

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

Programme: B.E: Electronics & Communication Engineering

III SEMESTER

III SEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks		
					L	T	P						
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	Mathe matics	2	2	--	03	40	60	100	3	
2	PCC	18EC32	Network Theory		3	2	--	03	40	60	100	4	
3	PCC	18EC33	Electronic Devices		3	0	--	03	40	60	100	3	
4	PCC	18EC34	Digital System Design		3	0	--	03	40	60	100	3	
5	PCC	18EC35	Computer Organization & Architecture		3	0	--	03	40	60	100	3	
6	PCC	18EC36	Power Electronics & Instrumentation		3	0	--	03	40	60	100	3	
7	PCC	18ECL37	Electronic Devices & Instrumentation Laboratory		--	2	2	03	40	60	100	2	
8	PCC	18ECL38	Digital System Design Laboratory		--	2	2	03	40	60	100	2	
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for Communication)/	HSMC	--	2	--	--	100	--	100	1	
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)										
		OR											
		18CPC39/49	Constitution of India, Professional Ethics and Cyber Law										
		Examination is by objective type questions											
TOTAL					17	10	04	24	420	480	900	24	
					OR	OR		OR	OR				
					18	08		26	360	540			


H. O. D.

Dept. Of Electronics & Communication
 Alva's Institute of Engg. & Technology
 Mijar, MOODSIDRI - 574 225


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 Alva's Institute of Engg. & Technology,
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IV SEMESTER

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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks		
													L
1	BSC	18MAT41	Complex Analysis, Probability and Statistical Methods	Mathematics	2	2	--	03	40	60	100	3	
2	PCC	18EC42	Analog Circuits		3	2	--	03	40	60	100	4	
3	PCC	18EC43	Control Systems		3	0	--	03	40	60	100	3	
4	PCC	18EC44	Engineering Statistics & Linear Algebra		3	0	--	03	40	60	100	3	
5	PCC	18EC45	Signals & Systems		3	0	--	03	40	60	100	3	
6	PCC	18EC46	Microcontroller		3	0	--	03	40	60	100	3	
7	PCC	18ECL47	Microcontroller Laboratory		--	2	2	03	40	60	100	2	
8	PCC	18ECL48	Analog Circuits Laboratory		--	2	2	03	40	60	100	2	
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for Communication)	HSMC	--	2	--	--	100	--	100	1	
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)										
		OR											
		18CPC39/49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60			
		Examination is by objective type questions											
TOTAL					17	10	04	24	420	480	900	24	
					OR	OR		OR	OR				
					18	08		26	360	540			


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 Dept. Of Electronics & Communication
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V SEMESTER

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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	HSMC	18ES51	Technological Innovation Management and Entrepreneurship		3	0	--	03	40	60	100	3
2	PCC	18EC52	Digital Signal Processing		3	2	--	03	40	60	100	4
3	PCC	18EC53	Principles of Communication Systems		3	2	--	03	40	60	100	4
4	PCC	18EC54	Information Theory & Coding		3	--	--	03	40	60	100	3
5	PCC	18EC55	Electromagnetic Waves		3	--	--	03	40	60	100	3
6	PCC	18EC56	Verilog HDL		3	--	--	03	40	60	100	3
7	PCC	18ECL57	Digital Signal Processing Laboratory		--	2	2	03	40	60	100	2
8	PCC	18ECL58	HDL Laboratory		--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental	1	--	--	02	40	60	100	1
				[Paper setting: Civil Engineering Board]								
TOTAL					19	8	4	26	360	540	900	25

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

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.


