

School of Engineering & Technology  
Global Campus  
Jakkasandra Post, Kanakapura Taluk, Ramanagara District  
Pin Code: 562 112



Department of Electronics & Communication Engineering

# Bachelor of Technology In Electronics and Communication Engineering

## Course Matrix for III to VIII Semester

### Batch: 2018 - Onwards

Date: \_\_\_\_\_

Head of the Department

## Credits Distribution

Semester	Particulars								Total
	BS	ES	HSS	Core	Program Elective	Open Elective	MC	SEC	
<b>I</b>	09	07	03	--	--	--	--	--	<b>19</b>
<b>II</b>	09	08	03	--	--	--	--	--	<b>20</b>
<b>III</b>	04	--	03	14	--	--	--	--	<b>21</b>
<b>IV</b>	06	--	--	15	--	--	--	--	<b>21</b>
<b>V</b>	--	03	--	11	03	03	--	--	<b>20</b>
<b>VI</b>	--	--	--	11	03	03	--	02	<b>19</b>
<b>VII</b>	--	--	--	06	06	03	--	05	<b>20</b>
<b>VIII</b>	--	--	--	--	06	06	--	09	<b>21</b>
<b>Total</b>	<b>28</b>	<b>18</b>	<b>09</b>	<b>57</b>	<b>18</b>	<b>15</b>	<b>00</b>	<b>16</b>	<b>161</b>

	BS	ES	HSS	Core	PE	OE	MC	SEC	Total
<b>Total Credit distribution for batch 2018</b>	<b>28</b>	<b>18</b>	<b>09</b>	<b>57</b>	<b>18</b>	<b>15</b>	<b>00</b>	<b>16</b>	<b>161</b>

**BS:** Basic Science,  
**ES:** Engineering Science  
**HSS:** Humanity & Social Science  
**PE:** Program Elective  
**OE:** Open Elective  
**MC:** Mandatory Course  
**SEC:** Skill Enhancement Course

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**Course Matrix**  
**Branch: BSP-I SEM Physics cycle and II SEM Chemistry cycle**  
**I Semester**

Sl. No.	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18BS1MA01	Mathematics I	4	3-1-0	30		70	28	40
2	18BSPH02	Physics	4	3-1-0	30		70	28	40
3	18HSS01	English	2	2-0-0	30		70	28	40
4	18ESCS01	Problem solving through programming	3	2-1-0	30		70	28	40
5	18ESME03	Engineering graphics	3	0-2-2	30		70	28	40
6	18BSPH02L	Physics Lab	1	0-0-2	100*	40*			40
7	18HSS01L	English Lab	1	0-0-2	100*	40*			40
8	18ESCS01L	Problem solving through programming Lab	1	0-0-2	100*	40*			40
		<b>Total</b>	<b>19</b>						

\*indicates CA marks

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**Course Matrix**  
**Branch: BSP-I SEM Physics cycle and II SEM Chemistry cycle**  
**II Semester**

Sl. No.	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18BS2MA01	Mathematics II	4	3-1-0	30		70	28	40
2	18BSCH03	Chemistry	4	3-1-0	30		70	28	40
3	18ESEE02	Basics of Electrical Engineering	4	3-1-0	30		70	28	40
4	18HSS02	Sociology and elements of Indian history for Engineers	3	3-0-0	30		70	28	40
5	18ESME04L	Workshop practice	3	0-2-2	100*	40*			40
6	18BSCH03L	Chemistry Lab	1	0-0-2	100*	40*			40
7	18ESEE02L	Electrical Engineering Lab	1	0-0-2	100*	40*			40
8	18MCC01	Constitution of India		0-0-0	30		70	28	40
		<b>Total</b>	<b>20</b>						

\*indicates CA marks

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Course Matrix  
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III Semester**

Sl. No.	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18BS3MA01	Engineering Mathematics III	4	3-1-0	30		70	28	40
2	18HSS03	Economics for Engineers	3	3-0-0	30		70	28	40
3	18EC31	Electronic Devices and Circuit Theory	3	3-0-0	30		70	28	40
4	18EC32	Digital System Design using Verilog	3	3-0-0	30		70	28	40
5	18EC33	Signals and Systems	3	3-0-0	30		70	28	40
6	18EC34	Network Theory	3	3-0-0	30		70	28	40
7	18EC31L	Electronic Devices and Circuits Lab	1	0-0-2	100*				40
8	18EC32L	Digital System Design using Verilog Lab	1	0-0-2	100*				40
9	18MADIP01	Diploma Mathematics-I		2-0-0			70	28	40
10	18MCC02	Energy Studies		1-0-0	30		70	28	40
		<b>Total</b>	<b>21</b>						

