

### Sapthagiri College of Engir. 2ring

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

#14/5, Chikkasandra, Hesaraghatta Main Road, Bengaluru – 560057 Phone: 080-28372800/1/2 www.sapthagiri.edu.in Fax: 080-28372797

### Department of Biotechnology

#### Curriculum Plan & Deployment 2020-21

SI. No.	Subject Name /Code	Beyond Syllabus	Innovative teaching methods / ICT Tools Used	Deployment Strategy and Tool	Cross-cutting issues integrated	PO	PSO
1.	18BT31 /Biostatistics		Google Classroom and Google meet	Chalk and Talk method		PO1, 2,3,4,5,6,7	PSO1,2,3,4
2.	18BT32/ Microbiology	Seminar	Google Chalk and Talk method Classroom and Google meet PPT,Project work,Internship		PO1,2,3,4,6,7,9,10,11,12	PSO1,2,3,4	
3.	18BT33 /Unit Operations		Google Classroom and Google meet	Chalk and Talk method PPT	Environmental Sustainability	PO1,2,3,7,9,10,11	PSO 1,2,3,4
4.	18BT34/ Introduction to Biomolecules		Google Classroom and Google meet	Chalk and Talk method, PPT		PO1,2,5,12	PSO1
5.	18BT35/ Cell Biology and Genetics	Seminar	Google Classroom and Google meet	Chalk and Talk method, PPT	Human values	PO1,2,3,4,8,9,11	PSO1,2,3,4
6.	18BT36/ Python Programming		Google Classroom and Google meet	Chalk and Talk method, PPT		PO1, 2,3,4,5,6,7	PSO1,2
7.4	18BTL37/Microbiology Laboratory	Conduction of new experiments which are beyond the syllabus	Google Classroom and Google meet	Chalk and Talk method PPT, Project and internship	Environmental Sustainability	PO1,2,3,4,6,7,9,10,11,12	PSO1,2,3,4

Sapthagiri College of Engineering 14/5, Chikkasendra, Hasaraghatta Main Road Bengaluru - 560 057 Dept. of Bio -Technology
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	Reaction Engineering		Classroom and Google meet	PPT	Sustainability		
19.	18BT53/ Enzyme Technology & Biotransformation		Google Classroom and Google meet	Chalk and Talk method, Project and Internship		PO1,2,3,12	PSO 1,2
20.	18BT54/ Genomics & Proteomics		Google Classroom and Google meet	Chalk and Talk method You tube PPT	Human Value and Professional ethics	PO1,2,3,4,8,9,11	PSO1,2,4
21.	18BT55 /Bioanalytical Techniques		Google Classroom and Google meet	Chalk and Talk method, NPTEL Videos, PPT	)	PO1,2,7,12	PSO1,2,3,4
22.	18BT56 /Genetic Engineering &Applications	B4000046505	Google Classroom and Google meet	Chalk and Talk method, NPTEL Videos, PPT	Ethical issue- Human values	PO1,2,3,6,8	PSO1,2,3,4
23.	18BTL57/ Biokinetics & Enzyme Technology Laboratory		Google Classroom and Google meet	Chalk and Talk method ,Project and Internship		PO 1,2,3,4,9,10,12	PSO1,2
24.	18BTL58/ Genetic Engineering and Cell Culture Laboratory	Conduction of new experiments which are beyond the syllabus	Google Classroom and Google meet	Chalk and Talk method, NPTEL Videos, PPT	Ethical issue- Human values	PO3,6,8	PSO1,2,3,4
25.	18BT61 /Process Control & Automation Chemical		Google Classroom and Google meet	Chalk and Talk method PPT	Environmental Sustainability	PO1,2,3,4,5,6,7,9,10,11,1	PSO1,2,3,4
26.	18BT62 /Bioprocess Equipment Design & CAED		Google Classroom and Google meet	Chalk and Talk method PPT	Environmental Sustainability	PO1,2,3,4,5,7,9,10,12	PSO1,2,3,4
27.	18BT63 /Bioinformatics		Google Classroom and Google meet	Chalk and Talk method PPT, Project		PO 1,2,3,10,11,12	PSO 1,2
28.	18BT643/ Human		Google	Chalk and Talk method		PO 1,2,3,10,11,12	PSO 1,2

