HS510EH	Skill Development-III : Soft Skills	1 Students will be trained to enhance their employability skills.												3.0			3.0	2.6
		2 Students will be introduced to higher order thinking and problem solving skills in the following areas - Arithmetic Ability, Numerical Ability and General Reasoning.												2.0			3.0	2.6
		3 Students will be trained to work systematically with speed and accuracy while problem solving.												2.0			3.0	2.6
		Students will be trained to apply concepts like percentages and averages to solve complex problems.												2.0			3.0	2.6
		Students will be trained to use effective methods like elimination of options and shortcuts to solve problem accurately.												2.0			3.0	2.6
		Simple Average												2.2			2.6	
		Weighted Average												2.6			2.6	
		1	2.0	3.0		1.0					1.0	1.0		1.0	1.0	3.0	1.0	3.0
		Find degree of indeterminacy of various structures subjected to external forces.																

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18PC510CE	STRUCTURAL ANALYSIS	2 Perform analysis of beams and rigid jointed frames subjected to external loads using moment distribution method & slope deflection method and draw bending moment diagrams.	2.0	3.0		1.0					1.0	1.0		1.0	1.0	3.0	1.0	1.5
		3 Analyse indeterminate structures subjected to external loads using Kanli's method and draw bending moment diagrams	2.0	3.0		1.0					1.0	1.0		1.0	1.0	3.0	1.0	1.5
		4 Analyse three hinged, two hinged parabolic arches carrying vertical loads and frames subjected to lateral loads and draw bending moment diagrams.	2.0	3.0		1.0					1.0	1.0		1.0	1.0	3.0	1.0	1.5
		5 Apply strain energy methods in the analysis of beams and pin jointed frames subjected to external forces.	2.0	3.0		1.0					1.0	1.0		1.0	1.0	3.0	1.0	1.5
		Simple Average Weighted Average	2.0 1.8	3.0 1.8		1.0 1.8					1.0 1.8	1.0 1.8		1.0 1.8	1.0 1.8	3.0 1.8	1.0 1.8	1.8 1.8
U18PC520CE	HYDRAULICS AND HYRAULIC MACHINERY	1 Compute velocity, specific energy and critical depth in steady uniform flow through open channels	2.0												2.0	3.0	1.0	3.0
		2 Determine water surface profiles, hydraulic jumps and surges in non uniform flow through open channels	2.0	2.0	2.0											3.0	1.0	3.0
		3 Explain growth and separation of boundary layer and evaluate drag & lift forces for various shapes of bodies in a medium		2.0	2.0											3.0	1.0	3.0
		4 Evaluate the performance characteristics and perform design of turbines for various conditions of head, discharges and power			3.0	2.0										3.0	1.0	3.0
		5 Evaluate the performance characteristics and perform design of centrifugal pump for various conditions of head, discharges and power		2.0	3.0											3.0	1.0	3.0
U18PC530CE	ENVIRONMENTAL ENGINEERING	Simple Average Weighted Average	2.0 3.0	2.0 3.0	2.5 3.0	2.0 3.0									2.0 3.0	3.0 3.0	1.0 3.0	3.0 3.0
		1 Assess the demand, quality of water and concept of storm water.	1.0						1.0						1.0	1.0	1.0	1.8
		2 Formulate preliminary design of waste water treatment plant	1.0		3.0	2.0			1.0							2.0	2.0	3.0
		3 Understand the characteristics of domestic sewage and methods of disposal.	2.0			1.0		1.0	2.0						1.0	3.0	3.0	1.8
		4 Design of primary, secondary and tertiary treatment units of waste water and a simple sewerage system.	2.0		3.0	2.0			2.0						1.0	2.0	3.0	1.8
U18PC540CE	CONCRETE TECHNOLOGY	5 Understand the sludge and solid waste management.	2.0													2.0	2.0	1.8
		Simple Average Weighted Average	1.6 2.0		3.0 2.4	1.7 2.3		1.0 1.8	1.5 2.0						1.0 1.8	2.0 2.0	2.2 2.0	2.0 2.0
		1 Understand the properties of concrete in its fresh state	2.0	2.0	2.0			1.0		1.0				1.0	1.0	2.0		2.9
		2 Understand the properties of concrete in its hardened state	2.0	2.0	2.0			1.0		1.0				1.0	1.0	2.0		2.9
		3 Design the concrete mixes by I.S., British and ACI methods.	2.0	2.0										1.0	1.0	2.0		2.8
		4 Use chemical and mineral admixtures in making concrete of desired properties.	2.0	2.0					1.0	1.0				1.0	1.0	2.0		2.9
		5 Identify different types of special concretes for specific use.	2.0	2.0	2.0			1.0		1.0				1.0	1.0	2.0		2.8
		Simple Average	2.0	2.0	2.0			1.0	1.0	1.0				1.0	1.0	2.0		2.8

[illegible]

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	CO attainment
		Weighted Average	3.0				3.0			3.0	3.0	3.0		3.0	3.0	3.0	3.0	
U18PW51	9CE																	
	MINI PROJECT: SURVEYING CAMP	1 Measure the topographical features using advanced surveying instruments such as total station and GPS	3.0	1.0			2.0			2.0	3.0			3.0		3.0	3.0	3.0
		2 Plot the data obtained in the field through mapping software like QGIS / ArcGIS	3.0	1.0			2.0			2.0	3.0			3.0		3.0	3.0	3.0
		Simple Average	3.0	1.0			2.0			2.0	3.0			3.0		3.0	3.0	3.0
		Weighted Average	3.0	3.0			3.0			3.0	3.0			3.0		3.0	3.0	
B.E. III Year - II Semester (R18)																		
U18HS610EH	Skill Development-IV: Soft Skills	1 Introduce students to higher order thinking and problem solving via vocabulary and its various components.										3.0					3.0	3.0
		2 Train students to understand context & theme and use it to complete sentences.										3.0					3.0	3.0
		3 Train students to identify the structure of sentences & paragraphs.												3.0			3.0	3.0
		Train students to analyze text, e.g., simple outlining and note taking, summarize, draw conclusions, and apply information to personal experiences.												3.0			3.0	3.0
		Train students to improve the quality of sentences by fixing errors.												3.0			3.0	3.0
		Simple Average										3.0		3.0			3.0	3.0
		Weighted Average										3.0		3.0			3.0	
U18PC610CE	DESIGN OF STEEL STRUCTURES	1 Compare the different design philosophies and employ limit state design in the design of structural elements using rolled steel sections according to IS: 800-2007 Design bolted connection using black bolts and welded connections using fillet welds, groove welds subjected to concentric loads by limit state method according to IS:800-2007	2.0	3.0	3.0			1.0		1.0				1.0	2.0	3.0	1.0	2.6
		2 Design tension members using limit state design according to IS:800-2007	2.0	3.0	3.0			1.0		1.0				1.0	2.0	3.0	1.0	2.7
		3 Design compression members and column bases using limit state design according to IS:800-2007	2.0	3.0	3.0			1.0		1.0				1.0	2.0	3.0	1.0	2.7
		4 Design laterally supported beams using limit state design according to IS:800-2007	2.0	3.0	3.0			1.0		1.0				1.0	2.0	3.0	1.0	2.7
		5 Estimate loads on roof trusses subjected to different load combinations and design purlins, members of truss using angle sections by limit state according to IS: 800-2007	2.0	3.0	3.0			1.0		1.0				1.0	2.0	3.0	1.0	2.7
		Simple Average	2.0	3.0	3.0			1.0		1.0				1.0	2.0	3.0	1.0	2.7
		Weighted Average	2.7	2.7	2.7			2.7		2.7				2.7	2.7	2.7	2.7	
CE	NICS	1 Interpret composition and structure of soils and classify them according to IS Soil classification.	2.0	2.0							1.0	1.0		2.0	1.0	3.0		1.8
		2 Evaluate effective stress under Hydrostatic Conditions, Steady State One-Dimensional Flow and Transient Hydrodynamic Conditions using analytical approach.	2.0	2.0	3.0	2.0			1.0		1.0	1.0		2.0	1.0	3.0		2.4

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18PC620	SOIL MECHA	3 Compute stress distribution and analyze mechanisms of compaction and consolidation of soils under given field conditions.	2.0	2.0	3.0	2.0					1.0	1.0		2.0	1.0	3.0		1.8
		4 Determine and judge shear strength in soils under given field conditions.													1.0	3.0		1.8
		5 Evaluate lateral earth pressure using Rankine's and Columb's wedge theories and assess stability slopes in soils under given field conditions.	2.0	2.0			2.0		1.0		1.0	1.0	3.0	1.0	1.0	3.0		3.0
		Simple Average	2.0	2.0	3.0	2.0	2.0		1.0		1.0	1.0	3.0	1.8	1.0	3.0		2.2
		Weighted Average	2.3	2.3	2.1	2.1	3.0		2.7		2.3	2.3	3.0	2.1	2.2	2.2		
U18PC630CE	ADVANCED STRUCTURAL ANALYSIS	1 Perform analysis of simply supported beam subjected to moving loads using influence line diagrams	2.0	3.0		1.0					1.0			1.0	1.0	3.0	1.0	2.7
		2 Compute forces in the members of the trusses subjected dead load & live load using influence line diagrams	2.0	3.0		1.0					1.0			1.0	1.0	3.0	1.0	2.7
		3 Apply flexibility method for analysis of beams and frames with degree of indeterminacy not exceeding three	2.0	3.0		1.0					1.0			1.0	1.0	3.0	1.0	1.8
		4 Explain the principles of analysis of structures subjected to external forces using stiffness method.	2.0	3.0		1.0					1.0			1.0	1.0	3.0	1.0	1.5
		5 Analyse the structures subjected to external loads by developing element stiffness matrices, assembly of global stiffness matrices and load matrices.	2.0	3.0		1.0					1.0			1.0	1.0	3.0	1.0	1.5
		Simple Average	2.0	3.0		1.0					1.0			1.0	1.0	3.0	1.0	2.0
		Weighted Average	2.0	2.0		2.0					2.0			2.0	2.0	2.0	2.0	
U18PC640CE	TRANSPORTATION ENGINEERING	1 Given the basic information on geometrical features, design horizontal and vertical alignment of highways/roads complying with IRC standards.	3.0	3.0	3.0			2.0	2.0							3.0		1.8
		2 Compute key elements of traffic, present and analyse traffic data for solving mobility issues and develop a survey plan for a transportation problem through traffic studies to solve urban traffic problems.	3.0	3.0	3.0			2.0								3.0		1.8
		3 Characterize the highway materials used for road construction based on quality control tests and develop a job mix formula for the given materials in field using Rothfuch method.	3.0	1.0				1.0	2.0							3.0		1.8
		4 Design flexible and rigid pavements for National highways as per IRC guidelines	3.0	3.0	3.0											3.0		1.8
		5 Employ various construction techniques adopted in field, identify the causes of various pavement failures and suggest remedies.	3.0	1.0				2.0	2.0							3.0		2.4
		Simple Average	3.0	2.2	3.0			1.8	2.0							3.0		1.9
		Weighted Average	1.9	1.9	1.8			2.0	2.0							1.9		
U18PE61 OCE FINISHING SCHOOL- IV:		1 Plan, execute and monitor large scale projects execution using Project Management software.	3.0	2.0	1.0		3.0				2.0			2.0	2.0	2.0	2.0	3.0
		2 Execute Exterior designing plans and graphs of building by using Building Information Modelling Software.	3.0	2.0	1.0		3.0				2.0			2.0	2.0	2.0	2.0	3.0
		Simple Average	3.0	2.0	1.0		3.0				2.0			2.0	2.0	2.0	2.0	3.0

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
		Weighted Average	3.0	3.0	3.0		3.0				3.0			3.0	3.0	3.0	3.0	
U18PC650CE	REINFORCED CONCRETE DESIGN	1 Understand design philosophies of concrete and design beams for flexure with working stress method according to IS: 456 -2000.	2.0	2.0	3.0										2.0	3.0	1.0	2.7
		2 Design beams for flexure with limit state method according to IS: 456-2000.		2.0	3.0											3.0	1.0	2.7
		3 Design beams for shear, torsion and compute deflections with limit state design philosophy according to IS: 456-2000.			3.0	2.0		1.0								3.0	1.0	1.8
		4 Perform yield line analysis of slabs and design slabs with limit state method according to IS: 456-2000.		2.0		2.0										3.0	1.0	2.4
		5 Design columns and footings with limit state method according to IS: 456-2000.			3.0			1.0								3.0	1.0	1.8
		Simple Average	2.0	2.0	3.0	2.0		1.0							2.0	3.0	1.0	2.3
		Weighted Average	2.7	2.6	2.3	2.1		1.8							2.7	2.3	2.3	
	Open Elective	1																
		2																
		Attached seperately																
		3																
		Simple Average																
		Weighted Average																
U18PC621CE	SOIL MECHANICS LAB	1 Determine the index properties of soils and classify soils.	2.0				3.0								2.0	3.0		3.0
		2 Determine Direct shear strength and Triaxial shear strength of a soil sample	2.0				3.0								2.0	3.0		3.0
		3 Calculate Permeability and determine the compaction characteristics of soils	2.0				3.0								2.0	3.0		3.0
		4 Practice working as a team member and lead a team							2.0	3.0							3.0	3.0
		5 Demonstrate professional behaviour in conducting the experiments and presenting the results effectively.							2.0	2.0	3.0		2.0			2.0	3.0	3.0
		Simple Average	2.0				3.0		2.0	2.5	3.0		2.0	2.0	2.8	3.0	3.0	3.0
		Weighted Average	3.0				3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
U18PC631CE	COMPUTER APPLICATIONS LAB	1 Perform analysis and design of RCC beams and frames subjected to various loads using a structural design software.	2.0				3.0									3.0	1.0	3.0
		2 Design of G + 2 residential building subjected to dead load and live load combination using software.	2.0				3.0									3.0	1.0	3.0
		Design an RCC multi-storeyed building subjected to DL, LL and wind load combination using software.	2.0				3.0									3.0	1.0	3.0
		3 Perform analysis and design of an RCC multi-storeyed building subjected to DL, LL, WL and seismic load combination using software								3.0						3.0	1.0	3.0
		4 Perform analysis and design of steel trusses and frames subjected to various loads using software.							1.0		2.0					3.0	1.0	3.0
		Simple Average	2.0				3.0		1.0	3.0	2.0					3.0	1.0	3.0
		Weighted Average	3.0				3.0		3.0	3.0	3.0					3.0	3.0	