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Scheme of Teaching and Examination 2018 – 19
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Programme: B.E: Electronics & Communication Engineering

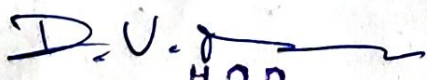
VI SEMESTER

SL No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC61	Digital Communication		3	2	--	03	40	60	100	4
2	PCC	18EC62	Embedded Systems		3	2	--	03	40	60	100	4
3	PCC	18EC63	Microwave and Antennas		3	2	--	03	40	60	100	4
4	PEC	18XX64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18XX65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18ECL66	Embedded Systems Laboratory		--	2	2	03	40	60	100	2
7	PCC	18ECL67	Communication Laboratory		--	2	2	03	40	60	100	2
8	MP	18ECMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
TOTAL					15	10	6	24	320	480	800	24

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

Professional Elective -1

Course code under 18XX64X	Course Title
18EC641	Operating System
18EC642	Artificial Neural Networks
18EC643	Data Structures using C++
18EC644	Digital System Design Using Verilog
18EC645	Nanoelectronics
18EC646	Python Application Programming


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 Anna Institute of Engg. & Technology
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Programme: B.E: Electronics & Communication Engineering

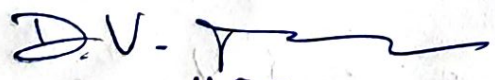
VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P					
1	PCC	18EC71	Computer Networks		3	--	--	03	40	60	100	3
2	PCC	18EC72	VLSI Design		3	--	--	03	40	60	100	3
3	PEC	18XX73X	Professional Elective - 2		3	--	--	03	40	60	100	3
4	PEC	18XX74X	Professional Elective - 3		3	--	--	03	40	60	100	3
5	OEC	18XX75X	Open Elective -B		3	--	--	03	40	60	100	3
6	PCC	18ECL76	Computer Networks Lab		--	2	2	03	40	60	100	2
7	PCC	18ECL77	VLSI Laboratory		--	2	2	03	40	60	100	2
8	Project	18ECP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
TOTAL					15	04	06	21	38	420	800	20

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

Professional Elective - 2

Course code under 18XX73X	Course Title
18EC731	Real Time Systems
18EC732	Satellite Communication
18EC733	Digital Image Processing
18EC734	DSP Algorithms & Architecture


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VIII SEMESTER

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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC81	Wireless and Cellular Communication		3	--	--	03	40	60	100	3
2	PEC	18XX82X	Professional Elective - 4		3	--	--	03	40	60	100	3
3	Project	18ECP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18ECS84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18ECI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
TOTAL					06	--	04	15	260	240	500	18

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

Professional Elective - 4

Course code under 18XX82X	Course Title
18EC821	Network Security
18EC822	Micro Electro Mechanical Systems
18EC823	Radar Engineering
18EC824	Optical Communication Networks
18EC825	Biomedical Signal Processing


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SCHEME OF TEACHING AND EXAMINATION
B.E Electronics & Communication Engineering / Telecommunication Engineering
(Common to Electronics & Communication and Telecommunication Engineering)

III SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics –III*	Maths	04		03	60	40	100	4
2	17EC32	Electronic Instrumentation	EC	03		03	60	40	100	3
3	17EC33	Analog Electronics	EC	04		03	60	40	100	4
4	17EC34	Digital Electronics	EC	04		03	60	40	100	4
5	17EC35	Network Analysis	EC	04		03	60	40	100	4
6	17EC36	Engineering Electromagnetics	EC	04		03	60	40	100	4
7	17ECL37	Analog Electronics Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ECL38	Digital Electronics Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
TOTAL				Theory: 24hours Practical: 06 hours		25	510	340	850	28

1. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2. Audit Course:

(i) *All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – I, which is 03 contact hours per week.

1	17MATDIP31	Additional Mathematics –I	Maths	03		03	60	--	60	--
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(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B.Sc candidates)



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Mijur, MOODBIDRI - 574 225, D.K.