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	Physiology		Classroom and Google meet	PPT			4
29.	18BT653/ Nanobiotechnology		Google Classroom and Google meet	Chalk and Talk method PPT		PO1,2,3,6,12	PSO1,2,3,4
30.	18BTL66 /Process Control & Automation Laboratory		Google Classroom and Google meet	Chalk and Talk method PPT	Environmental Sustainability	PO1,2,3,4,5,7,11	PSO1,2,4
31.	18BTL67/ Bioinformatics Laboratory	Conduction of new experiments which are beyond the syllabus	Google Classroom and Google meet	Chalk and Talk method PPT,Project		PO 1,2,3,10,11,12	PSO 1,2
32.	18BTMP68 /Mini-project		Google Classroom and Google meet	PPT	Environmental Sustainability Human Value and Professional ethics	PO1,2,3,4,5,6,7,8,9,10	PSO1,2,3,4
33.	17BT71 Fermentation Technology		Google Classroom and	Chalk and Talk method, NPTEL Videos, PPT		PO1,3,4,6, 9,10	PSO1,2,3,4
34.	17BT72 Genomics and proteomics		Google Classroom and Google meet	Chalk and Talk method, NPTEL Videos, PPT	Human Value and Professional ethics	PO1,3,6,8	PSO1,2,3,4
35.	17BT73 Plant Biotechnology		Google Classroom and Google meet	Chalk and Talk method You tube PPT,Project and Intership	h _	PO1	PSO1
36.	17BT744 Food Biotechnology		Google Classroom and Google meet	Chalk and Talk method PPT		PO 1,2,3,4,9,10,12	PSO1,2
37.	17BT754 Forensic science	Group Discussion and case studies	Google Classroom and Google meet	Chalk and Talk method PPT	Human Value and Professional ethics	PO1,2,4,6,8,10	PSO1,2,4
38.	17BTL76 Fermentation technology Lab		Google Classroom and	Chalk and Talk method	Environmental Sustainability	PO1,2,3,4,7,11	PSO1,2,3,4

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			Google meet	PPT			
39.	17BTL77 Plant Biotechnology Lab	Conduction of new experiments which are beyond the syllabus	Google Classroom and Google meet	Chalk and Talk method ,Project and Intership		PO1,2,3,4,9,10,11,12	PSO1,2
40.	17BTL78 Project phase 1 + Seminar		Google Classroom and Google meet	PPT	Environmental Sustainability Human Value and Professional ethics	PO1,2,3,4,5,6,7,8,9,10	PSO1,2,3,4
41.	17BT81 Clinical and pharmaceutical biotechnology		Google Classroom and Google meet	Chalk and Talk method PPT		PO 1,2,3,10,12	PSO1,2
42.	17BT82 Regulatory affairs in Biotechnology		Google Classroom and Google meet	Chalk and Talk method PPT	Human Value and Professional ethics	PO1,2,3,4,6,8,11,12	PSO1,2,4
43.	17BT833 Environmental biotechnology		Google Classroom and Google meet	Chalk and Talk method PPT	Environmental Sustainability	PO1,2,3,4,7,9,11	PSO1,2,4
44.	17BT84 Internship/professional Practices		Google Classroom and Google meet	PPT	Human Value and Professional ethics	PO1,2,3,4,5,6,8,9,10	PSO1,2,3,4
45.	17BT85 Project work Phase		Google Classroom and Google meet	PPT	Environmental Sustainability  Human Value and Professional ethics	PO1,2,3,4,5,6,7,8,9,10	PSO1,2,3,4
46.	17BTL86 Seminar		Google Classroom and Google meet	PPT	Environmental Sustainability  Human Value and Professional ethics	PO1,2,3,4,5,6,7,8,9,10	PSO1,2,3,4

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### DEPARTMENT OF CIVIL ENGINEERING