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18PC641CE	TRANSPORTATION ENGINEERING LAB	1 Perform experiments on aggregates and bitumen on their suitability for road construction	2.0				3.0									3.0	1.0	3.0
		2 Understand basic traffic studies for transportation planning and design.	2.0				3.0									3.0	1.0	3.0
		3 Conduct tests on job mix formula and Marshall stability	2.0				3.0									3.0	1.0	3.0
		4 Practice working as a team member and lead a team									3.0					3.0	1.0	3.0
		5 Demonstrate professional behaviour in conducting the experiments and presenting the results effectively								1.0		2.0				3.0	1.0	3.0
		Simple Average	2.0				3.0			1.0	3.0	2.0				3.0	1.0	3.0
		Weighted Average	3.0				3.0			3.0	3.0	3.0				3.0	3.0	

VASAVI COLLEGE OF ENGINEERING (A) : DEPARTMENT OF CIVIL ENGINEERING
CO-PO MAPPING FOR THE ACADEMIC YEAR 2021-2022 (IV Year)

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Grade attainment	
B.E. IV Year - I Semester (R18)																			
U18PC710CE	WATER RESOURCES ENGINEERING	1 Estimate floods, rainfall and runoff using different methods for peak flow estimation and plotting hydrograph	3.0	2.0												3.0		1.8	
		2 Explain types and methods of irrigation and related terms.	3.0					1.0	2.0					1.0		3.0		1.8	
		3 Explain Bligh's theory and Khosla's theory for diversion head work.	1.0	3.0	2.0	1.0										3.0		1.8	
		4 Estimate the capacity of reservoir incorporating sedimentation for computing life of reservoir and describe the types and functions of spill way and energy dissipators.	3.0	2.0	1.0											3.0		1.8	
		5 Understand the criteria for design and construction of gravity dams and earth dams.	1.0	2.0	3.0	2.0										3.0		1.8	
		Simple Average	2.2	2.3	2.0	1.5		1.0	2.0					1.0		3.0		1.8	
		Weighted Average	1.8	1.8	1.8	1.8		1.8	1.8					1.8		1.8			
U18PC720CE	ESTIMATION AND SPECIFICATIONS	1 Estimate the quantities of materials used in various construction works.	2.0	2.0								1.0				1.0		2.0	2.7
		2 Compute and prepare bar bending schedules.	3.0	2.0									1.0			1.0		2.0	1.8
		3 Prepare rate analysis for various quantities	2.0	2.0									2.0			1.0		2.0	2.7
		4 List the various types of specifications, contracts used in construction and examine various documents related to construction.	2.0	2.0					2.0		2.0		2.0	2.0		1.0		2.0	2.4
		5 Interpret case studies on Public-Private Partnerships with an emphasis on the construction industry.	1.0	1.0					2.0				3.0	3.0	2.0	1.0		2.0	3.0
		Simple Average	2.0	1.8				2.0		2.0		1.8	2.5	2.0	1.0		2.0	2.5	
		Weighted Average	2.4	2.5				2.7		2.4		2.6	2.8	3.0	2.5		2.5		
U18PE711CE	DESIGN OF CONCRETE STRUCTURES	1 Design rectangular combined footing and understand the principles of design of trapezoidal footing with limit state method according to IS456: 2000		2.0											2.0	3.0	1.0	2.8	
		2 Analyse and design cantilever and counter fort retaining walls for different load conditions with limit state method according to IS456: 2000		2.0		2.0										3.0	1.0	2.0	
		3 Analyse and design water tanks, resting on ground and overhead water tanks according to IS3370: 2009.			3.0			1.0								3.0		3.0	
		4 Understand IRC loadings for the analysis of bridges according to IRC5: 2000 and IRC6: 2000.		2.0		2.0		1.0							2.0	3.0	1.0	2.3	
		5 Design Slab bridge and T-beam bridge with IRC loadings according to IRC1: 2000.			3.0			1.0								3.0		3.0	
		Simple Average		2.0	3.0	2.0		1.0							2.0	3.0	1.0	2.6	
		Weighted Average		2.4	3.0	2.2		1.0							2.5	2.6	2.6		
722CE	ENGINEERING	1 Design sheet piles under cantilevered and anchored actions using analytical approach.	2.0	2.0							2.0	1.0				3.0	1.0	1.2	
		2 Design Reinforced Earth Wall subjected to lateral pressure using different Geosynthetics as tension bearing elements.	2.0	2.0	3.0	2.0					2.0	1.0			1.0	3.0	1.0	1.8	
		3 Appraise site investigation methods adopted in determining index and engineering properties of soil under given field situation.	2.0	2.0			2.0		1.0	1.0	1.0	1.0	3.0	1.0		3.0	1.0	1.5	

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18PE734CE	FOUNDATION	4 Evaluate bearing capacity, settlements and adapt appropriate parameters for the design of foundations for given situation of foundation and soil type using analytical approach.	2.0	2.0	3.0	2.0					1.0	1.0			1.0	3.0	1.0	1.8
		5 Evaluate the capacity of pile foundation and pile groups using analytical methods under static and dynamic normal loadings including negative skin friction	2.0	2.0			2.0		1.0	1.0		1.0	3.0	1.0		3.0	1.0	2.4
		Simple Average	2.0	2.0	3.0	2.0	2.0		1.0	1.0	1.4	1.0	3.0	1.0	1.0	3.0	1.0	1.7
		Weighted Average	1.7	1.7	1.8	1.8	2.0		2.0	2.0	1.7	1.7	2.0	2.0	1.8	1.7	1.7	
U18PE731CE	ADVANCED DESIGN OF STEEL STRUCTURES	1 Design a welded plate girder by limit state method.	3.0	3.0	3.0			1.0	1.0					1.0		3.0	1.0	2.8
		2 Design a gantry girder by limit state method.	3.0	3.0	3.0			1.0	1.0					1.0		3.0	1.0	2.8
		3 Design a beam - column by limit state method.	3.0	3.0	3.0			1.0	1.0					1.0		3.0	1.0	2.8
		4 Use the Indian standard railway loadings and different types of steel bridges for railways.	3.0	3.0	3.0			1.0	1.0					1.0		3.0	1.0	2.7
		5 Design deck type riveted plate girder and bearings for steel Railway Bridges	3.0	3.0	3.0			1.0	1.0					1.0		3.0	1.0	2.7
		Simple Average	3.0	3.0	3.0			1.0	1.0					1.0		3.0	1.0	2.7
		Weighted Average	2.7	2.7	2.7			2.7	2.7					2.7		2.7	2.7	
U18PE734CE	GEONFORMATICS	1 Define common coordinate systems and projections in a map and types of data in GIS	2.0	1.0			2.0									3.0		3.0
		2 Explain the theoretical and practical considerations required for preparing a GIS-database	2.0	1.0			2.0									3.0		3.0
		3 Prepare, manipulate, display and analyse spatial data, synthesise and present high quality GIS-based outputs in a report format	2.0				2.0									3.0		3.0
		4 Apply the principles and techniques of remote sensing and photogrammetry in preparation of map	2.0	1.0			2.0								1.0	3.0		1.8
		5 Describe the fundamental theory and concepts of the Global Positioning System	2.0				2.0									3.0		3.0
		Simple Average	2.0	1.0			2.0								1.0	3.0		2.8
		Weighted Average	2.8	2.6			2.8								1.8	2.8		
U18PE741CE	PRE-STRESSED CONCRETE	1 Understand the process of production of Prestressed concrete and the principle involved.	2.0	1.0			2.0										3.0	3.0
		2 Examine the advantage of prestressing in reducing tension in concrete and making the beam more safer	2.0	1.0	2.0		2.0										3.0	1.8
		3 Describe how the deflections in beams are reduced in Prestressed compared to RCC	2.0			2.0	2.0										3.0	1.2
		4 Examine the shear distribution in Prestressed concrete sections & the design procedure.	2.0	1.0			2.0									1.0	3.0	1.2
		5 Explain how the end blocks of Prestressed concrete beams are strengthened against bursting tension.	2.0				2.0										3.0	1.2
		Simple Average	2.0	1.0	2.0	2.0	2.0									1.0	3.0	1.7
		Weighted Average	1.7	2.0	1.8	1.2	1.7									1.2	1.7	
PE742CE	AND AIRPORT MEERING	1 Describe the requirements of alignment and its surveys and explain the permanent way components with its functions	3.0	1.0				1.0	1.0							3.0		1.8
		2 Design the elements of railway track	3.0	2.0	2.0			1.0								3.0		1.2
		3 Present the techniques for construction and maintenance of railway track	3.0	1.0				1.0								3.0		3.0

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CGPA attainment	
U18P0100CE	RAILWAY ENGINEERING	4 Elucidate the requirements of airport layout and explain aircraft characteristics	3.0	1.0				1.0	1.0							3.0	3.0	3.0	3.0
		5 Draw wind rose diagrams and determine the corrected runway length	3.0	1.0	1.0			1.0									3.0	3.0	2.4
		Simple Average	3.0	1.2	1.5			1.0	1.0								3.0	3.0	2.3
		Weighted Average	2.3	2.1	1.6			2.3	2.4								2.3	2.3	2.5
U18PC711CE	GEOGRAPHICAL INFORMATION SYSTEM LAB	1 Generate a GIS base map with data obtained from surveys, scanned map, satellite images, CAD	3.0	2.0			3.0							3.0		3.0	1.0	3.0	
		2 Create thematic maps for various applications in civil engineering	3.0	2.0			3.0						3.0		3.0	3.0	1.0	3.0	
		3 Perform spatial analysis with GIS tools List of experiments:	3.0	2.0			3.0						3.0		3.0	3.0	1.0	3.0	
		Simple Average	2.8	2.0	1.6		3.0	2.3	2.4				3.0		3.0	3.0	2.8	1.0	2.9
		Weighted Average	3.0	3.0			3.0						3.0		3.0	3.0	3.0	3.0	
U18PE0X0CE	MOOC/NPTCL	1 Acquire domain specific knowledge and analyse complex engineering problems	3.0	2.0	2.0									1.0		3.0	3.0	2.0	
		2 Design and develop sustainable solutions for civil engineering problems related to society with problem analysis and research based knowledge	3.0	3.0	3.0	3.0	2.0	3.0	3.0					1.0		3.0	3.0	2.0	
		3 Engage in self learning the concepts related to the domain or any application related to domain	2.0	2.0	2.0				3.0					1.0		3.0	3.0	2.0	
		4 Apply modern tools and technologies to address societal problems	2.0	2.0	2.0		3.0							1.0			3.0	2.0	
		Simple Average	2.5	2.3	2.3	3.0	2.5	3.0	3.0					1.0			3.0	2.0	
U18PW719CE	PROJECT SEMINAR	Weighted Average	2.0	2.0	2.0	2.0	2.0	2.0	2.0				2.0		2.0	2.0	3.0	3.0	
		1 Analyse civil engineering problems in a multi disciplinary domain.	3.0	3.0	3.0	2.0	3.0						3.0	2.0	1.0	2.0	2.0	3.0	
		2 Acquire the ability to make effective presentation.					3.0				3.0	3.0	3.0	1.0	1.0	1.0	3.0	3.0	
		3 Explore the use of research based knowledge.				3.0	3.0	2.0	2.0					1.0	1.0	3.0	3.0	3.0	
		4 Apply engineering knowledge in the context of society					3.0	2.0	2.0	2.0				1.0	1.0	3.0	3.0	3.0	
U18PE851CE	ADVANCED REINFORCED CONCRETE DESIGN	5 Present the details obtained after mutual discussions with the team members									3.0	2.0	3.0	1.0	1.0		3.0	3.0	
		Simple Average	3.0	3.0	3.0	2.5	3.0	2.5	2.0	2.0	3.0	2.5	3.0	1.0	1.2	2.7	3.0	3.0	
		Weighted Average	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
		1 Design the beams curved in plan.	1.0	2.0	3.0	2.0								1.0	3.0	2.0		3.0	
		2 Design the deep beams.	1.0	2.0	3.0	2.0								1.0	3.0	2.0		3.0	
U18PE851CE	ADVANCED REINFORCED CONCRETE DESIGN	3 Design the portal frame and building frames by substitute frame method	1.0	2.0	3.0	2.0								1.0	3.0	2.0		2.4	
		4 Design Flat slabs to get more head room	1.0	2.0	3.0	2.0								1.0	3.0	2.0		2.4	
		5 Design the piles foundations for weak soils and raft or mat foundations to control the uneven settlements.	1.0	2.0	3.0	2.0								1.0	3.0	2.0		2.4	
		Simple Average	1.0	2.0	3.0	2.0								1.0	3.0	2.0		2.6	
		Weighted Average	2.6	2.6	2.6	2.6								2.6	2.6	2.6		2.6	
U18PE851CE	ADVANCED REINFORCED CONCRETE DESIGN	1 Analyse different methods of Mechanical stabilization	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	3.0	
		2 Analyse different methods of Hydraulic stabilization	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	3.0	
		3 Analyse different methods of stabilization using admixtures	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	3.0	
		Simple Average	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	3.0	
		Weighted Average	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	3.0	