**B.E Electronics & Communication Engineering / Telecommunication Engineering
(Common to Electronics & Communication and Telecommunication Engineering)**

IV SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Engineering Mathematics –IV*	Maths	04		03	60	40	100	4
2	17EC42	Signals and Systems	EC	04		03	60	40	100	4
3	17EC43	Control Systems	EC	04		03	60	40	100	4
4	17EC44	Principles of Communication Systems	EC	04		03	60	40	100	4
5	17EC45	Linear Integrated Circuits	EC	04		03	60	40	100	4
6	17EC46	Microprocessor	EC	03		03	60	40	100	3
7	17ECL47	Microprocessor Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ECL48	Linear ICs and Communication Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
TOTAL				Theory: 24hours Practical: 06 hours		25	510	340	850	28

1. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2. Audit Course:

(i) *All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – II, which is 03 contact hours per week.

1	17MATDIP41	Additional Mathematics –II	Maths	03		03	60	--	60	--
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(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B.Sc candidates)


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Alva's Institute of Engg. & Technology,
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B.E.: Electronics & Communication Engineering

V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17ES51	Management and Entrepreneurship Development	EC	04		03	60	40	100	4
2	17EC52	Digital Signal Processing	EC	04		03	60	40	100	4
3	17EC53	Verilog HDL	EC	04		03	60	40	100	4
4	17EC54	Information Theory & Coding	EC	04		03	60	40	100	4
5	17EC55X	Professional Elective-I	EC	03		03	60	40	100	3
6	17EC56X	Open Elective-I	EC	03		03	60	40	100	3
7	17ECL57	DSP Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ECL58	HDL Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
TOTAL				Theory: 22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-I		Open Elective – I*** (List offered by EC/TC Board only)	
17EC551	Nanoelectronics	17EC561	Automotive Electronics
17EC552	Switching & Finite Automata Theory	17EC562	Object Oriented Programming Using C++
17EC553	Operating System	17EC563	8051 Microcontroller
17EC554	Electrical Engineering Materials		
17EC555	MSP430 Microcontroller		

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).
 Selection of an open elective is not allowed, if:
 • The candidate has no pre – requisite knowledge.
 • The candidate has studied similar content course during previous semesters.
 • The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).
 Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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B.E.: Electronics & Communication Engineering

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EC61	Digital Communication	EC	04		03	60	40	100	4
2	17EC62	ARM Microcontroller & Embedded Systems	EC	04		03	60	40	100	4
3	17EC63	VLSI Design	EC	04		03	60	40	100	4
4	17EC64	Computer Communication Networks	EC	04		03	60	40	100	4
5	17EC65X	Professional Elective-2	EC	03		03	60	40	100	3
6	17EC66X	Open Elective-2	EC	03		03	60	40	100	3
7	17ECL67	Embedded Controller Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ECL68	Computer Networks Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
TOTAL				Theory: 22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-2		Open Elective – 2*** (List offered by EC/TC Board only)	
17EC651	Cellular Mobile Communication	17EC661	Data Structures Using C++
17EC652	Adaptive Signal Processing	17EC662	Power Electronics (not for E&C students)
17EC653	Artificial Neural Networks	17EC663	Digital System Design using Verilog
17EC654	Digital Switching Systems		
17EC655	Microelectronics		

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).

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- The candidate has studied similar content course during previous semesters.
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Arva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225-D.K

VII SEMESTER

B.E.: Electronics & Communication Engineering

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EC71	Microwave and Antennas	EC	04		03	60	40	100	4
2	17EC72	Digital Image Processing	EC	04		03	60	40	100	4
3	17EC73	Power Electronics	EC	04		03	60	40	100	4
4	17EC74X	Professional Elective-3	EC	03		03	60	40	100	3
5	17EC75X	Professional Elective-4	EC	03		03	60	40	100	3
6	17ECL76	Advanced Communication Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17ECL77	VLSI Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ECP78	Project Work Phase-I + Project work Seminar	EC		03		-	100	100	2
TOTAL				Theory: 18 hours Practical and Project: 09 hours		21	420	380	800	24

Professional Elective-3		Professional Elective-4	
17EC741	Multimedia Communication	17EC751	DSP Algorithms and Architecture
17EC742	Biomedical Signal Processing	17EC752	IOT and Wireless Sensor Networks
17EC743	Real Time Systems	17EC753	Pattern Recognition
17EC744	Cryptography	17EC754	Advanced Computer Architecture
17EC745	CAD for VLSI	17EC755	Satellite Communication

1. Project Phase – I and Project Seminar: Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on the report covering Literature Survey, Problem identification, Objectives and Methodology and Seminar presentation skill.