	Subject Name /Code	Beyond Syllabus	Innovative	Plan & Deployment		
Sl.No.			Innovative teaching methods / ICT Tools Used	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO
1	Engineering Mathematics –III */18MAT31	The same of the sa	Used			
2	Materials/18CV32	concepts of beams to practical approach	-	YouTube video/ Google		po4 pso3
3	Fluid Mechanics/18CV33	Bernoulli's principle for		classroom	3-10	po4 ps03
		practical applications in air		YouTube video/ Google classroom	virtual lab for pipe bursting from nitk	po4 pso3
4	Building Materials and	D	ppt presentation,ebook			
	Construction/18CV34	Practical Applications	PPT presentations, Refering realistic	power point presentation	A. The second	<del>lateral de la constante de la</del>
5	Basic Surveying/18CV35	Practical applications	Videos PPT presentations		<u> </u>	
6	Engineering	Rocks and minerals	111 presentations	power point presentation	2 2 2 2 2 2	po4 pso3
	Geology/18CV36	practical exposure for better learning	100	power point presentation		pso4 po4
7	Computer Aided Building Planning & Drawing/18CVL37	- rea ming				
8	Building Materials	Practical Applications				
	Testing Laboratory/18CVL38	Tractical Applications	-	YouTube video/ Google classroom		pso4 po4
9	Analysis of Determinate Structures/18CV42					
10	Applied Hydraulics/18CV43	wind turbine	experiential learning through fmlab	Google classroom		pso4 po4

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1	Technology/18CV43					ï	
12	Surveying/18CV45	Practical applications		YouTube video/ Google			
13	Treatment		Instruments used to Determination of water	classroom	N. L.	po4 pso3	
	Engineering/18CV46		or waste waste quality by Environmental lab	v		101, 2,3,4,ps03	
14	Engineering Geology Laboratory/18CVL47	Using Geological maps,structural geology models	nptel video	YouTube video/ Google classroom		po4 pso3	
15	Hydraulic Machines Laboratory/18CVL48	virtual lab for pipe bursting from nitk		75.151			
16	Construction Management & Entrepreneurship/18CV51	operations	PPT presentations, Refering realistic	YouTube video/ Google classroom	Professional Ethics	po4 pso3	
17	Analysis of Indeterminate Structures/18CV52	concepts of beams and frames practical exposure in site	Videos experiential learning through concrete lab	Google classroom			
18	Design of RC Structural Elements/18CV53	III Site					
19	Basic Geotechnical Engineering/18CV54		ppt presentation,			PO1 PO	
20	Municipal Wastewater Engineering/18CV55		models demo Instruments used to	Zoom platform		PO1,PO2,PSO1	
	See Child Seed		Determination of water or waste waste quality by Environmental lab,			Po1, 2,3,4,pso3	
	Highway Engineering/18CV56		Demonstartion of Important concepts	.PPT/.Youtube videos/Google meet/Google	Environmental Sustainability	po4 pso3	
	Surveying Practice/18CVL57	Practical Applications	using ICT experiential learning	class room YouTube video/ Google		P - 1 P - 2	
23	Concrete and Highway Materials	Practical Applications	through surveylab	classroom		po4 pso3	

24	Laboratory/18CVL58		70			
	/18CVL59					
25	Design of Steel Structural Elements/18CV61	practical		YouTube video/ Google	Environmental Sustainability	
26	Applied Geotechnical	application	ppt presentation,ebool	k classroom		
27	Engineering/18CV62		presentation, youtube videos	7		PO1,PO2,PS0
	Hydrology and Irrigation Engineering/18CV63	stream flow routing	nptel video	Zoom platform power point presentation	1, 40,	
28	Professional Elective - 1/18CV64X	Different Materials	1,000	YouTube video/ Google	- 12	pso4 po4
29	Open Elective - A/18CV65X		ppt presentation,ebook	classroom	Environmental Sustainability	pso4 po4
30	Software Application	practical application		VouTuke vide (G		
31	Laboratory/18CVL66 Environmental	practical application	ppt presentation,ebook	YouTube video/ Google classroom		pso4 po4
	Engineering Laboratory/18CVL76	FF			DI NEWSWEST	Po1, 2,3,4,pso
32	Extensive Survey project/18CVEP68	practical application	experiential learning	Google classroom	r d'	
33	Municipal and Industrial		through surveylab Instruments used to	5		Po1, 2,3,4,pso3
	Waste Water/18CV71 Engineering		Determination of water or waste waste quality by Environmental lab,			Po1, 2,3,4,pso3
34	Design of RCC and Steel Structures/18CV72	concepts of beams and frames practical exposure	experiential learning through concrete lab	.PPT/Google meet/Google	Environmental Sustainability	70044
35	Hydrology and Irrigation	in site stream flow routing		class room		pso4 po4
	Engineering/18CV73 Professional Elective-	Tam How Touting	nptel video	power point presentation		pso4 po4
	3/18CV74X		Demonstartion of Important concepts	.PPT/.Youtube videos/Google meet/Google		po4 pso3
37	Professional Elective- 4/18CV75X		using ICT Demonstartion of	class room .PPT/.Youtube		12. A. 2. 1031
	,,100 V /3A		Important concepts using ICT	videos/Google meet/Google	Environmental Sustainability	po4 pso3