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	attainment
U18P864CE	CONSTRUCTION MANAGEMENT AND ADMINISTRATION	4 Analyse different methods of grouting	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	3.0
		5 Examine application of geosynthetics in ground modification	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	1.8
		Simple Average	3.0		1.0	1.0		1.0				1.0		1.0	1.0	3.0	1.0	2.8
		Weighted Average	2.8		2.8	2.8		2.8				2.8		2.8	2.8	2.8	2.8	
	CONSTRUCTION MANAGEMENT AND ADMINISTRATION	1 Identify and report the importance and necessity of construction management.	2.0												1.0	2.0	2.0	3.0
		2 Employ bar charts, networks to determine the critical path and alter the construction schedules accordingly.	1.0	2.0	2.0	2.0	1.0	1.0			2.0		3.0	1.0	1.0	2.0	2.0	3.0
		3 Interpret the terms related to costs and time, and there by solve problems on crashing of networks.		2.0	2.0	1.0					2.0		2.0	1.0	1.0	2.0	2.0	2.7
		4 Categorize various construction contracts, acts and examine various documents related to construction.	2.0					1.0		2.0	2.0		2.0	1.0	1.0	2.0	2.0	3.0
		5 Interpret the concept of Linear Programming in Construction, and solve problems on Graphical and Simplex methods.			3.0	2.0	1.0							1.0	1.0	2.0	2.0	3.0
	PROJECT / INTERNSHIP	Simple Average	1.7	2.0	2.3	1.7	1.0	1.0		2.0	2.0		2.3	1.0	1.0	2.0	2.0	2.9
		Weighted Average	3.0	2.9	2.9	2.9	3.0	3.0		3.0	2.9		2.9	2.9	2.9	2.9	2.9	
		1 Formulate an analytical model for a civil engineering problem and obtain its solution with necessary tools.	3.0	3.0		2.0	3.0							1.0	1.0	3.0		3.0
		2 Design a civil engineering structure with due consideration for public health and safety.	3.0		3.0		3.0	2.0	2.0	2.0			3.0	1.0	1.0	3.0		3.0
	PROJECT / INTERNSHIP	3 Perform and manage as an individual or as a member of a team with ethical values.							2.0	3.0	3.0		3.0	1.0	1.0	3.0	1.0	3.0
		4 Examine the concepts of environment and sustainability						3.0	3.0					1.0	1.0	3.0	2.0	3.0
		5 Write effective reports and communicate effectively on civil engineering problems.						1.0		2.0	3.0	3.0	3.0	1.0	1.0	3.0	3.0	3.0

VASAVI COLLEGE OF ENGINEERING (A) : : DEPARTMENT OF CIVIL ENGINEERING
CO-PO MAPPING FOR THE Batch 2018-2022) (OE)

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
B.E. II Year - I Semester (R18)																		
U180E310CS	Introduction to Python Programming	1 Design python programs using arithmetic expressions and decision making statements	1.0		1.0	1.0								1.0	1.0			2.4
		2 Design modular python programs using functions	1.0	1.0	1.0	1.0	2.0							1.0	1.0			2.4
		3 Develop programs using strings and list	1.0	1.0	1.0	1.0	2.0							2.0	1.0			2.4
		4 Develop programs using tuples and dictionaries	1.0	1.0	1.0	1.0	2.0							1.0	1.0			2.4
		5 Illustrate operations on Efficient Binary Search Trees and Multiway Search Trees	1.0	1.0	1.0	1.0	2.0							1.0	1.0			2.4
		Simple Average	1.0	1.0	1.0	1.0	2.0							1.2	1.0			2.4
		Weighted Average	2.4	2.4	2.4	2.4	2.4							2.4	2.4			
U180E320CS	Cyber Security	1 Explain the concepts of confidentiality, availability and integrity	2.0	2.0	2.0	1.0									1.0			2.4
		2 Explain the basics of fraud techniques used by a hacker	2.0	1.0	2.0	1.0									1.0			2.4
		3 Explore the common exploitation mechanisms and inspect data sniffing over the network	2.0	1.0	2.0	1.0									1.0			2.4
		4 Determine the ways an organization attempts to discover threats.	2.0	1.0	2.0	1.0									1.0			2.4
		Simple Average	2.0	1.3	2.0	1.0									1.0			2.4
		Weighted Average	2.4	2.4	2.4	2.4									2.4			
U180E320ME	Mechanical Technology	1 identify the operations of various earth moving equipments for maintenance and selection with respect to their applications.	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0		1.0	1.0			3.0
		2 justify various conveying equipment for transporting material based on working principles.	1.0	2.0	1.0	1.0	1.0	1.0		1.0		2.0	1.0	1.0	1.0			3.0
		3 Explain the working principles of various types of hoisting equipment in civil engineering applications.	1.0	1.0	1.0	1.0	2.0			1.0		1.0	1.0	1.0	1.0			3.0
		4 examine various aggregate and concrete producing equipments used in concrete production and working of pneumatic equipment	1.0	2.0			1.0	1.0	1.0	1.0		1.0		1.0	1.0			3.0
		Simple Average	1.0	1.5	1.0	1.0	1.3	1.0	1.0	1.0		1.3	1.0	1.0	1.0			3.0
		Weighted Average	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0			
B.E. II Year - II Semester (R18)																		
J180E410CS	Introduction to Data Structures	1 Implement linear data structures	3.0	2.0	2.0	1.0	1.0							1.0	2.0	1.0		3.0
		2 Develop an application using stacks and queues.	3.0	2.0	2.0	1.0	1.0							1.0	2.0	1.0		3.0
		3 Choose the appropriate nonlinear data structure and perform various operations on Trees	3.0	2.0	2.0	1.0	1.0							1.0	2.0	1.0		3.0
		4 Perform various operations on graphs.	3.0	2.0	2.0	1.0	1.0							1.0	2.0	1.0		3.0

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	attainment
U180E410ME	Optimization Methods	Analyze the time and space complexities of Algorithms.	2.0	1.0														3.0
		Simple Average	2.8	1.8	2.0	1.0	1.0							1.0	2.0	1.0		3.0
		Weighted Average	3.0	3.0	3.0	3.0	3.0							3.0	3.0	3.0		
U180E410IT	Introduction to Object Oriented Programming	optimization of resources in multi disciplinary areas through linear programming under different conditions	3.0		3.0										3.0	3.0	1.0	3.0
		sensitivity analysis of a linear programming problem as per customer requirements to suit various Organizations	3.0	3.0	3.0										3.0	3.0	1.0	3.0
		minimization of total cost to apply for transportation techniques for the transshipment of Goods and products and Implement techniques like project management to analyze about material management.	3.0										3.0		3.0	3.0	1.0	3.0
		optimization of resources in multi disciplinary areas through non-linear programming under different conditions.	3.0		3.0										3.0	3.0	1.0	2.4
		optimization of resources in multi disciplinary areas through non-linear programming under different conditions.	3.0															
U180E410IT	Introduction to Object Oriented Programming	Simple Average	3.0	3.0	3.0								3.0		3.0	3.0	1.0	2.9
		Weighted Average	2.9	3.0	2.8								3.0		2.9	2.9	2.9	
		1 Understand fundamental concepts in Object oriented	3.0	2.0	2.0										2.0			2.4
		2 . Develop object-oriented programs using the concepts of exception handling and multi threading.	3.0	2.0	2.0										2.0			3.0
U180E420IT	Introduction to Scripting Languages	3 Demonstrate the usage of Java I/O streams to handle user input and output.	3.0	2.0	2.0										2.0			1.8
		4 Design and develop GUI programs.	2.0	3.0	3.0										2.0			3.0
		5 Develop Applets for web applications.	2.0	2.0	2.0										2.0			2.4
		Simple Average	2.5	2.6	2.6										2.5			2.6
		Weighted Average																
U180E420IT	Introduction to Scripting Languages	1 Write a python script to solve a basic problem using structured programming constructs	3.0	1.0	3.0									1.0				3.0
		2 Write a python script to solve a basic problem using object oriented programming constructs	3.0	2.0	3.0									1.0				3.0
		3 Create and use python modules	2.0	2.0	3.0			1.0						1.0				3.0
		4 Handle file related operations	2.0	3.0	3.0			1.0						1.0				3.0
		5 Encode and decode strings	2.0	2.0	3.0			1.0						1.0				2.4
		Simple Average	2.4	2.0	3.0			1.0						1.0				2.9
		Weighted Average	2.9	2.9	2.9			2.8						2.9				

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Grade attainment
U19OE430EH	OE- BE :Basics of Entrepreneurship K. Isaac Spurgeon	1 Take-up entrepreneurship as a career choice 2 Create and Validate business models. Build a Minimum Viable Product 3 Identify various costs and revenue streams for a venture. 4 Build successful teams and acquire sales skills. 5 Understand the business regulations and various Government schemes available.		2.0							3.0 2.0	2.0 2.0	3.0 1.0	2.0 1.0	1.0		1.0 1.0	3.0 2.1
		Simple Average		2.0						1.0	2.3	2.0	1.8	1.5	1.0	1.0	1.0	2.8
		Weighted Average		3.0	2.1					2.1	3.0	2.7	2.9	2.7	3.0	3.0	2.1	
U19OE420EH	OE- CRITICAL THINKING : A. Jacqueline	1 Analyse and compare techniques for comparing alternate solutions 2 Demonstrate the difference between deductive and inductive reasoning and construct logically sound arguments 3 Check for accuracy of data and use it as a tool for problem solving 4 Evaluate, identify and distinguish between relevant and irrelevant information to formulate a thesis or hypothesis 5 Employing evidence and information effectively								3.0 3.0 3.0 3.0	3.0 3.0 3.0 3.0	3.0 3.0 3.0 3.0		3.0				2.9 3.0 2.8 3.0
		Simple Average								3.0	3.0	3.0		3.0				2.9
		Weighted Average								2.9	2.9	2.9		2.9				
U19OE410MA	OE- LAIA : Y. BHANUPRAKASH / c. NAGA ANURADHA	1 The concept of vector spaces and sub spaces. These concepts are useful to generate code words improve the quality of transmission 2 The concept of bases and dimension and change of bases. These concepts are useful in ordinary differential equations 3 The concept of linear transformation and isomorphism and these concepts are useful in computer graphics 4 The concept of Rank & Nullity and matrix of a linear transformation is useful in Animation 5 The concept of inner product spaces Orthonormal bases. These concepts are useful in Least Square Approximation, which is used in engineering applications and statistics	3.0	2.0											1.0			2.4 2.4 2.4 2.4 2.4
		Simple Average	3.0	2.0										1.0				2.4
		Weighted Average	2.4	2.4										2.4				
B.E. III Year - I Semester (R18)																		
U18OE510ME	Introduction To Robotics	1 understand the anatomy of the robot and various robot configurations for it's selection depending on the task. 2 classify the end effectors , understand different types of joints,various types of mechanical actuation and robot drive systems for carrying out the assigned job effectively. 3 analyze a planar manipulator through forward kinematics and understand the control of robot manipulator for better reliability and efficiency.	3.0												1.0	2.0		3.0 3.0 3.0

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
		4 Classify the various sensors used in robots for proper selection to an application.	3.0					3.0							1.0	2.0		3.0
		5 summarize various industrial and	3.0					3.0	3.0	3.0					1.0	2.0		3.0
		Simple Average	3.0	3.0				3.0	3.0	3.0					1.0	2.0		3.0
		Weighted Average	3.0	3.0				3.0	3.0	3.0					3.0	3.0		
U18OE510IT	Introduction To Database Management Systems	1 Understand functional components of the DBMS and develop ER model for a given problem and map ER it to Relational model	1.0	1.0	2.0													3.0
		2 Understand Relational model and basic relational algebra operations.	2.0	2.0	2.0													3.0
		3 Devise queries using SQL	2.0	2.0	2.0													3.0
		4 Design a normalized database schema using different normal forms.	1.0	1.0	2.0													3.0
		5 Understand transaction processing and concurrency control techniques.	2.0	1.0	1.0													3.0
		Simple Average	1.6	1.4	1.8													3.0
		Weighted Average	3.0	3.0	3.0													
U18OE530EH	Advanced Course Entrepreneurship	1 Develop an A-team									2.0	1.0						3.0
		2 Refine business models and expand customer segments, brand strategy and create digital presence, channel strategy for customer outreach			1.0								1.0				1.0	3.0
		3 Develop strategies to grow revenues and markets, understand Advance Concepts of business finance, do Financial Planning, find Funding for growth											2.0			1.0		3.0
		4 Leverage technologies and platforms for growth stage companies					2.0								1.0			3.0
		5 Develop key metrics to track progress, understand Basics of registering a company.											1.0					3.0
		Simple Average			1.0		2.0				2.0	1.0	1.3		1.0	1.0	1.0	3.0
		Weighted Average			3.0		3.0				3.0	3.0	3.0		3.0	3.0	3.0	3.0
U18OE520CS	Web Design	1 Design static web pages.	2.0	1.0	2.0	1.0	3.0								2.0			1.8
		2 Apply styles to the web pages	2.0	1.0	2.0	1.0	1.0								2.0			3.0
		3 Create dynamic web pages using JavaScript.	2.0	1.0	2.0	1.0	2.0								2.0			1.8
		4 Design DTD and schema for a given XML file	2.0	1.0	2.0	1.0	1.0								2.0			1.8
		5 Develop server side components using PHP	2.0	2.0	2.0	1.0	2.0								3.0			2.0
		Simple Average	2.0	1.2	2.0	1.0	1.8								2.2			2.1
		Weighted Average	2.1	2.1	2.1	2.1	2.0								2.1			

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Grade attainment
U18OE520MA	Discrete Mathematics for Engineers	1 Use logical notation to define and reason about fundamental mathematical concepts and synthesize induction hypothesis and simple Induction proofs.	3.0	2.0										1.0	1.0			3.0
		2 Prove elementary properties of modular arithmetic and basic cryptography and apply in Computer Science.	3.0	2.0										1.0	1.0			3.0
		3 Calculate number of possible outcomes of elementary combinatorial processes such as permutations and combinations Model and analyze computational processes using analytic and Combinatorial methods.	3.0	2.0										1.0	1.0			2.3
		4 Prove whether a given relation is an equivalence relation/poset and will be able to draw a Hasse diagram.	3.0	2.0										1.0	1.0			3.0
		5 Apply graph theory models of data structures and to solve problems of connectivity.	3.0	2.0										1.0	1.0			2.2
		Simple Average	3.0	2.0										1.0	1.0			2.7
		Weighted Average	2.7	2.7										2.7	2.7			2.7
U18OE010EH	Technical Writing and Professional Presentations	1 write effective reports										2.0		3.0			3.0	2.4
		2 Articulate business correspondences based on need										1.0		2.0			3.0	2.4
		3 Make persuasive presentations										3.0		3.0			3.0	2.4
		4 Design their videos CVs										3.0		3.0			3.0	2.4
		5 Write papers ranging from process description and feasibility reports to research projects, project proposals, and statement of purpose										2.0		2.0			3.0	2.4
		Simple Average										2.2		2.6			3.0	2.4
		Weighted Average										2.4		2.4			2.4	
U18OE510EE	Solar Power and Applications	1 Compare different energy resources	3.0				1.0									1.0		2.1
		2 Identify and choose proper type of meter for solar radiation	3.0	3.0			1.0									1.0		2.5
		3 Use proper solar thermal system according to the load	3.0				3.0									1.0		2.3
		4 Categorise and compare photovoltaic cells	3.0	3.0			1.0									1.0		1.5
		5 Apply the knowledge of solar energy	3.0				1.0									1.0		1.9
		Simple Average	3.0	3.0			1.4									1.0		2.1
		Weighted Average	2.1	2.0			2.1									2.1		
B.E. III Year - II Semester (R18)																		
U18OE610ME	Advanced Manufacturing And Its Applications	1 understand the fundamentals of prototyping.	3.0	2.0	2.0		3.0					3.0			1.0			3.0
		2 study the principle, process, advantages and limitations of liquid based AM systems.	3.0	2.0	2.0		3.0					3.0			1.0			2.4
		3 study the principle, process, advantages and limitations of solid based AM systems.	3.0	2.0	2.0		3.0					3.0			1.0			3.0
		4 study the principle, process, advantages and limitations of powder based AM systems	3.0	3.0	2.0		3.0					3.0			1.0			3.0