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B.E.: Electronics & Communication Engineering

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EC81	Wireless Cellular and LTE 4G Broadband	EC	4	-	3	60	40	100	4
2	17EC82	Fiber Optics & Networks	EC	4	-	3	60	40	100	4
3	17EC83X	Professional Elective-5	EC	3	-	3	60	40	100	3
4	17EC84	Internship/Professional Practice	EC	Industry Oriented		3	50	50	100	2
5	17ECP85	Project Work	EC	-	6	3	100	100	200	6
6	17ECS86	Seminar	EC	-	4	-	-	100	100	1
TOTAL				Theory: 11 hours Project and Seminar: 10 hours		15	330	370	700	20

Professional Elective -5	
17EC831	Micro Electro Mechanical Systems
17EC832	Speech Processing
17EC833	Radar Engineering
17EC834	Machine learning
17EC835	Network and Cyber Security

1. Internship/ Professional Practice: 4 Weeks internship to be completed between the (VI and VII semester vacation) and/or (VII and VIII semester vacation) period.



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SCHEME OF TEACHING AND EXAMINATION
B.E Electronics & Communication Engineering / Telecommunication Engineering
(Common to Electronics & Communication and Telecommunication Engineering)

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics –III*	04		03	80	20	100	4
2	15EC32	Analog Electronics	04		03	80	20	100	4
3	15EC33	Digital Electronics	04		03	80	20	100	4
4	15EC34	Network Analysis	04		03	80	20	100	4
5	15EC35	Electronic Instrumentation	04		03	80	20	100	4
6	15EC36	Engineering Electromagnetics	04		03	80	20	100	4
7	15ECL37	Analog Electronics Lab		11+2P	03	80	20	100	2
8	15ECL38	Digital Electronics Lab		11+2P	03	80	20	100	2
TOTAL			24	6	24	640	160	800	28

*Additional course for Lateral entry students only:

1	15MATDIP31	Additional Mathematics - I	03		03	80	--	80	--
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Mijar, MOODSIDRI - 574 225, D.K

SCHEME OF TEACHING AND EXAMINATION
B.E Electronics & Communication Engineering / Telecommunication Engineering
(Common to Electronics & Communication and Telecommunication Engineering)

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical / Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics -IV*	04		03	80	20	100	4
2	15EC42	Microprocessor	04		03	80	20	100	4
3	15EC43	Control Systems	04		03	80	20	100	4
4	15EC44	Signals and Systems	04		03	80	20	100	4
5	15EC45	Principles of Communication Systems	04		03	80	20	100	4
6	15EC46	Linear Integrated Circuits	04		03	80	20	100	4
7	15ECL47	Microprocessor Lab		11+2P	03	80	20	100	2
8	15ECL48	Linear ICs and Communication Lab		11+2P	03	80	20	100	2
TOTAL			24	06	24	640	160	800	28

*Additional course for Lateral entry students only:

1	15MATDIP41	Additional Mathematics - II	03		03	80	--	80	--
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SCHEME OF TEACHING AND EXAMINATION
B.E.: Electronics & Communication Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15ES51	Management and Entrepreneurship Development	04		03	80	20	100	4
2	15EC52	Digital Signal Processing	04		03	80	20	100	4
3	15EC53	Verilog HDL	04		03	80	20	100	4
4	15EC54	Information Theory & Coding	04		03	80	20	100	4
5	15EC55X	Professional Elective-1	03		03	80	20	100	3
6	15EC56X	Open Elective-1	03		03	80	20	100	3
7	15ECL57	DSP Lab		11+2P	03	80	20	100	2
8	15ECL58	HDL Lab		11+2P	03	80	20	100	2
TOTAL			22	06	24	640	160	800	26