BS	ES	HSS	CORE	PE	OE	MC	SEC	TOTAL CREDITS
04	--	03	14	--	--	00	--	21

**Department of Electronics and Communication Engineering  
Course Matrix  
B.Tech in Electronics and Communication Engineering  
IV Semester**

Sl. No.	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18EC41	Analog and Digital Communication	3	3-0-0	30		70	28	40
2	18EC42	Op-Amp and it's Applications	3	3-0-0	30		70	28	40
3	18EC43	Microcontrollers and it's Applications	3	3-0-0	30		70	28	40
4	18EC44	Probability Theory and Stochastic Processes	3	3-0-0	30		70	28	40
5	18EC45	Embedded System Architecture	3	3-0-0	30		70	28	40
6	18EC41L	Analog and Digital Communication Lab	1	0-0-2	100*				40
7	18EC42L	Op-Amp and it's Applications Lab	1	0-0-2	100*				40
8	18EC43L	Microcontrollers and it's Applications Lab	1	0-0-2	100*				40
9	18BSBG04	Biology	3	2-1-0	30		70	28	40
10	18MADIP02	Diploma Mathematics-II		2-0-0			70	28	40
		<b>Total</b>	<b>21</b>						

Two days Mandatory Workshop on Power Electronics

BS	ES	HSS	CORE	PE	OE	MC	SEC	TOTAL CREDITS
--	03	03	15	--	--	--	--	21

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**2018 - Onwards**  
**Department of Electronics and Communication Engineering**  
**Course Matrix**  
**B.Tech in Electronics and Communication Engineering**  
**V Semester**

Sl. No.	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18EC51	Principles of Electromagnetics	3	3-0-0	30		70	28	40
2	18EC52	Control Systems	3	3-0-0	30		70	28	40
3	18EC53	Innovation, Entrepreneurship and Startup's	3	3-0-0	30		70	28	40
4	18EC54	Digital Signal Processing	3	3-0-0	30		70	28	40
5	18EC55X	Program Elective-I	3	3-0-0	30		70	28	40
6	18XX56X	Open Elective-I	3	3-0-0	30		70	28	40
7	18EC51L	Electromagnetics Lab*	1	0-0-0	100*				40
8	18EC52L	Digital Signal Processing Lab	1	0-0-0	100*				40
		<b>Total</b>	<b>20</b>						

\*Two days Mandatory Workshop on Microwave Engineering

Program Elective - I			
Sl#	Domain	Subject Code	Subject Title
1	Communication	18EC551	Information Theory and Coding
2	Signal Processing	18EC552	DSP architecture
3	Software	18EC553	Programming in Java
4	VLSI	18EC554	System Verilog
5	Embedded	18EC555	Internet of Things

Open Elective - I		
Sl#	Subject Code	Subject Title
1	18XX561	Fundamentals of python

2	18XX562	Introduction to micro electro mechanical systems
3	18XX563	Introduction to data sciences
4	18XX564	Information security
5	18XX565	Web technology

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**VI Semester**

Sl. No.	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18EC61	Computer Networks and Internets	3	3-0-0	30		70	28	40
2	18EC62	VLSI Design	3	3-0-0	30		70	28	40
3	18EC63	Antennas and Propagation	3	3-0-0	30		70	28	40
4	18EC64X	Program Elective-II	3	3-0-0	30		70	28	40
5	18XX65X	Open Elective-II	3	3-0-0	30		70	28	40
6	18EC61L	Computer Networks Lab	1	0-0-0	100*				40
7	18EC62L	VLSI Design Lab	1	0-0-0	100*				40
8	18EC66	Minor Project	2	0-0-0	30		70	28	40
<b>Total</b>			<b>19</b>						

\*Two days Mandatory Workshop on Antenna Design using CST EDA/ Internet of Things by

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Program Elective – II			
Sl#	Domain	Subject Code	Subject Title
1	Communication	18EC641	Satellite Communication
2	VLSI	18EC644	CAD for VLSI



3	Embedded	18EC645	Sensors and Actuators
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Open Elective – II		
Sl#	Subject Code	Subject Title
1	18XX651	Agile software development
2	18XX652	Electric hybrid vehicle
3	18XX653	Power plant engineering
4	18XX654	Data visualization
5	18XX655	Information security
6	18XX656	Web programming