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Co attainment
	Addit	5 study the applications of AMT in various engineering industries.	3.0	2.0	2.0		3.0					3.0			1.0			3.0
		Simple Average	3.0	2.2	2.0		3.0					3.0			1.0			2.9
		Weighted Average	2.9	2.9	2.9		2.9					2.9			2.9			
U18OE620IT	Introduction To Machine Learning	1 Demonstrate knowledge of the Artificial intelligence and machine learning literature	2.0	2.0	1.0	1.0	1.0							1.0	1.0			3.0
		2 Apply an appropriate algorithm for a given problem.	2.0	3.0	3.0	1.0	2.0				1.0			1.0	1.0			2.4
		3 Apply machine learning techniques in the design of computer systems	3.0	3.0	3.0	2.0	2.0				1.0			1.0	1.0			2.4
		4 Prove basic results in the theory of learning	2.0	3.0	2.0	2.0	2.0				1.0			1.0	1.0			3.0
		5 Explain the relative strengths and weaknesses of different machine learning methods and approaches.	2.0	3.0	3.0	3.0	1.0				1.0			1.0	1.0			2.7
		Simple Average	2.2	2.8	2.4	1.8	1.6				1.0			1.0	1.0			2.7
		Weighted Average	2.7	2.7	2.6	2.7	2.7				2.6			2.7	2.7			
U18OE610ME	INTRODUCTION TO AUTOMOBILE ENGINEERING	1 identify types of Automobiles and engine components	3.0						1.0					3.0	1.0			3.0
		2 describe the engine fuel system in petrol and Diesel engines, cooling, lubrication systems.	3.0	1.0				1.0	1.0	1.0				2.0	1.0			3.0
		3 describe the steering mechanism, suspension systems	3.0	1.0					1.0					2.0	1.0			3.0
		4 analyse the working principle and operation of clutch, gear mechanism and brakes	3.0						1.0					2.0	1.0			2.9
		5 know the pollutants from automobile and pollution control techniques and identify the types of wheels, tyres.	3.0						2.0	1.0				2.0	1.0			2.9
		Simple Average	3.0	1.0				1.0	1.2	1.0				2.2	1.0			2.9
		Weighted Average	2.9	3.0				3.0	2.9	2.9				2.9	2.9			
U18OE610CS	OE- Introduction to Databases : M. SHANMUKHI / M. SUNITHA	1 Identify the functional components of database	2.0		2.0									1.0	1.0			3.0
		2 Transform a conceptual data model into a relational model	2.0	1.0	2.0										1.0			3.0
		3 Design database using various normalization techniques	2.0	1.0	2.0		2.0							2.0	1.0			3.0
		4 Apply indexing and hashing techniques for effective data retrieval.	2.0	1.0	2.0		2.0							1.0	1.0			3.0
		5 Explain transaction processing.	2.0	1.0	1.0									1.0	1.0			3.0
		Simple Average	2.0	1.0	2.0									1.0	1.0			3.0
		Weighted Average	3.0	3.0	3.0									3.0	3.0			

Code	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18OE610EH	English For Competitive Examinations	1 The student will be able to solve various types of questions in competitive English examinations effectively.										3.0		2.0			1.0	2.3
		2 Provide logical conclusions for the questions on aptitude and reasoning within the stipulated time.										3.0		2.0			1.0	2.3
		Simple Average										3.0		2.0			1.0	2.3
		Weighted Average										2.3		2.3			2.3	
U18OE6XXEH	OE- Critical Reasoning : Y. BHANUPRAKASH	1 Identify the alternative solutions to the problem or case.												2.0	1.0			3.0
		2 Derive solution or discuss the best solution(s) to the problem or case.												3.0	1.0			3.0
		3 Discuss the conclusions that follow from the solution(s). Students will be trained to apply concepts like percentages and averages to solve complex problems.												2.0	1.0			3.0
		4 Students will be trained to use effective methods like elimination of options and shortcuts to solve problem accurately.												2.0	1.0			3.0
		5 Students will be trained to use effective methods like decision making and shortcuts to solve problems accurately.												2.0	1.0			3.0
		Simple Average												2.2	1.0			3.0
		Weighted Average												3.0	3.0			

Cod e	Course	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	CO attainment
U18PC421CE	Surveying-II Lab	Determine the RL of a given point in different practical situations	2.0				3.0									1.0	2.0	3.0
		Apply the principles of tacheometry in the field	3.0	2.0	1.0		1.0							2.0			1.0	3.0
		Demonstrate usage of Total Station and GPS in field projects	3.0	2.0	1.0		1.0							2.0			1.0	3.0
		Practice working as a team member and make effective presentations.	3.0	2.0	1.0		1.0				2.0			2.0			1.0	3.0
		Demonstrate professional behaviour in conducting the experiments and present the results effectively	3.0	2.0	1.0		1.0				2.0			2.0			1.0	3.0
		Simple Average	2.8	2.0	1.0		1.4				2.0			2.0		1.0	1.2	3.0
		Weighted Average	3.0	3.0	3.0		3.0				3.0			3.0		3.0	3.0	
U18PC431CE	Fluid Mechanics Lab	Determine coefficient of discharge for various measuring devices such as orifice, venturimeter, mouth piece, notches , weirs and hemi- spherical vessel and Validate Bernoulli's theorem	2.0			3.0										2.0		3.0
		Calculate Reynold's number and classify types of flows.	2.0			3.0										2.0		3.0
		Estimate Darcy's friction factor for turbulent flow in pipes .	2.0			3.0										2.0		3.0
		Practise working as a team member and lead a team									3.0					2.0		3.0
		Demonstrate professional behaviour in conducting the experiments and presenting the results effectively								1.0		2.0				2.0	2.0	3.0
		Simple Average	2.0			3.0				1.0	3.0	2.0				2.0	2.0	3.0
		Weighted Average	3.0			3.0				3.0	3.0	3.0				3.0	3.0	

VASAVI COLLEGE OF ENGINEERING (Autonomous)
Ibrahimbagh, Hyderabad - 31
Department of Computer Science & Engineering
2018-22 Graduating Batch - B.E. (CSE) PO and PSO Attainment

2018-19 I sem																	
S.No.	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	U18HS110EH	English language and communication-I									2.9	2.9		2.91			
2	U18BS120MA	Engineering Mathematics-I	3	3	3	3	3							3			
3	U18BS130PH	Semiconductor Physics	2.65	2.6										1.5			
4	U18BS140CH	Chemistry-I	3	3					3					3			
5	U18ES150CS	Programming for Problem Solving	2.31	2.23	2.21	2.19	1.8							2.4	2.28	2.3	1.95
6	U18ES160EE	Basic Electrical Engineering	2.7	2.7	2.7	2.7								2.7			
7	U18ES170CE	Engineering Drawing-I	2.64	2.63			2.7					2.64			2.64		2.64
9	U18HS111EH	English language and communication skills Lab- I					3				3	3		3			
10	U18BS131PH	Physics Lab-I	3	3		3								3	3		
	& U18BS141CH	Chemistry Lab -I	3	3							3			3			
11	U18ES151CS	Programming for Problem Solving lab	3	3	3	3	3								3	3	3
12	U18ES161EE	Basic Electrical Engineering lab	3	3		3					3			3			
2018-19 II sem																	
S.No.	Course Code	Course Name															
14	U18HS210EH	English language and communication-II									2.9	2.9		2.9			
15	U18BS220MA	Engineering Mathematics-II	3	3	3	3	3							3			
16	U18BS230PH	Optoelectronic Devices	2.725	2.69													
18	U18BS240CH	Chemistry-II	2.6	2.7					2.6					2.7			
19	U18ES250EC	Introduction to Electronics Engineering	3	2	2.4			1.2			1.8						
22	U18ES160CE	Basic Engineering Mechanics	3	3													
23	U18ES270CE	Engineering Drawing-II	2.73	2.12			2.85								2.64		2.64
24	U18HS211EH	English language and communication skills lab-II					3				3	3		3			

S.No.	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
25	U18BS231PH & U18BS241CH	Physics Lab-II	3	3										3	3		
		Chemistry Lab -II	3	3							3			3			
27	U18ES251EC	Introduction to Electronics Engineering Lab (CSE)	3	3	3	3	3				3				3	3	
30	U18ES171ME	Workshop-I	3	3	3					3	3			3			
-20 III sem																	
S.No.	Course Code	Course Name															
31	U18HS330EH	Skill Development: Communication Skills in English										2.3		2.6			
32	U18HS010EH	Human Values and Professional Ethics-I										3		2.6			
33	U18BS320MA	Transform Techniques, Probability and Statistics	2.99	2.49										1.99			
34	U18PC310CS	Logic & Switching Theory	2.55	2.53	2.53	2.55									2.56	2.55	
35	U18PC320CS	Data Structures	2.79	2.83	2.87	2.82					2.93			2.9	2.79	2.9	
36	U18PC330CS	Object Oriented Programming	2.25	2.1	2.04	2.1	1.87							1.9	1.83	1.93	1.8
37	U18PC340CS	Discrete Structures	2.64	2.58	2.71	2.67	2.67									2.7	
38	U18OE3XXXX	Open Elective-II		3	3					3	3	3	3	3	3		3
		Python Programming (Sudha Rani and Gireesh)	3	3	3										3	3	3
39	U18MC310ME	Introduction to Entrepreneurship		3	3					3	3	3	3	3	3		3
40	U18PC321CS	Data Structures Lab	3	3	3	3					3			3	3	3	
41	U18PC331CS	Object Oriented Programming Lab	3	3	3	3	3							3	3	3	3
2019-20 IV sem																	
S.No.	Course Code	Course Name															
42	U18HS430EH	Skill Development: Communication Skills in English – II										2.7		2.4			
43	U18PC410CS	Microprocessors, Microcontroller & Interfacing	2.48	2.39	2.39	2.44	2.45								2.48	2.5	
44	U18PC420CS	Operating Systems	2.82	2.82	2.85	2.75	2.7		2.81					2.7	2.95	2.8	2.62
45	U18PC430CS	Design & Analysis of Algorithms	2.52	2.5	2.52	2.55					2.5			2.4	2.5	2.5	2.5
46	U18PC440CS	Computer Architecture	2.88	2.8	2.88									2.85		2.87	
47	U18OE4XXXX	Open Elective-II	1.67	1.67	1.65												
		Mathematical Programming for Engineers	3	3	2	2	2							1		3	
		Disaster Management	3	3	3		3	3	3		3			3			
		Basics of Entrepreneurship		3	3					3	3	3	3	3	3		3

[illegible]

[illegible]

S.No.	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
2020-21 VII sem																	
70	U18PC710CS	Distributed Systems and Cloud Computing	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8				1.8	1.8	1.8	1.8
71	U18PC720CS	Compiler Construction	2.45	2.48	2.42	2.42	2.42									2.44	
72	U18PE7XXCS	Professional Elective-II (Data Mining)	1.68	1.72	1.56				1.75					1.56	1.59		1.75
73	U18PE7XXCS	Professional Elective-III(Information Security)	2.79	2.8				2.8		2.81				2.79	2.79		
74	U18PE7XXCS	Professional Elective-IV(Advanced Databases)	2.64	2.64	3										2.64		2.64
75	U18PC711CS	Distributed Systems and Cloud Computing Lab	3	3	3	3		3				3			3	3	
76	U18PC721CS	Compiler Construction Lab	3	3	3	3		3							3	3	
77	U18PW719CS	Mini Project -II	3	3	3	3	3		3					3	3		3
78	U18PW729CS	Project Seminar	3	3					3	3	3	3		3			3
2020-21 VIII sem																	
79	U18PE8XXCS	Professional Elective-V(ASN)	2.88	2.85	2.9										2.93	2.85	2.88
80	U18PE8XXCS	Professional Elective-VI (NLP)	3	3											3	3	
81	U18PW819CS	Project /Internship	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Direct Attainment			2.80	2.75	2.71	2.66	2.73	2.76	2.77	2.99	2.89	2.89	2.94	2.73	2.79	2.71	2.73
Indirect Attainment			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Target			2.55	2.65	2.55	2.55	2.65	2.75	2.65	2.86	2.86	2.86	2.75	2.65	2.55	2.55	2.55
Total attainment 2018-22 batch			2.84	2.80	2.77	2.73	2.79	2.81	2.82	2.99	2.91	2.92	2.95	2.78	2.83	2.77	2.78