Professional Elective-1		Open Elective - 1* (List offered by EC/TC Board only)	
15EC551	Nanoelectronics	15EC561	Automotive Electronics
15EC552	Switching & Finite Automata Theory	15EC562	Object Oriented Programming Using C++
15EC553	Operating System	15EC563	8051 Microcontroller
15EC554	Electrical Engineering Materials		
15EC555	MSP430 Microcontroller		

1. **Professional Elective:** Elective relevant to chosen specialization/ branch.

2. * **Open Elective List:** For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

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SCHEME OF TEACHING AND EXAMINATION
B.E.: Electronics & Communication Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15EC61	Digital Communication	04		03	80	20	100	4
2	15EC62	ARM Microcontroller & Embedded Systems	04		03	80	20	100	4
3	15EC63	VLSI Design	04		03	80	20	100	4
4	15EC64	Computer Communication Networks	04		03	80	20	100	4
5	15EC65X	Professional Elective-2	03		03	80	20	100	3
6	15EC66X	Open Elective-2	03		03	80	20	100	3
7	15ECL67	Embedded Controller Lab		1I+2P	03	80	20	100	2
8	15ECL68	Computer Networks Lab		1I+2P	03	80	20	100	2
TOTAL			22	6	24	640	160	800	26

Professional Elective-2		Open Elective - 2* (List offered by EC/TC Board only)	
15EC651	Cellular Mobile Communication	15EC661	Data Structures Using C++
15EC652	Adaptive Signal Processing	15EC662	Power Electronics
15EC653	Artificial Neural Networks	15EC663	Digital System Design using Verilog
15EC654	Digital Switching Systems		
15EC655	Microelectronics		

1. **Professional Elective:** Elective relevant to chosen specialization/branch.

2. * **Open Elective List:** For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

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SCHEME OF TEACHING AND EXAMINATION
B.E.: Electronics & Communication Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				15EC
			Theory	Practical/Drawing	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	15EC71	Microwave and Antennas	04		03	20	80	100	4
2	15EC72	Digital Image Processing	04		03	20	80	100	4
3	15EC73	Power Electronics	04		03	20	80	100	4
4	15XX74X	Professional Elective-3	03		03	20	80	100	3
5	15EC75X	Professional Elective-4	03		03	20	80	100	3
6	15ECL76	Advanced Communication Lab		11+2P	03	20	80	100	2
7	15ECL77	VLSI Lab		11+2P	03	20	80	100	2
8	15ECP78	Project Work Phase-I + Project work Seminar		03		100	-	100	2
TOTAL			18	09	21	240	560	800	24

Professional Elective-3		Professional Elective-4	
15EC741	Multimedia Communication	15EC751	DSP Algorithms and Architecture
15EC742	Biomedical Signal Processing	15EC752	IoT and Wireless Sensor Networks
15EC743	Real Time Systems	15EC753	Pattern Recognition
15EC744	Cryptography	15EC754	Advanced Computer Architecture
15EC745	CAD for VLSI	15EC755	Satellite Communication

1. **Project Phase -I + Project Work Seminar:** Literature Survey, Problem Identification, Objectives and Methodology. Submission of Synopsis and Seminar.