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**VII Semester**

Sl. No	Subject Code	Name of the Subject	Credit	L-T-P	Internal Assessment		End Semester Examinations		Minimum Passing Marks
					Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	18EC71	Operating Systems	3	3-0-0	30		70	28	40
2	18EC72X	Program Elective – III	3	3-0-0	30		70	28	40
3	18EC73X	Program Elective –IV	3	3-0-0	30		70	28	40
4	18XX74X	Open Elective –III	3	3-0-0	30		70	28	40
5	18EC75	Industrial Management and Operation Research	3	3-0-0	30		70	28	40
6	18EC76	Project Work –I	5	0-0-0	100*				40
		<b>Total</b>	<b>20</b>						

	--	03	--	03		03	--	05	<b>20</b>
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<b>Program Elective – III</b>			
<b>Sl#</b>	<b>Domain</b>	<b>Subject Code</b>	<b>Subject Title</b>
<b>1</b>	<b>Communication</b>	<b>18EC721</b>	<b>Wireless and Cellular Communication</b>
<b>2</b>	<b>Signal Processing</b>	<b>18EC722</b>	<b>Statistical Signal Processing</b>
<b>3</b>	<b>Software</b>	<b>18EC723</b>	<b>Cloud Computing</b>
<b>4</b>	<b>VLSI</b>	<b>18EC724</b>	<b>Mixed Signal Design</b>
<b>5</b>	<b>Embedded</b>	<b>18EC725</b>	<b>Arduino and Raspberry pi</b>

<b>Program Elective – IV</b>			
<b>Sl#</b>	<b>Domain</b>	<b>Subject Code</b>	<b>Subject Title</b>
<b>1</b>	<b>Communication</b>	<b>18EC731</b>	<b>Cryptography and Network security</b>
<b>2</b>	<b>Signal Processing</b>	<b>18EC732</b>	<b>Speech and Audio Processing</b>
<b>3</b>	<b>Software</b>	<b>18EC733</b>	<b>An Introduction to Artificial Intelligence</b>
<b>4</b>	<b>VLSI</b>	<b>18EC734</b>	<b>ASIC Design</b>
<b>5</b>	<b>Embedded</b>	<b>18EC735</b>	<b>MSP430 Microcontrollers</b>

<b>Open Elective – III</b>		
<b>Sl#</b>	<b>Subject Code</b>	<b>Subject Title</b>
<b>1</b>	<b>18XX741</b>	<b>Total quality management</b>
<b>2</b>	<b>18XX742</b>	<b>Data structures and algorithms</b>
<b>3</b>	<b>18XX743</b>	<b>Object oriented programming using Java</b>
<b>4</b>	<b>18XX744</b>	<b>Big data analytics</b>
<b>5</b>	<b>18XX745</b>	<b>Server administration</b>
<b>6</b>	<b>18XX746</b>	<b>Introduction to MEMS</b>

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**VIII Semester  
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<b>Program Elective – V</b>			
<b>Sl#</b>	<b>Domain</b>	<b>Subject Code</b>	<b>Subject Title</b>
1	Communication	18EC811	Wireless Sensor Networks
2	Signal Processing	18EC812	Navigation and Remote Sensing
3	Software	18EC813	Linux Shell Script and Perl
4	VLSI	18EC814	Low Power VLSI
5	Embedded	18EC815	Robotics and Automation

<b>Program Elective – VI</b>			
<b>Sl#</b>	<b>Domain</b>	<b>Subject Code</b>	<b>Subject Title</b>
1	Communication	18EC821	Introduction to RADAR Systems
2	Signal Processing	18EC822	Multirate Signal Processing
3	Software	18EC823	Introduction to Machine Learning
4	VLSI	18EC824	System on Chip
5	Embedded	18EC825	Real Time Operating Systems

<b>Open Elective – IV</b>		
<b>Sl#</b>	<b>Subject Code</b>	<b>Subject Title</b>
1	18XX831	Real Time Embedded System Design
2	18XX832	IoT with Arduino and Raspberry pi
3	18XX833	Remote Sensing Applications

<b>Open Elective – V</b>		
<b>Sl#</b>	<b>Subject Code</b>	<b>Subject Title</b>
1	18XX841	Navigation systems
2	18XX842	Electronic testing
3	18XX843	Data Structure and Algorithms