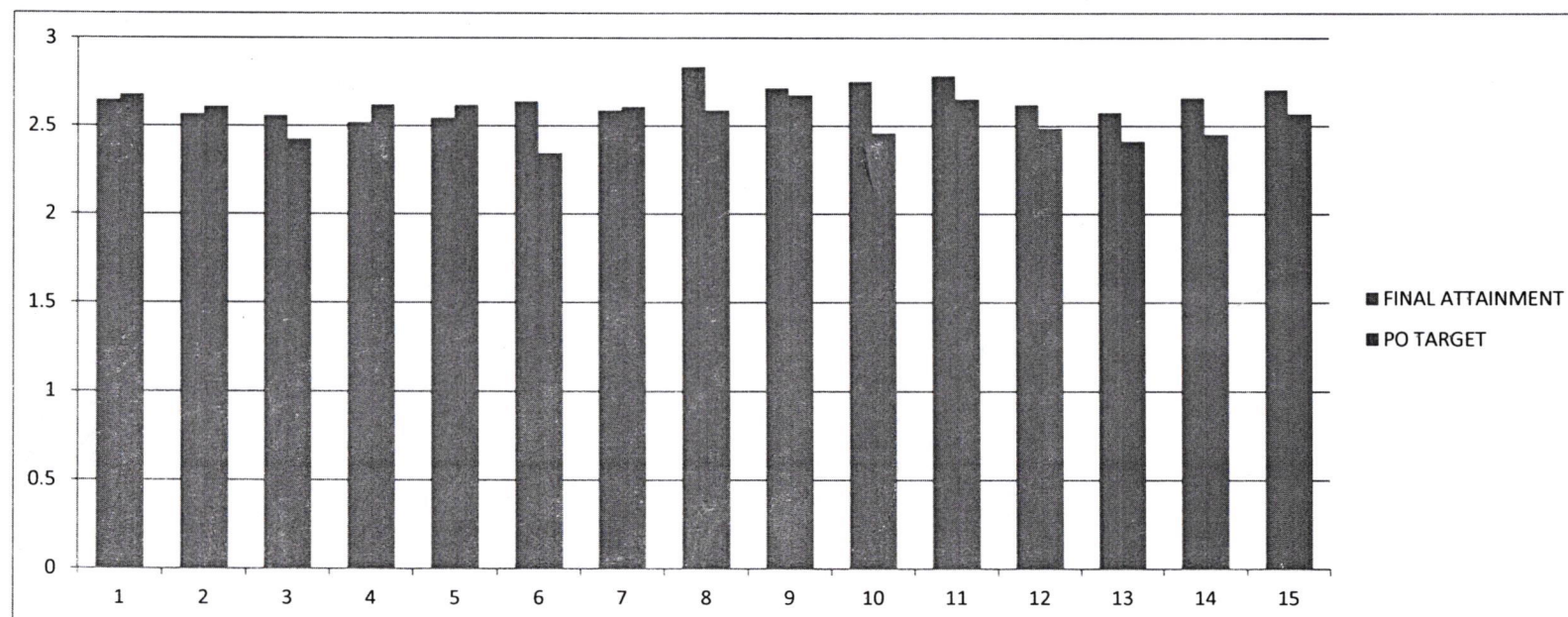
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VASAVI COLLEGE OF ENGINEERING (Autonomous)
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Final POs and PSOs Attainment 2018-19 Admitted Batch

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
DIRECT ASSESSMENT (80%)	2.6	2.52	2.53	2.49	2.49	2.64	2.57	2.84	2.67	2.717	2.806	2.552	2.564	2.658	2.74
IN-DIRECT ASSESSMENT (20%)	2.82	2.76	2.66	2.66	2.76	2.62	2.66	2.79	2.88	2.895	2.699	2.897	2.625	2.666	2.571
FINAL ATTAINMENT	2.65	2.57	2.56	2.52	2.55	2.64	2.59	2.83	2.71	2.753	2.785	2.621	2.576	2.66	2.706
PO TARGET	2.68	2.61	2.42	2.62	2.62	2.35	2.61	2.59	2.68	2.461	2.653	2.486	2.414	2.453	2.569



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ASAHI COLLEGE OF ENGINEERING (Autonomous)
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

POs and PSOs Attainment 2018-19 Admitted Batch

1st Year I - Semester Subjects 18-19	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
English language and communication-I	2.7	2.7									2.7	2.7		2.7			
Engineering Mathematics-I	2	2.04	2.6	2										2			
Waves and Optics (EEE)	2.2	2.22	2.2	2	2.2									2			
Chemistry-I	2.7	2.78	2.7	2.8													
Programming for Problem Solving	1.8	1.8	1.7	1.4	1	1.2			2.8					2.8			
Basic Engineering Mechanics	1.8	1.81	1.8	1.9				1.2			1.5			1.2	1.8	1.8	1.8
Engineering Graphics-I	1.8	1.8	1.8	1.8	1.8						1.8	1.8	1.8	1.8			
English language and communication skills lab-I	2.8	2.8					2.2				2.8	2.8	2.8				
Physics Lab -I	2.6	2.625	2.6	2.6		2.6								2.6			
Chemistry Lab -I	3	3	3	3							3			3			
Programming for Problem Solving lab	2	1.8					1.57				1.57	1.57	1.57				
Workshop-I	1.7	1.75	1.5	1.75				1.5	1.5		1.3			1.5	1.8	2	2.2
1st Year II - Semester Subjects 18-19	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
English language and communication-II	2.6	2.66									2.6	2.6		2.6			
Engineering Mathematics-II	1.9	1.92	2.5	1.7													
Quantum Mechanics & Semiconductor Physics (EEE)	2	2.1	2.1	2	2.1												
Chemistry-II	2.5	2.7	2.7	2.7					2.5					2.7			
Basic Electrical Engineering	2.6	2.625	2.6	2.6	2.6		2.6	2.6	2.6	2.6	2.6	2.6		2.6	2.6		
Engineering Graphics-II	2.4	2.4	2.4	2.4	2.4							2.4	2.4	2.4			
Engineering Mechanics	2.4	2.4	2.4	2.4								2.4		2.4	2.4	2.4	2.4
English language and communication skills Lab-II	2.8	2.85										2.8	2.8	2.8			
Physics Lab -II	2.6	2.6	2.6	2.6		2.6								2.6			
Chemistry Lab -II	3	3	3	3								3		3			

POs and PSOs Attainment 2018-19 Admitted Batch

Basic Electrical Engineering lab	3	3	3	3	3	3	3	3	3	3	3	3		3		3	3
Workshop -II	2	2	1.8	2		2		2	1.75		1.8			2	2.6	2.6	2.5
2nd Year III - Semester Subjects 19-20	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Skill Development-I: Communications Skills in English	2	2.28						2.28			2.28	2.28		2.28			
Partial Differential Equations and Transform Techniques	2	2.7	2.4	1.6	1	1	1							1			
Electronics Engineering - I	2	2.9	2.93	2.91	2.86											2	
Electrical Circuit Analysis	2	2.4	2.42	2.42										2.42		2.42	2.42
Electromagnetic Field Theory	2	2.1	1.97	1.99	1.99	2.1		2.7						2.05	2.05	2.05	
Open Elective-I	2.2	2.7	2.7	2.7	2.7	2.4	2.4							2.7	2.4		2.4
Introduction to Entrepreneurship	2	3		3	3					3	3	3	3	3			3
Electronics Engineering – I Lab	2.5	3	3	3	3											3	
Circuits and Simulation Lab	3	3	3	3							3					3	3
2nd Year IV - Semester Subjects 19-20	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Skill Development-II : Communications Skills in English	2	1.8						1.8			1.8	1.8		1.8			
Human Values and Professional Ethics -I	2	3								3		3		3			
Numerical Methods, Probability and Statistics	2	2.75	2.6	1.73													
Electronics Engineering-II	2.5	2.58	2.59	2.57	2.5												
Digital Electronics	2.42	2.63	2.63	2.7	2.75						2.7				2.7		
Electrical Measurements and Instrumentation	2.3	2.37	2.37	2.37	2.37									2.37	2.37		
Electrical Machines - I	2.4	2.7	2.16	2.16	2.16	2.16			2.16					2.16	2.16	1.98	
Open Elective-II	2.485714286	2.681428571	2.828	2.803	2.606	3	2.9				2.62	2.475	2.94	2.432	2.933	2.943	2.593
Electronics Engineering Lab-II	2.5	2.58	2.59	2.57	2.57												
Electrical Measurements and Instrumentation Lab	2.6	3	3	3							3			3	3		
Electrical Machines Lab - I	2.6	3	3	3	3	3		3			3	3	3		3		
3rd Year V - Semester Subjects 20-21	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

VASAVI COLLEGE OF ENGINEERING (Autonomous)
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POs and PSOs Attainment 2018-19 Admitted Batch

Skill Development-III : Soft Skills	2	2.64						2.64			2.64	2.64		2.64			
Power Systems - I	2.5	2.55	2.55	2.55	2.55									2.55	2.55		
Microprocessors & Microcontrollers Applications	2.5	2.6	2.6	2.6	2.6	2.57	2.57	2.53	2.55	2.6	2.57	2.55	2.5	2.57	2.6		
Linear Integrated Circuits & Applications	2.5	2.5	2.5	2.5	2.5											2.5	
Electrical Machines - II	2.4	2.6	2.6	2.6	2.53	2.53	2.6					2.9		2.6	2.58		
Open Elective -III	2.4	2.5825	2.66	2.713	2.55	2.55	2.06	2.8	2.4	2.4	2.35	2.35		2.35	2.667	2.673	2.88
Environmental Science	2.7	2.82	2.8	2.8				2.8	2.8	2.8							
Microprocessors & Microcontrollers Applications Lab	3	3	3	3	3	3	3		3		3	3	3	3			
Linear Integrated Circuits & Digital Electronics Lab	2.64	3	3		3		3				3	3	3			3	
Electrical Machines – II Lab	3	3	3	3													
Mini Project	2.8	3	3							3	3	3	3	3	3		
3rd Year VI - Semester Subjects 20-21	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Skill Development-IV : Soft Skills	3	3						3			3	3		3			
Economics and Finance for Engineers	2.6	2.65			2.7	2.7			2.7		2.7		2.7				
Human Values and Professional Ethics - II	2.4	2.5								2.5							
Power Systems - II	2.6	2.75	2.75	2.75	2.7	2.7	2.7	2.67	2.68					2.75			
Power Electronics	2.26	2.22	2.34	2.34	2.34									2.34			
Linear Control Systems	2.56	2.4	2.47	2.4	2.2	2.2								2.4			
Signals & Systems	2.45	2.47	2.58	2.57	2.55	3		3						2.58			
Open Elective –IV	2.23	2.778	2.87	2.873	2.81	2.7	2.83	2.92	2.93	2.92	2.857	2.625		2.778	3	2.6	2.78
Power Electronics and Simulation Lab	3	3	3	3		3	3							3		3	3
Control Systems and Simulation Lab	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Theme Based Project	2.8	3	3							3	3	3	3	3	3		
4th Year VII - Semester Subjects 21-22	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Switchgear and Protection	2.2	1.86	1.8	1.3	1.9	1.8	2.1							1.86	1.86		

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POs and PSOs Attainment 2018-19 Admitted Batch

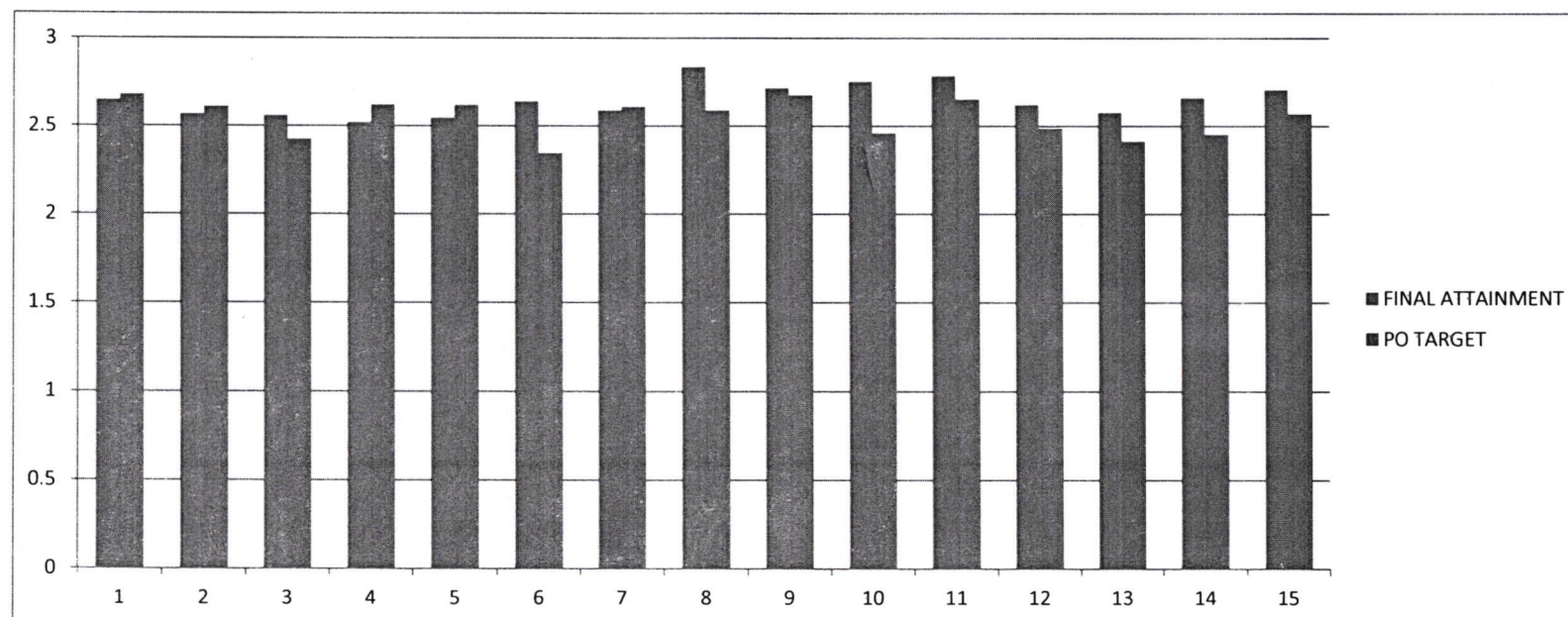
Digital Signal Processing	2.5	2.54	2.5	2.6	2.48	2								2.54			
Electrical Drives and Static Control	2.57	2.54	2.54	2.36	2.5										2.54		
Power System Operation and Control	1.8	2.224	2.24	1.98	2.24	2.24									2.24		2.24
Electric and Hybrid Vehicles	2.4	2.7	2.16	2.16	2.16	2.16			2.16					2.16	2.16		
Programmable logic Controllers	2	2.1	2.1	2.1	2.1	2.1	2.1										
Digital Signal Processing Lab	3	3	3		3		3				3			3		3	3
Power Systems Lab	2.6	3	3	3	3	3						3	3	3	3		3
Project Seminar	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4th Year II - Semester Subjects 21-22	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Electrical Machine Design	2.2	1.5	1.5	1	1.4	1.46	1.2							1.5	1.5		
Smart Grid Technologies	2	2.64	2.64	2.59	2.57	2.57									2.64		2.64
Project / Internship	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	2.45	2.61	2.6	2.52	2.53	2.49	2.49	2.64	2.57	2.84	2.67	2.72	2.81	2.55	2.56	2.66	2.74
PO Target			2.677	2.609	2.425	2.619	2.617	2.345	2.609	2.589	2.675	2.461	2.653	2.486	2.414	2.453	2.569