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38	Engineering Laboratory/18CVL76	practical application			Po1, 2,3,4,pso
39	Detailing of Structures/18CVL77	practical application	Demonstartion of Important concepts	power point presentation	po4 pso3
40	Project Work Phase–I + Project work Seminar/18CVP78		using ICT		
41	Quantity Surveying and Contracts Management/18CV81	estimation of roads,	•	YouTube video/ Google classroom	po4 pso3
42	Design of Pre Stressed Concrete Elements/18CV82		•	YouTube video/ Google classroom	po4 pso3
43	Professional Elective- 5/17CV73X/1CV72		Demonstartion of Important concepts	.PPT/.Youtube videos/Google meet/Google	po4 pso3
14	Internship/ Professional Practice/18CV74	practical application	using ICT	class room power point presentation	
15	Project Work-II/18CVP75				Po1, 2,3,4,pso3
	Seminar on current trends in Engineering and Technology/17CVS86	A STATE OF THE PARTY OF THE PAR			

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HOD, Dept. of Civil Engg. S.C.E, Bangalore-560 057

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#### DEPARTMENT OF ECE

Curriculum Plan & Deployment 2020-21

<u>SI, No.</u>	Subject Name /Code Transform calculus Fourier Series	Beyond Syllabus	Innovative teaching methods / ICT Tools	Deployment Strategy and	Cross-cutting issues	PO, PSO
1	and Numerical Techniques /		(i) Google ClassRoom (ii) Google Meet	(i) Chalk and Talk (ii) Google Class Room	integrated -	PO1, PO2,PO3, PSO2
2	Network Theory/ 18EC32		(i) Google ClassRoom (ii) Google Meet	(iii) Google Meet with Power (i) Chalk and Talk (ii) Google Class Room	-	PO1, PO2,PO3,PO4, PSO2
3	Electronic Devices/18EC33		(i) Google ClassRoom (ii) Google Meet	(iii) Google Meet with Power (i) chalk and Talk (ii)Youtube video used to		PO1,PO2,PO3, PO10, PO11.
4	Digital System Design/ 18EC34	(i) Students have registered and participated in NPTEL Course "DIGITAI	(i) Google ClassRoom (ii) Google Meet	explain the fabrication of (i) Chalk and Talk (ii) Teaching with Model		PO12, PSO1, PSO2 PO1,PO2,PO3,PO7,PO12,PSO1
5	Computer Organisation and Architecture / 18EC35		(i) Google ClassRoom (ii) Google Meet	(iii) Google Class Room (i) Google meet with PPT (ii) Google Class Room		PO1,PO2,PO3,PO10,PO12,PSO
3	Power Electronics & Instrumentation / 18EC36		(i) Google ClassRoom (ii) Google Meet	(i) Google meet with PPT (ii)Google Class Room Chalk		PO1,PO2,PO12,PSO1
	Electronic Devices and Instrumentation Lab / 18ECL37		(i) Google ClassRoom (ii) Google Meet	and talk (i) Chalk and Talk (ii)Making discrete circuit		PO1,PO2,PO3,PO4,PO5,PO9 P
	Digital System Design Lab / 18ECL38		(i) Google ClassRoom	connection on bread board (i) Chalk and Talk, (ii)Digital Trainer kit (iii)		O10,PO11,PO12,PSO1 PO1,PO2,PO3,PO4,PO5,PO9,P
	Constitution of India, Professional Ethics and Cyber Law / 18CPC39		(i) Google ClassRoom (ii) Google Meet	Software tool Logi sim (i) Chalk and talk (ii) Google meet with PPT		O10,PO12,PSO1
0	Complex Analysis, Probability and Statistical Methods / 18MAT41	17	(i) Google ClassRoom (ii) Google Meet	(iii)Google Class Room		
1	Andrea Circuits / ToEC42	Simulation of Schmitt trigger, filter design and other opamp circuits and timer circuits	(i) Google ClassRoom (ii) Google Meet			PO1, PO2,PO3, PSO2 PO1, PO2,PO3, PO4,PSO2