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SCHEME OF TEACHING AND EXAMINATION
B.E.: Electronics & Communication Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15EC81	Wireless Cellular and LTE 4G Broadband	4	-	3	20	80	100	4
2	15EC82	Fiber Optics & Networks	4	-	3	20	80	100	4
3	15EC83X	Professional Elective-5	3	-	3	20	80	100	3
4	15EC84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2
5	15ECP85	Project Work	-	6	3	100	100	200	6
6	15ECS86	Seminar	-	4	-	100	-	100	1
TOTAL			11	10	15	310	390	700	20

Professional Elective -5	
15EC831	Micro Electro Mechanical Systems
15EC832	Speech Processing
15EC833	Radar Engineering
15EC834	Machine learning
15EC835	Network and Cyber Security

1. **Internship / Professional Practice:** To be carried between the (6th and 7th Semester) or (7th and 8th) Semester Vacation period.



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**SCHEME OF TEACHING & EXAMINATION
ELECTRONICS & COMMUNICATION ENGINEERING
III SEMESTER (COMMON TO EC/TC/ML)**

Subject Code	Title	Teaching Dept.	Teaching hours/week		Examination			
			Theory	Practical	Duration	I. A	Theory/ Practical	Total Marks
10MAT - 31	Engg. Mathematics - III	Mat	04		03	25	100	125
10ES - 32	Analog Electronic Ckts	@	04		03	25	100	125
10ES - 33	Logic Design	@	04		03	25	100	125
10ES - 34	Network Analysis	@	04		03	25	100	125
10IT- 35	Electronic Instrumentation	@	04		03	25	100	125
10ES - 36	Field Theory	@	04		03	25	100	125
10ESL - 37	Analog Electronics Lab	@		03	03	25	50	75
10ESL - 38	Logic Design Lab	@		03	03	25	50	75
		Total	24	06	24	200	700	900



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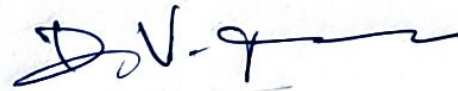


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**SCHEME OF TEACHING & EXAMINATION
ELECTRONICS & COMMUNICATION ENGINEERING
IV SEMESTER (COMMON TO EC/TC/ML)**

Subject Code	Title	Teach Dept.	Teaching hours/week		Examination			
			Theory	Practical	Duration	L A	Theory/ Practical	Total Marks
10MAT - 41	Engg. Mathematics – IV	Mat	04		03	25	100	125
10ES- 42	Microcontrollers	@	04		03	25	100	125
10ES – 43	Control Systems	@	04		03	25	100	125
10EC – 44	Signals & Systems	@	04		03	25	100	125
10EC- 45	Fundamentals of HDL	@	04		03	25	100	125
10EC – 46	Linear ICs & Applications	@	04		03	25	100	125
10ESL – 47	Microcontrollers Lab	@		03	03	25	50	75
10ECL – 48	HDL Lab	@		03	03	25	50	75
		Total	24	06	24	200	700	900

Note : @ indicates concerned discipline. ES (for theory) & ECL (for Lab) in the subject code indicates that the subject is common to electrical and electronics stream consisting of EE/EC/IT/TC/ML/BM branches of engineering.



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SCHEME OF TEACHING AND EXAMINATION
B.E. ELECTRONICS AND COMMUNICATION

V SEMESTER

COMMON TO EC/TE

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Duration (Hrs)	Examination		
				Theory	Practical		Marks		
							IA	Theory / Practical	Total
01	10AL51	Management and Entrepreneurship	EC	4	-	3	25	100	125
02	10EC52	Digital Signal Processing	EC	4	-	3	25	100	125
03	10EC53	Analog Communication	EC	4	-	3	25	100	125
04	10EC54	Microwaves and Radar	EC	4	-	3	25	100	125
05	10EC55	Information Theory and Coding	EC	4	-	3	25	100	125
06	10EC56	Fundamentals of CMOS VLSI	EC	4	-	3	25	100	125
07	10ECL57	DSP Lab	EC	-	3	3	25	50	75
08	10ECL58	Analog Communication Lab + LIC Lab	EC	-	3	3	25	50	75
TOTAL				24	06	24	200	700	900