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VASAVI COLLEGE OF ENGINEERING (Autonomous)
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Final POs and PSOs Attainment 2018-19 Admitted Batch

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
DIRECT ASSESSMENT (80%)	2.6	2.52	2.53	2.49	2.49	2.64	2.57	2.84	2.67	2.717	2.806	2.552	2.564	2.658	2.74
IN-DIRECT ASSESSMENT (20%)	2.82	2.76	2.66	2.66	2.76	2.62	2.66	2.79	2.88	2.895	2.699	2.897	2.625	2.666	2.571
FINAL ATTAINMENT	2.65	2.57	2.56	2.52	2.55	2.64	2.59	2.83	2.71	2.753	2.785	2.621	2.576	2.66	2.706
PO TARGET	2.68	2.61	2.42	2.62	2.62	2.35	2.61	2.59	2.68	2.461	2.653	2.486	2.414	2.453	2.569



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POs and PSOs Attainment 2018-19 Admitted Batch

1st Year I - Semester Subjects 18-19	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
English language and communication-I	2.7	2.7									2.7	2.7		2.7			
Engineering Mathematics-I	2	2.04	2.6	2										2			
Waves and Optics (EEE)	2.2	2.22	2.2	2	2.2									2			
Chemistry-I	2.7	2.78	2.7	2.8													
Programming for Problem Solving	1.8	1.8	1.7	1.4	1	1.2			2.8					2.8			
Basic Engineering Mechanics	1.8	1.81	1.8	1.9				1.2			1.5			1.2	1.8	1.8	1.8
Engineering Graphics-I	1.8	1.8	1.8	1.8	1.8						1.8	1.8	1.8	1.8			
English language and communication skills lab-I	2.8	2.8					2.2				2.8	2.8	2.8				
Physics Lab -I	2.6	2.625	2.6	2.6		2.6								2.6			
Chemistry Lab -I	3	3	3	3							3			3			
Programming for Problem Solving lab	2	1.8					1.57				1.57	1.57	1.57				
Workshop-I	1.7	1.75	1.5	1.75				1.5	1.5		1.3			1.5	1.8	2	2.2
1st Year II - Semester Subjects 18-19	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
English language and communication-II	2.6	2.66									2.6	2.6		2.6			
Engineering Mathematics-II	1.9	1.92	2.5	1.7													
Quantum Mechanics & Semiconductor Physics (EEE)	2	2.1	2.1	2	2.1												
Chemistry-II	2.5	2.7	2.7	2.7					2.5					2.7			
Basic Electrical Engineering	2.6	2.625	2.6	2.6	2.6		2.6	2.6	2.6	2.6	2.6	2.6		2.6	2.6		
Engineering Graphics-II	2.4	2.4	2.4	2.4	2.4							2.4	2.4	2.4			
Engineering Mechanics	2.4	2.4	2.4	2.4								2.4		2.4	2.4	2.4	2.4
English language and communication skills Lab-II	2.8	2.85										2.8	2.8	2.8			
Physics Lab -II	2.6	2.6	2.6	2.6		2.6								2.6			
Chemistry Lab -II	3	3	3	3								3		3			

POs and PSOs Attainment 2018-19 Admitted Batch

Basic Electrical Engineering lab	3	3	3	3	3	3	3	3	3	3	3	3		3		3	3
Workshop -II	2	2	1.8	2		2		2	1.75		1.8			2	2.6	2.6	2.5
2nd Year III - Semester Subjects 19-20	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Skill Development-I: Communications Skills in English	2	2.28						2.28			2.28	2.28		2.28			
Partial Differential Equations and Transform Techniques	2	2.7	2.4	1.6	1	1	1							1			
Electronics Engineering - I	2	2.9	2.93	2.91	2.86											2	
Electrical Circuit Analysis	2	2.4	2.42	2.42										2.42		2.42	2.42
Electromagnetic Field Theory	2	2.1	1.97	1.99	1.99	2.1		2.7						2.05	2.05	2.05	
Open Elective-I	2.2	2.7	2.7	2.7	2.7	2.4	2.4							2.7	2.4		2.4
Introduction to Entrepreneurship	2	3		3	3					3	3	3	3	3			3
Electronics Engineering – I Lab	2.5	3	3	3	3											3	
Circuits and Simulation Lab	3	3	3	3							3					3	3
2nd Year IV - Semester Subjects 19-20	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Skill Development-II : Communications Skills in English	2	1.8						1.8			1.8	1.8		1.8			
Human Values and Professional Ethics -I	2	3								3		3		3			
Numerical Methods, Probability and Statistics	2	2.75	2.6	1.73													
Electronics Engineering-II	2.5	2.58	2.59	2.57	2.5												
Digital Electronics	2.42	2.63	2.63	2.7	2.75						2.7				2.7		
Electrical Measurements and Instrumentation	2.3	2.37	2.37	2.37	2.37									2.37	2.37		
Electrical Machines - I	2.4	2.7	2.16	2.16	2.16	2.16			2.16					2.16	2.16	1.98	
Open Elective-II	2.485714286	2.681428571	2.828	2.803	2.606	3	2.9				2.62	2.475	2.94	2.432	2.933	2.943	2.593
Electronics Engineering Lab-II	2.5	2.58	2.59	2.57	2.57												
Electrical Measurements and Instrumentation Lab	2.6	3	3	3							3			3	3		
Electrical Machines Lab - I	2.6	3	3	3	3	3		3			3	3	3		3		
3rd Year V - Semester Subjects 20-21	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

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POs and PSOs Attainment 2018-19 Admitted Batch

Skill Development-III : Soft Skills	2	2.64						2.64			2.64	2.64		2.64			
Power Systems - I	2.5	2.55	2.55	2.55	2.55									2.55	2.55		
Microprocessors & Microcontrollers Applications	2.5	2.6	2.6	2.6	2.6	2.57	2.57	2.53	2.55	2.6	2.57	2.55	2.5	2.57	2.6		
Linear Integrated Circuits & Applications	2.5	2.5	2.5	2.5	2.5											2.5	
Electrical Machines - II	2.4	2.6	2.6	2.6	2.53	2.53	2.6					2.9		2.6	2.58		
Open Elective -III	2.4	2.5825	2.66	2.713	2.55	2.55	2.06	2.8	2.4	2.4	2.35	2.35		2.35	2.667	2.673	2.88
Environmental Science	2.7	2.82	2.8	2.8				2.8	2.8	2.8							
Microprocessors & Microcontrollers Applications Lab	3	3	3	3	3	3	3		3		3	3	3	3			
Linear Integrated Circuits & Digital Electronics Lab	2.64	3	3		3		3				3	3	3			3	
Electrical Machines – II Lab	3	3	3	3													
Mini Project	2.8	3	3							3	3	3	3	3	3		
3rd Year VI - Semester Subjects 20-21	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Skill Development-IV : Soft Skills	3	3						3			3	3		3			
Economics and Finance for Engineers	2.6	2.65			2.7	2.7			2.7		2.7		2.7				
Human Values and Professional Ethics - II	2.4	2.5								2.5							
Power Systems - II	2.6	2.75	2.75	2.75	2.7	2.7	2.7	2.67	2.68					2.75			
Power Electronics	2.26	2.22	2.34	2.34	2.34									2.34			
Linear Control Systems	2.56	2.4	2.47	2.4	2.2	2.2								2.4			
Signals & Systems	2.45	2.47	2.58	2.57	2.55	3		3						2.58			
Open Elective –IV	2.23	2.778	2.87	2.873	2.81	2.7	2.83	2.92	2.93	2.92	2.857	2.625		2.778	3	2.6	2.78
Power Electronics and Simulation Lab	3	3	3	3		3	3							3		3	3
Control Systems and Simulation Lab	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Theme Based Project	2.8	3	3							3	3	3	3	3	3		
4th Year VII - Semester Subjects 21-22	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Switchgear and Protection	2.2	1.86	1.8	1.3	1.9	1.8	2.1							1.86	1.86		

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

POs and PSOs Attainment 2018-19 Admitted Batch

Digital Signal Processing	2.5	2.54	2.5	2.6	2.48	2								2.54			
Electrical Drives and Static Control	2.57	2.54	2.54	2.36	2.5										2.54		
Power System Operation and Control	1.8	2.224	2.24	1.98	2.24	2.24									2.24		2.24
Electric and Hybrid Vehicles	2.4	2.7	2.16	2.16	2.16	2.16			2.16					2.16	2.16		
Programmable logic Controllers	2	2.1	2.1	2.1	2.1	2.1	2.1										
Digital Signal Processing Lab	3	3	3		3		3				3			3		3	3
Power Systems Lab	2.6	3	3	3	3	3						3	3	3	3		3
Project Seminar	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4th Year II - Semester Subjects 21-22	CO Target	CO Attained	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Electrical Machine Design	2.2	1.5	1.5	1	1.4	1.46	1.2							1.5	1.5		
Smart Grid Technologies	2	2.64	2.64	2.59	2.57	2.57									2.64		2.64
Project / Internship	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	2.45	2.61	2.6	2.52	2.53	2.49	2.49	2.64	2.57	2.84	2.67	2.72	2.81	2.55	2.56	2.66	2.74
PO Target			2.677	2.609	2.425	2.619	2.617	2.345	2.609	2.589	2.675	2.461	2.653	2.486	2.414	2.453	2.569

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF INFORMATION TECHNOLOGY

1. Course-PO Direct attainment matrix of 2018-22 batch

S. NO.	COURSE CODE	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	U18HS110EH	English language and communication-I									3	3		3
2	U18BS120MA	Engineering Mathematics-I	2.52	2.52										2.52
3	U18BS130PH	Semiconductor Physics	2.77	2.77	2.92		2.8					2.77		2.77
4	U18BS140CH	Chemistry-I	2.85	2.65					2.55					2.65
5	U18ES150CS	Programming for Problem Solving	3	2.91	2.9	2.85	2.9							2.92
6	U18ES160EE	Basic Electrical Engineering												
7	U18ES170CE	Engineering Drawing-I	2.03		2.4		2.1			2.03		2.03		
8	U18HS111EH	English language and communication skills Lab- I									3	3		
9	U18BS131PH	Physics Lab-I	3	3										3
10	U18BS141CH	Chemistry Lab -I	3	2							2			1
11	U18ES151CS	Programming for Problem Solving lab	3	3	3	3	3				3	3		3
12	U18ES161EE	Basic Electrical Engineering lab												
13	U18HS210EH	English language and communication-II									3	3		3
14	U18BS220MA	Engineering Mathematics-II	2.65	2.65										2.65
15	U18BS230PH	Optoelectronic Devices	2.15	2.15	1.62		2.07	1.62				2.15		2.15
16	U18BS240CH	Chemistry-II	2.8	2.8					2.7					2.8
17	U18ES250IT	Data Structures	2.78	2.74	2.75	2.9								2.81
18	U18ES160CE	Basic Engineering Mechanics	2.1	0.7							0.7			0.7
19	U18ES270CE	Engineering Drawing-II	2.03				2.03			2.03		2.03		

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41	U18PC420IT	Database Management Systems	2.5	2.5	2.6									2.6
42	U18PC430IT	Design and Analysis of Algorithms	2.67	2.67	2.74	2.67	2.8							2.66
43	U18PC440IT	Software Engineering	1.65	1.66	1.71	1.6	1.7				1.5	1.2	1.5	1.68
44	U18OE4XXXX	Open Elective – II												
	U18OE410CE	Disaster Management (Civil)												
	U18OE410EC	Mathematical Programming for Engineers (ECE)	2.81	2.78	2.8	2.8	2.85							
	U18OE410MA	Linear Algebra & Applications (Maths)	2.88	2.88										2.88
	U18OE410EH	Basics of Entrepreneurship								3	3	3		3
	U18OE420EH	Critical Thinking										2.3		2
45	U18PC411IT	Database Management Systems Lab	3	3	3	3	3	3						
46	U18PC421IT	Design and Analysis of Algorithms Lab	3	3	3	3	3				3	3		3
47	U18PC431IT	Software Engineering Lab	3	3	3	3	3							3
48	U18HS510EH	Skill Development–III : Soft Skills												2.2
49	U18PC510IT	Data Communications and Computer Networks	2.62	2.6	2.62	2.62								2.62
50	U18PC520IT	Microprocessors and Interfacing	2.46	1.64	0.82	0.82								0.82
51	U18PC530IT	Operating Systems	2.7	2.7	2.6		2.6							2.6
52	U18PC540IT	Theory of Automata	2.3	2.3	2.1	2.3	2.3							2.3
53	U18PE510IT	Skill Development – III : Technical Skills	3	3	3		3							3
	U18OE5XXXX	Open Elective – III												
	U18OE510CE	SPATIAL INFORMATION TECHNOLOGY (Civil)	3	3										3
	U18OE520EC	SENSORS FOR ENGINEERING APPLICATIONS (ECE)	2.57	2.5	2.5	2.55			2.62					

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65	U18OE610ME	ADDITIVE MANUFACTURING AND ITS APPLICATIONS (Mech)	2.85	2.83	2.83		2.85					2.85		
	U18OE610EH	ENGLISH FOR COMPETITIVE EXAMINATIONS (HSS)												2
		Critical Reasoning (CR)												2.2
		Introduction to Automobile Engineering (IAE) (Mech)	2.65	2.57	2.55			2.65	2.8	2.8				2.65
66	U18PC611IT	Artificial Intelligence and Machine Learning Lab	3	3	3	3	3							3
67	U18PC621IT	Embedded Systems and IoT Lab	3	3	3	3	3							3
68	U18PC631IT	Web Technologies Lab	3	3	3	3	3							3
69	U18PW619IT	Theme Based Project	3	3	3	3	3	3	3	3	3	3	3	
70	U18PC710IT	Compiler Construction	2.5	2.5	2.5	2.4	2.4							2.6
71	U18PC720IT	Distributed Systems & Cloud Computing	2.75	2.75	2.76	2.73	2.85							2.75
	PE-I													
72	U18PE710IT	Data Mining	2.7	2.58	2.58	2.59	2.59							2.58
73	U18PE740IT	Cryptography and Network Security	1.52	1.3	0.5								0.46	
	PE-II													
74	U18PE750IT	Data Analytics	2.55	2.55	2.7	2.7	2.62	2.5	2.8	2.7	2.55	2.25	2.4	2.6
75	U18PE760IT	Software Testing	2.5	2.5	2.5	2.8	2.5							2.5
	PE-III													
76	U18PE790IT	Neural Networks and Deep Learning	2.7	2.82	2.82	2.82	2.82	2.82		2.82	2.82	2.82		2.82
77	U18PE712IT	Software Reuse Techniques	1.56	2.44	1.84	0.8	0.96							0.88
	PE-IV													
78	U18PE742IT	Digital Image Processing	2.22	1.92	1.56	0.5		0.24						1.6
79	U18PE752IT	Object Oriented Analysis and Design	2.6	2.61	2.5	3	2.4							2.64