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12	Control System / 18EC43		(i) Google ClassRoom (ii) Google Meet			PO1, PO2,PO3, PO\$,PSO2
13	Engineering Statistics and Linear Algebra / 18EC44		(i) Google ClassRoom (ii) Google Meet			P07, P08, P09, P010, P011
14	Signals and Systems / 18EC45		(i) Google ClassRoom (ii) Google Meet			PO1, PO2,PO3, PO4,PSO2
15	Microcontroller / 18EC46		(i) Google ClassRoom (ii) Google Meet	ppts,youtube video		PO1,PO2,PO3,PO12,PSO1
16	Microcontroller Laboratory / 18ECL47		(i) Google ClassRoom (ii) Google Meet			PO1,PO2,PO3,PO12,PSO1
17	Analog Circuits Lab / 18ECL48		(i) Google ClassRoom (ii) Google Meet			PO: 1,2,3,4,5,9,10,11,12 PSO1, PSO2
18	Technological Innovation Management and Entrepreneurship / 18EC51		(i) Youtube video on successful entrepreneurs, Business Plan, How to start a business Simulation (ii) Google ClassRoom (iii) Google Meet	(ii) PPT in Google Meet (iii) Youtube video on social responsibilities of Business towards society (iii) Youtube video on successful entrepreneurs, Business Plan, How to start a business	· Business Ethics · Human	PO7, PO8, PO9, PO10, PO11
19	Digital Signal Processing / 18EC52	Signal Processing opertions using Matlab ,filter design using matlab	Signal Processing opertions and filter design using Matlab	(i) Chalk and talk method, (ii) PPT in Google Meet (iii) Matlab Software iv) Google classroom		PO1,PO2,PO3,PO4, PO12,PSO2
20	Principles of Communication Systems / 18EC53	Simulation of AM / FM generation and demodulation using Multisim software. Simulation differnt types of smpling, aliasing effect. Simulation of PWM	Use of Multisim Simulation Software	(i) PPT in google meet (ii) Google Classroom (iii) Simulation of circuits using Multisim software		PO1,PO2,PO3,PO4,PO10,PO11, PO12,PSO1,PSO2
21	Information Theory & Coding / 18EC54			(i) Chalk and talk method (ii) YOU TUBE Videos (iii) NPTEL VIDEOS (iv) PPT in google meet (v) Google Classroom		PO1,PO2,PO3,PO10,PO11,PO1 2 PSO1,2
22	Electromagnetic Waves / 18EC55			Chalk and talk method ,PPT and you tube video links		PO1,PO2,PO3,PO10,,PO12, PSO1,PSO2