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SCHEME OF TEACHING AND EXAMINATION
B.E. ELECTRONICS AND COMMUNICATION

VI SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Duration (Hrs)	Examination		
				Theory	Practical		Marks		
							IA	Theory / Practical	Total
1	10EC61	Digital Communication	EC	4	-	3	25	100	125
2	10EC62	Microprocessors	EC	4	-	3	25	100	125
3	10EC63	Microelectronics Circuits	EC	4	-	3	25	100	125
4	10EC64	Antennas and Propagation	EC	4	-	3	25	100	125
5	10EC65	Operating Systems	EC	4	-	3	25	100	125
6	10EC66x	Elective-I (Group A)	EC	4	-	3	25	100	125
7	10ECL67	Advanced Communication Lab	EC	-	3	3	25	50	75
8	10ECL68	Microprocessor Lab	EC	-	3	3	25	50	75
TOTAL				24	06	24	200	700	900

Elective-I (Group A)

10EC661 – Analog and Mixed Mode VLSI Design
10EC662 – Satellite Communications
10EC663 – Random Process

10EC664 – Low Power VLSI Design
10EC665 – Data Structure Using C++
10EC666 – Digital System Design Using Verilog
10EC667- Virtual Instrumentation



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**SCHEME OF TEACHING AND EXAMINATION
B.E. ELECTRONICS AND COMMUNICATION**

VII Semester

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10EC71	Computer Communication Networks	EC	4	-	3	25	100	125
2	10EC72	Optical Fiber Communication	EC	4	-	3	25	100	125
3	10EC73	Power Electronics	EC	4	-	3	25	100	125
4	10EC74	Embedded System Design	EC	4	-	3	25	100	125
5	10EC75x	Elective-II (Group B)	EC	4	-	3	25	100	125
6	10EC76x	Elective-III (Group C)	EC	4	-	3	25	100	125
7	10ECL77	VLSI Lab	EC	-	3	3	25	50	75
8	10ECL78	Power Electronics Lab	EC	-	3	3	25	50	75
TOTAL				24	06	24	200	700	900

Elective-II (Group B)

10EC751 – DSP Algorithms & Architecture
10EC752 - Micro and Smart Systems Technology
10EC753 – Artificial Neural Network
10EC754 – CAD for VLSI
10EC755 – Applied Embedded System Design*
10EC756 – Speech Processing

Elective-III (Group C)

10EC761 - Programming in C++
10EC762 – Real Time Systems
10EC763 - Image Processing
10EC764 - Radio Frequency Integrated Circuits
10EC765 - Wavelet Transforms
10EC766 - Modeling and Simulation of Data Networks

NOTE: 06EC757 Applied Embedded System Design has a LAB component (syllabus is different and in the Theory Examination, questions from Lab experiments will also be there)


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**SCHEME OF TEACHING AND EXAMINATION
B.E ELECTRONICS AND COMMUNICATION**

VIII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10EC81	Wireless Communication	EC	4	-	3	25	100	125
2	10EC82	Digital Switching System	EC	4	-	3	25	100	125
3	10EC83x	Elective-IV (Group D)	EC	4	-	3	25	100	125
4	10EC84x	Elective-V (Group E)	EC	4	-	3	25	100	125
5	10ECP85	Project Work	EC	-	6	3	100	100	200
6	10ECS86	Seminar	EC	-	3	-	50	-	50
TOTAL				16	09	15	250	500	750

Elective-IV (Group-D)

10EC831 – Distributed Systems
10EC832 – Network Security
10EC833 - Optical Networks
10EC834 – High Performance Computing Networks
10EC835 – Internet Engineering

Elective-V (Group-E)

10EE841 – Multimedia Communication
10EC842 – Real Time Operating Systems
10EC843 - GSM
10EC844 - Ad-hoc Wireless
10EC845 – Optical Computing



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