80	U18PC711IT	Compiler Construction Lab	3	3	3	3	3							3
81	U18PC721IT	Distributed Systems & Cloud Computing Lab	3	3	3	3	3				3			3
82	U18PW719IT	Project Seminar	3	2	2	1	1	1	1	1	2	3	1	2
	PE-V													
80	U18PE810IT	Natural Language Processing	2.3	2.3	2.4	1.8	2.7							2.3
81	U18PE820IT	Software Project Management	1.04	0.68									1.08	
	PE-VI													
82	U18PE850IT	Computer Vision	2.7	2.54	2.51	2.51	2.54	2.58		2.58	2.58	2.58		2.58
83	U18PE880IT	Block Chain	1.52	2	2	1.8	2.3	1.2						0.76
84	U18PE0XXIT	MOOCs Certification	2.8	2.7	2.8	2.8	2.8		2.5					2.8
85	U18PW819IT	Project / Internship	3	2	2	2	2	1	1	1	2	3	1	3
Direct PO Attainment Value			2.65	2.58	2.57	2.47	2.57	2.04	2.46	2.33	2.65	2.64	1.73	2.51

2. PO attainment for the Academic year 2021-22

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Direct PO Attainment	2.65	2.58	2.57	2.47	2.57	2.04	2.46	2.33	2.65	2.64	1.73	2.51
Indirect PO Attainment	3	3	3	3	3	3	3	3	3	3	3	3
PO Attainment (80% of Direct and 20% of Indirect Attainment)	2.72	2.66	2.66	2.58	2.66	2.23	2.57	2.46	2.72	2.71	1.98	2.61

3. Course-PSO Direct attainment matrix of 2018-22 batch

S. NO.	COURSE CODE	COURSE NAME	PSO1	PSO2	PSO3
1	U18HS110EH	English language and communication-I			
2	U18BS120MA	Engineering Mathematics-I			
3	U18BS130PH	Semiconductor Physics		2.77	2.77
4	U18BS140CH	Chemistry-I			
5	U18ES150CS	Programming for Problem Solving	2.9	3	2.91
6	U18ES160EE	Basic Electrical Engineering			
7	U18ES170CE	Engineering Drawing-I		1.62	
8	U18HS111EH	English language and communication skills Lab- I			
9	U18BS131PH	Physics Lab-I	3		
10	U18BS141CH	Chemistry Lab -I			
11	U18ES151CS	Programming for Problem Solving lab	3	3	3
12	U18ES161EE	Basic Electrical Engineering lab			
13	U18HS210EH	English language and communication-II			
14	U18BS220MA	Engineering Mathematics-II			
15	U18BS230PH	Optoelectronic Devices	2.15		
16	U18BS240CH	Chemistry-II			
17	U18ES250IT	Data Structures	2.78		
18	U18ES160CE	Basic Engineering Mechanics			
19	U18ES270CE	Engineering Drawing-II		1.64	
20	U18HS211EH	English language and communication skills lab-II			
21	U18BS231PH	Physics Lab-II	3		
22	U18BS241CH	Chemistry Lab -II			
23	U18ES251IT	Data Structures Lab	3		
24	U18ES171ME	Workshop-I			
25	U18HS330EH	Skill Development-I : Communication Skills in English			
26	U18BS340MA	Discrete Mathematics			
27	U18ES310IT	Basic Electronics			2.43
28	U18ES320IT	Digital Electronics and Logic Design			0.58
29	U18PC310IT	Advanced Data Structures	3		
30	U18PC320IT	Object Oriented Programming	2.56	2.5	
	U18OE3XXXX	Open Elective – I			

31	U18OE330EC	Python Programming (ECE)	2.85	2.85	
32	U18MC010CE	Environmental Science			
33	U18MC310ME	Introduction to Entrepreneurship	3		3
34	U18ES311IT	Basic Electronics Lab			3
35	U18PC311IT	Advanced Data Structures Lab	3		
36	U18PC321IT	Object Oriented Programming Lab	3	3	
37	<u>U18HS010EH</u>	Human Values and Professional Ethics – I			
38	U18HS430EH	Skill Development-II : Communication Skills in English			
39	U18BS420MA	Probability and Statistics			
40	U18PC410IT	Computer Organization			
41	U18PC420IT	Database Management Systems	2.6	2.6	
42	U18PC430IT	Design and Analysis of Algorithms	2.74	2.72	
43	U18PC440IT	Software Engineering	1.8	1.8	
44	U18OE4XXXX	Open Elective – II			
	U18OE410CE	Disaster Management (Civil)			
	U18OE410EC	Mathematical Programming for Engineers (ECE)	2.79	2.79	2.79
	U18OE410MA	Linear Algebra & Applications (Maths)	2.88		
	U18OE410EH	Basics of Entrepreneurship			
	U18OE420EH	Critical Thinking			
45	U18PC411IT	Database Management Systems Lab	3	3	
46	U18PC421IT	Design and Analysis of Algorithms Lab	3	3	
47	U18PC431IT	Software Engineering Lab	3	3	
48	U18HS510EH	Skill Development–III : Soft Skills			
49	U18PC510IT	Data Communications and Computer Networks	2.7	2.7	
50	U18PC520IT	Microprocessors and Interfacing			1.64
51	U18PC530IT	Operating Systems	2.8	2.8	
52	U18PC540IT	Theory of Automata	2.9	2.3	
53	U18PE510IT	Skill Development – III : Technical Skills	3	3	
	U18OE5XXXX	Open Elective – III			
	U18OE510CE	SPATIAL INFORMATION TECHNOLOGY (Civil)			

54	U18OE520EC	SENSORS FOR ENGINEERING APPLICATIONS (ECE)		2.55	
	U18OE510EE	SOLAR POWER AND APPLICATIONS (EEE)		2.3	
	U18OE510ME	INTRODUCTION TO ROBOTICS (Mech.)	3	3	3
	U18OE530EH	ADVANCED COURSE IN ENTREPRENEURSHIP (Mech.)	1	1	1
	U18OE510MA	NUMERICAL METHODS (Maths.)			
	U18OE010EH	TECHNICAL WRITING AND PROFESSIONAL PRESENTATIONS (HSS)			
55	U18PC511IT	Computer Networks Lab	3	3	
56	U18PC521IT	Microprocessors and Interfacing Lab			3
57	U18PC531IT	Operating Systems Lab	3		
58	U18HS020EH	Human Values and Professional Ethics – II			
59	U18HS040EH	Economics and Finance for Engineers			
60	U18HS610EH	Skill Development –IV : Soft Skills			
61	U18PC610IT	Artificial Intelligence and Machine Learning	2.7	2.8	
62	U18PC620IT	Embedded Systems and IoT			1.7
63	U18PC630IT	Web Technologies	2.7	2.7	
64	U18PE610IT	Skill Development – IV : Technical Skills	3	3	
65	U18OE6XXXX	Open Elective -IV			
	U18OE610CE	PROJECT MANAGEMENT (Civil)			
	U18OE610ME	ADDITIVE MANUFACTURING AND ITS APPLICATIONS (Mech)	2.85	2.83	2.83
	U18OE610EH	ENGLISH FOR COMPETITIVE EXAMINATIONS (HSS)			
		Critical Reasoning (CR)			
		Introduction to Automobile Engineering (IAE) (Mech)	2.65	2.65	2.65
66	U18PC611IT	Artificial Intelligence and Machine Learning Lab	3	3	
67	U18PC621IT	Embedded Systems and IoT Lab			3

68	U18PC631IT	Web Technologies Lab	3	3	
69	U18PW619IT	Theme Based Project	3	3	3
70	U18PC710IT	Compiler Construction	2.5	2.5	
71	U18PC720IT	Distributed Systems & Cloud Computing	2.75	2.75	
	PE-I				
72	U18PE710IT	Data Mining	2.58	2.48	
73	U18PE740IT	Cryptography and Network Security	1	0.86	
	PE-II				
74	U18PE750IT	Data Analytics	2.5	2.56	
75	U18PE760IT	Software Testing	2.5	2.5	2.5
	PE-III				
76	U18PE790IT	Neural Networks and Deep Learning	2.82	2.78	
77	U18PE712IT	Software Reuse Techniques		2.64	
	PE-IV				
78	U18PE742IT	Digital Image Processing	1.66	1.12	
79	U18PE752IT	Object Oriented Analysis and Design	2.4	2.4	2.64
80	U18PC711IT	Compiler Construction Lab	3	3	
81	U18PC721IT	Distributed Systems & Cloud Computing Lab	3	3	
82	U18PW719IT	Project Seminar	2	2	2
	PE-V				
80	U18PE810IT	Natural Language Processing	2.7	2.7	
81	U18PE820IT	Software Project Management	0.82	1.04	
	PE-VI				
82	U18PE850IT	Computer Vision	2.58	2.48	
83	U18PE880IT	Block Chain	1.84	1.38	
84	U18PE0XXIT	MOOCs Certification	2.7	2.8	3
85	U18PW819IT	Project / Internship	3	3	3
	Direct PSO Attainment		2.65	2.53	2.52

4. PSO attainment for the Academic year 2021-22

	PSO1	PSO2	PSO3
Direct PSO Attainment	2.65	2.53	2.52
Indirect PSO Attainment	3	3	3
PSO Attainment (80% of Direct and 20% of Indirect Attainment)	2.72	2.62	2.62

VCE(A) :: Department of Mechanical Engineering

Course - PO & Course-PSO attainment matrices

2018-22 batch

1(a)Course-PO Direct attainment matrix.

S.No	Course code	Course	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
1	U18HS110EH	English language and communication-I									2.8	2.8		2.8
2	U18BS120MA	Engineering Mathematics-I	2.2	2.2										2.2
3	U18BS133PH	Oscillations, Waves and Optics	1.9 5	1.9 5	1.9 5									1.97
4	U18BS140CH	Chemistry-I	2.7	2.5					2.1					2.5
5	U18ES150CS	Programming for Problem Solving	2.4	2.4	2.4	2.4	2.4							2.4
6	U18ES160CE	Basic Engineering Mechanics	1.8	1.7 4	1.7 4									1.8
7	U18ES180CE	Engineering Graphics-I	2.4	2.2		2.3				2.4		2.3		2.3
8	U18HS111EH	English language and communication skills lab-I					3.0				3.0	3.0		3.0
9	U18BS131PH	Physics Lab-I	3.0	3.0		3.0								3.0
10	U18BS141CH	Chemistry Lab-I	3	3							3			3
11	U18ES151CS	Programming for Problem Solving lab	3	3	3	3	3							
12	U18ES171ME	Workshop-I	3		3					3	3			3
13	U18HS210EH	English language and communication-II									2.9	2.9		2.9
14	U18BS220MA	Engineering Mathematics-II	2.6	2.6										2.6
15	U18BS233PH	Applied Physics	2.2	2.2	2.2									2.2
16	U18BS240CH	Chemistry-II	2.5	2.5					2.3					2.5
17	U18ES160EE	Basic Electrical Engineering	2.6 8	2.6 8	2.6 8	2.6 8	2.6 8		2.6 8	2.6 8	2.6 8	2.68	2.6 8	2.68
18	U18ES250CE	Engineering Graphics-II	2.4 9	2.5 0	2.5 2	2.3 7						2.44		
19	U18ES260CE	Engineering Mechanics	1.9 8	1.9 8				2.7		1.9 8	1.9 8	1.98		
20	U18HS211EH	English language and communication skills Lab-II					3.0				3.0	3.0		3.0

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47	U18OE410CS	Introduction to Data Structures	3	3	3	3	3							3
48	U18OE410EC	Mathematical Programming for Engineers	3	3	3	3	3							
49	U18OE410IT	Introduction to Object Oriented Programming	2.6 3	2.6 5	2.6 5		2.6 4							2.64
50	U18OE420IT	Introduction to Scripting Languages	2.9	2.8 8	2.8 8		2.8							2.88
51	U18OE410MA	Linear Algebra & Applications	2.0 4	2.0 4										2.04
52	U19OE410PH	Introduction to Optoelectronic Devices	2.2 8	2.2 8										2.28
53	U18ES421EC	Basic Electronics Engg Lab	3	3		3				3	3	3		
54	U18PC411ME	Applied Thermodynamics Lab	3	3	3	3						3		3
55	U18PC421ME	Fluid Mechanics & Hydraulic machines Lab	3		3			3	3				3	3
56	U18HS510EH	Skill Development-III : Soft Skills												3
57	U18HS020EH	Human Values and Professional Ethics-II								2.8	2.8	2.8		2.8
58	U18PC510ME	Heat Transfer	1.4	1.2	1.2	1.2								
59	U18PC520ME	Metrology and Instrumentation	2.6 2	2.6 2	2.6 2		2.5 2							
60	U18PC530ME	Dynamics of Machines	2.4 9	2.4 5	2.4 8	2.2 9	2.6 1						2.4 5	2.46
61	U18PC540ME	Manufacturing Processes	2.6	2.7	2.7	2.7	2.7	2.7						
62	U18PC550ME	Design of Machine Elements	2.4	2.4		2.4								2.4
63	U18MC510ME	Skill Development-III : Technical Skills		3				3						
64	U18OE510CS	Fundamentals Of Object Oriented Programming	2.9	2.9	2.9	2.9								
65	U18OE520CS	Web Design	2.2	2.2	2.2	2.2	2.1							
66	U18OE510EC	Sensors For Engineering Applications	2.5 7	2.5	2.5	2.5 5			2.6 2					
67	U18OE510IT	Introduction To Database Management Systems	3	3	3									
68	U18OE510EE	Solar Power and applications	2.3	2.3			2.4							