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23	Verilog HDL / 18EC56	Design & Simulation of Digital circuits in Verilog using Xilinx Synthesis tool	Demonstartion of Important concepts using XST	PPT, Simulation using Xilinx integrated simulator and synthesis tool		PO1, PO2, PO3, PO10, PSO1
24	Digital Signal Processing Lab / 18ECL57			chalk and talk,modern tool Matlab		PO3,PO4,PO5,PO9,PO10,PO12
25	HDL Lab / 18ECL58		(i) Google ClassRoom (ii) Google Meet	Chalk and talk, PPT, Simulation in Xilinx, Implementation on FPGA Kit		PO:1, 2,3, 11, 12; PSO1
26	Environmental Studies / 18CIV59			(i) PPT in google meet (ii) Google Classroom	Environment Sustainability	PO:1,7,8,9, 10,
27	Digital Communication / 18EC61		Demonstration of modulation techniques using DPSK,QPSK kits	(i) Chalk and talk method, (ii) PPT in Google Meet (iii) Matlab Software iv) Google classroom		PO1,PO2,PO3,PO10,PO11,PO1 2 PSO1,2
28	Embedded Systems / 18EC62	Simulation of ARM Cortex Instructions & Programs using Keil Software	Simulation using Keil Software	(i) PPT in google meet (ii) Google Classroom (iii) Simulation using Keil Software		PO2, PO3, PO5, PSO1
29	Microwave and Antennas / 18EC63			Chalk and talk PPT, NPTEL		PO: 1,2,3,4,6,7,12 PSO1, PSO2
30	Professional Elective / 18EC646	Python Application and Programming / 18EC646	(i) Google ClassRoom (ii) Google Meet (iii) Jupiter note book			PO1 PO2 ,PO10,PO11,PO9 PO12 PSO1,PSO2
31	Open Elective / 18EC65			(i) PPT in google meet (ii) Google Classroom		PO: 1,2,3,4,6,7,12 PSO1, PSO2
32	Embedded Systems Lab / 18ECL66		Simulation using Keil Software	Chalk and talk, PPT, Simulation using Keil		PO1 PO2 ,PO3,PO5,PO9 PO10,PO12 PSO1,PSO2
33	Communication Lab / 18ECL67			(i) PPT in google meet (ii) Google Classroom	N Kind S.	PO: 1,2,3,4,6,7,12 PSO1, PSO2
34	Microwaves and Antennas / 17EC71			Chalk and talk PPT, NPTEL		PO: 1,2,3,4,6,7,12 PSO1, PSO2
35	Digital Image Processing / 17EC72	simulation of enhancement technique in MATLAB	(i) Google ClassRoom (ii) Google Meet (iii) Matlab Simulation	Chalk and Talk PPT MATLAB Simulation		PO:1,2,3,10,11,12,PSO2
36	Power Electronics / 17EC73		(i) Google ClassRoom (ii) Google Meet	Online classes via Google meet platform, Practical sessions, Youtube and NPTEL videos		PO1, PO2, PO3, PO10, PO12, PSO1

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37	Multimedia Communication / 17EC741		(i) Google ClassRoom (ii) Google Meet	Online classes via Google meet platform, Youtube and NPTEL videos		PO1,PO2,PO3,PO11,PO12,PSO
38	Satellite Communication / 17EC755	5	(i) Google ClassRoom (ii) Google Meet	online google meet, Youtube	Environment Sustainability	P01,P02,P03,P04,P010,P011,
39	Advanced Communication Lab / 17EC76		(i) Google ClassRoom (ii) Google Meet	(i) PPT in google meet (ii) Google Classroom	Sustamatimy	P012,PS01,PS02 P01,P02,P03,P04,P010,P011,
40	VLSI Lab / 17EC77		(i) Google ClassRoom (ii) Google Meet	Logical design & Verification Physical Design & verification using Cadence tool		P012,PS01,PS02 P01,P02,P03,P04,P010,P011, P012,PS01,PS02
41	Wireless Cellular and LTE 4G Broadband / 17EC81		(i) Google ClassRoom (ii) Google Meet	(i) PPT in google meet (ii) Google Classroom		P01,P02,P03,P04,P010,P011,
42	Fiber Optics and Networks / 17EC82		(i) Google ClassRoom (ii) Google Meet	Online classes via Google meet platform, Youtube and NPTEL videos		PO12,PSO1,PSO2 PO1,PO2,PO12,PSO1,PSO2
43	Professional Elective /17EC83	Machine learning algorithms are implemented in python	(i) Google ClassRoom (ii) Google Meet	(i) PPT in google meet (ii) Google Classroom		P01,P02,P03,P010,P011,1P0
44	Internship / 17EC84		(i) Google ClassRoom (ii) Google Meet			PO1,PO2,PO3,PO4,PO8,PO9,P O10,PO11, PO12,PSO1,PSO2
45	Project Work / 17EC85		(i) Google ClassRoom (ii) Google Meet			PO1,PO2,PO3,PO4, PO5, PO7, PO8,PO9,PO10,PO11, PO12,PSO1,PSO2
46	Technical Seminar / 17EC86		(i) Google ClassRoom (ii) Google Meet			P08,P09,P010,P011, P012,PS01,PS02

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