69	U18OE520MA	Discrete Mathematics for Engineers	2.7 6	2.7 6										2.76
70	U18OE010EH	Technical Writing and Professional Presentations								2.7	2.7	2.7		2.7
71	U18OE510PH	Vacuum Technology & Applications	2.2 5	2.2 5										2.25
72	U18PC531ME	Dynamics & Metrology Lab	3	3	3		3		3					
73	U18PC541ME	Manufacturing Processes Lab	3	3	3	3	3	3						
74	U18PW519ME	Mini Project	3	3	3				3	3		3	3	3
75	U18HS610EH	Skill Development-IV : Soft Skills												3
76	U18PC620ME	CAD/CAM	2.5 8	2.4 6	2.5 8	2.5 1	2.5 8	2.5 8						2.58
77	U18PC630ME	Machine Design	2.5 3	2.2 5	2.2 5	2.2 5	2.2 2	2.3 7	2.3 8	2.2 4	2.3 9		2.2 5	2.48
78	U18PC640ME	Metal Cutting and Machine Tools	2.4	2.3	2.4	2.4	1.8							
79	U18PE630ME	Renewable Energy	2.8	2.4	2.5			2.8	2.8					
80	U18PE640ME	Operations Research	2.4	2.5			2.3		2.4		2.4		2.5	
81	U18PE650ME	Auto Chassis Components	2.6 1	2.5 5		2.5 8			2.6 1		2.6 1			2.58
82	U18PE610ME	Skill Development-IV: Technical Skills		3	3	3								3
83	U18OE610CE	Project Management	3	3		3	3	3	3	3			3	
84	U18OE610CS	Introduction To Databases	3	3	3		3							3
85	U18OE620CS	Introduction To Operating Systems	2.8	2.4	2.9	2.7			2.8					2.7
86	U18OE620IT	Introduction To Machine Learning	2.6 7	2.6 7	2.6 3	2.7	2.6 6				2.6 2			2.7
87	U18OE610EH	English For Competitive Examinations								2.8	2.8	2.8		2.8
88	U18MC010CE	Environmental Science	2.6					2.4	2.6	2.4				
89	U18PC621ME	CAD/CAM Lab	3	3		3								3
90	U18PC641ME	Machine Tools Lab	3	3	3	3	3	3			3		3	3
91	U18PW619ME	Theme Based Project	3	3	3				3	3		3	3	3
92	U18PC710ME	Thermal Turbo Machines	2.6 2	2.6 4	2.6 5	2.5 6		2.6 2		2.6 2	2.6 2			
93	U18PC720ME	Finite Element Analysis	2.5 2	2.5 6	2.5 6		2.4 9		2.5 6					
94	U18PE710ME	Robotics	2.4 3	2.3 3			2.3 3		2.5				2	

95	U18PE740ME	Supply Chain Mgmt		2.65	3.0						2.95			2.83
96	U18PE770ME	Nano Technologies	2.4		2.4			2.4	2.4	2.4		2.4		2.4
97	U18PE780ME	Adv IC engines	2.4	2.4	2.4				2.4					
98	U18PE740ME	POM	2.59	2.58	2.79	2.76	2.68		2.54	2.62	2.60	2.56	2.56	2.59
99	U18PE714ME	Additive Mfg Technologies	2.72	3	2.53		2.72					2.72		
100	U18PE717ME	Vehicle body Engineering	2.22	2.1	2.16	2.23			2.3		2.18			2.16
101	U18HS010EH	Economics and Finance for Engineers			2.0						1.7		1.6	1.1
102	U18PC711ME	Thermal Engineering Lab	3	3	3	3				3	3	3		3
103	U18PC721ME	Computer Aided Engineering Lab	3	3	3		3		3					
104	U18PW719ME	Project Seminar	3	3	3	3	3	3	3	3	3	3	3	3
105	U18PE810ME	PDPP	2.88			2.86			2.85	2.85			2.85	
106	U18PE830ME	PPE	2.4	2.4	2.4			2.4	2.4	2.4		2.4	2.4	2.4
107	U18PE860ME	Composite materials	2.5	2.6	2.5	2.5	2.4							
108	U18PE870ME	PLCM	2.56	2.65	2.43		3					2		
109	U18PW819ME	Project / Internship	3	3	3	3	3	3	3	3	3	3	3	3
Sum			237.04	222.87	172.08	119.14	102.9	59.87	77.54	67.99	92.63	82.48	51.99	181.52
No. Of courses Mapped			92	87	66	46	37	22	29	24	33	30	20	69
Direct PO attainment values			2.58	2.56	2.61	2.59	2.78	2.72	2.67	2.83	2.81	2.75	2.60	2.63

1(b) Indirect PO attainment

S. No	PO1	PO2	PO 3	PO4	PO5	PO6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
Exit Survey	2.84	2.91	2.87	2.85	2.91	2.85	2.92	2.93	2.94	2.94	2.99	3.0
Alumni Survey	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Employer Survey	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
CCA												
Guest lectures	3	3	-	-	-	-	-	-	3	3	3	3
Workshops	3	3	3	3	3	3	3	-	3	3	3	3
Professional Practice School	2	2	2	2	-	2	2	-	2	2	-	2
Student presentations	3	3	3	3	-	3	3	3	3	3	3	3

Theme Based Projects	3	3	3	3	3	3	3	3	3	3	3	3
MOOC courses	3	3	3	3	3	-	-	-	-	-	-	3
ECA												
NSS(includes Sahay, Street cause and all extension activities)	-	-	-	-	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extra-curricular clubs												
1. Film making	-	-	-	-	2	-	-	2	2	2	-	2
2. Mun club	-	-	-	-	-	-	-	3	-	3	-	3
3. Toastmasters	-	-	-	-	-	-	-	2	-	2	-	2
4. Maths club	2	2	-	-	-	-	-	-	-	-	-	2
5. Writers club	-	-	-	-	-	-	-	3	3	3	-	3
6. Science club	3	-	-	-	3	-	-	-	3	-	-	3
7. Photography	-	-	-	-	2	-	-	2	2	2	-	2
8. Dramatics	-	-	-	-	-	-	2	2	2	2	-	2
9. Quiz	3	-	-	-	3	-	-	3	3	2	-	3
10. Arts	-	-	-	-	-	-	-	-	2	2	-	2
11. Sports	-	-	-	-	-	-	-	3	3	3	-	3

12. Entrepreneur Ship (SWAYAM/ED CELL)	-	-	-	-	-	-	-	3	3	3	3	3
13. Inter instituteliterary and cultural activities	-	-	-	-	-	-	-	2	2	2	-	2
14. CRT	3	3								3		3
Sum	34.84	28.91	20.87	20.85	25.91	19.85	21.92	39.93	47.94	51.94	23.99	61.0
No. mapped	13	11	8	8	10	8	9	16	19	21	9	24
Indirect PO attainment	2.68	2.63	2.61	2.61	2.59	2.42	2.44	2.49	2.52	2.47	2.67	2.54

1(c) PO Attainment

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Direct PO Attainment(80%)	2.06	2.05	2.09	2.07	2.22	2.18	2.14	2.27	2.25	2.20	2.08	2.10
Indirect PO Attainment(20%)	0.54	0.53	0.52	0.52	0.52	0.49	0.49	0.50	0.50	0.49	0.53	0.51
PO Attainment	2.60	2.58	2.61	2.59	2.74	2.67	2.63	2.77	2.75	2.69	2.61	2.61

2(a) Course-PSO Direct attainment matrix.

S No	Course Code	Course title	PSO1	PSO2	PSO3
1	U18BS120MA	Engineering Mathematics-I	2.2	-	-
2	U18BS133PH	Oscillations, Waves and Optics	2.0	-	-
3	U18BS140CH	Chemistry-I	2.7	-	-
4	U18ES150CS	Programming for Problem Solving	2.4	2.4	2.4
5	U18ES160CE	Basic Engineering Mechanics	-	1.8	-
6	U18ES180CE	Engineering Graphics-I	2.4	2.4	2.4
7	U18BS131PH	Physics Lab-I	3	-	-
8	U18BS141CH	Chemistry Lab-I	3	-	-
9	U18ES151CS	Programming for Problem Solving lab	3	3	3
10	U18ES171ME	Workshop-I	3	-	-
11	U18BS220MA	Engineering Mathematics-II	2.6	-	-
12	U18BS233PH	Applied Physics	2.2	-	-
13	U18BS240CH	Chemistry-II	2.5	-	-
14	U18ES160EE	Basic Electrical Engineering	2.68	-	-
15	U18ES250CE	Engineering Graphics-II	2.48	2.44	2.49
16	U18ES260CE	Engineering Mechanics	-	1.98	-
17	U18BS231PH	Physics Lab-II	3	-	-
18	U18BS241CH	Chemistry Lab-II	3	-	-
19	U18ES161EE	Basic Electrical Engg lab	3	-	-
20	U18ES271ME	Workshop-II	3	3	3
21	U18BS310MA	Partial differential Equations & transform techniques.	1.16	-	-
22	U18ES310CE	Mechanics of materials	-	1.38	-
23	U18PC310ME	Materials Engg	2.57	2.56	2.58
24	U18PC320ME	Thermodynamics	1.3	1.3	1.3
25	U18PC330ME	Machine Drawing	1.7	1.8	1.7
26	U18OE310CE	Green Buildings	2.3	2.3	-
27	U18OE310CS	Introduction to Python Programming	2.4	-	2.4
28	U18OE320CS	Cyber Security	2.4	2.4	-
29	U18MC310ME	Introduction to Entrepreneurship	-	2.8	2.4
30	U18ES311CE	Mechanics of Materials Lab	-	3	-
31	U18PC311ME	Materials Engg Lab	3	3	3
32	U18BS410MA	Numerical Methods, Probability & Statistics	2.1	-	-
33	U18PC410ME	Applied Thermodynamics	2.3	2.3	2.3
34	U18PC420ME	Mechanics of fluids & Hydraulic machines	2.0	1.6	1.3
35	U18PC430ME	Kinematics of machines	2.26	2.25	2.25
36	U18OE410CS	Introduction to Data Structures	3	3	-
37	U18OE410EC	Mathematical Programming for Engineers	-	3	3
38	U18PC411ME	Applied Thermodynamics Lab	3	3	3
39	U18PC421ME	Fluid Mechanics & Hydraulic machines Lab	3	3	3

40	U18PC510ME	Heat Transfer	1.2	1.2	1.2
41	U18PC520ME	Metrology and Instrumentation	2.62	2.62	2.62
42	U18PC530ME	Dynamics of Machines	2.46	2.46	2.49
43	U18PC540ME	Manufacturing Processes	2.6	2.7	2.6
44	U18PC550ME	Design of Machine Elements	2.4	2.4	2.4
45	U18MC510ME	Skill Development-III : Technical Skills	3	3	3
46	U18OE510CS	Fundamentals Of Object Oriented Programming	2.9	2.9	-
47	U18OE520CS	Web Design	2.2	2.2	-
48	U18OE510EC	Sensors For Engineering Applications	-	2.55	-
49	U18OE510EE	Solar Power and applications	-	2.3	-
50	U18PC531ME	Dynamics & Metrology Lab	3	3	3
51	U18PC541ME	Manufacturing Processes Lab	3	3	3
52	U18PW519ME	Mini Project	3	3	3
53	U18PC620ME	CAD/CAM	2.58	2.58	2.58
54	U18PC630ME	Machine Design	2.21	2.25	2.22
55	U18PC640ME	Metal Cutting and Machine Tools	2.4	2.4	2.4
56	U18PE630ME	Renewable Energy	2.8	2.8	2.4
57	U18PE640ME	Operations Research	2.4	2.4	2.4
58	U18PE650ME	Auto Chassis Components	2.62	2.56	2.61
59	U18OE610CS	Introduction To Databases	3	-	3
60	U18OE620CS	Introduction To Operating Systems	3	2.8	2.7
61	U18PC621ME	CAD/CAM Lab	3	3	3
62	U18PC641ME	Machine Tools Lab	3	3	3
63	U18PW619ME	Theme Based Project	3	3	3
64	U18PC710ME	Thermal Turbo Machines	2.62	2.63	2.62
65	U18PC720ME	Finite Element Analysis	2.5	2.52	2.56
66	U18PE710ME	Robotics	2.38	2.5	2.33
67	U18PE740ME	Supply Chain Mgmt	2.65	2.88	2.85
68	U18PE770ME	Nano Technologies	2.34	2.4	2.4
69	U18PE730ME	Adv IC engines	2.4	2.4	2.4
70	U18PE740ME	POM	2.59	2.57	2.56
71	U18PE714ME	Additive Mfg Technologies	2.72	2.72	2.72
72	U18PE717ME	Vehicle body Engineering	2.18	2.17	2.19
73	U18PC711ME	Thermal Engineering Lab	3	3	3
74	U18PC721ME	Computer Aided Engineering Lab	3	3	3
75	U18PW719ME	Project Seminar	3	3	3
76	U18PE810ME	PDPP	2.87	2.85	2.86
77	U18PE830ME	PPE	2.4	2.4	2.4
78	U18PE860ME	Composite materials	2.6	2.6	2.7
79	U18PE870ME	PLCM	3	2	2
80	U18PW819ME	Project / Internship	3	3	3
		Sum	109.64	160.47	128.44
		No. Of courses mapped	72	63	54
		Direct PSO attainment	1.52	2.55	2.38

2(b) Indirect PSO attainment

S.No	PSO1	PSO2	PSO 3
Exit Survey	3	3	3
Alumni Survey	2	2	2
Employer Survey	2	2	2
CCA	3	3	3
Guest Lectures	3	3	-
Workshops	-	3	3
PPS	2	2	-
Paper Presentations	3	3	3
Theme Based Project	3	3	3
MOOC courses	3	3	-
CRT	-	-	3
Indirect PSO attainment	2.50	2.56	2.57

2(c) PSO Attainment (2018-22 batch)

Course	PSO1	PSO2	PSO3
Direct Attainment(80%)	1.22	2.04	1.90
Indirect Attainment(20%)	0.5	0.51	0.51
PSO Attainment	1.72	2.55	2.41



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