

Basaveshwar Engineering College (Autonomous), Bagalkot

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Scheme of Teaching and Evaluation for B.E Electrical and Electronics Engineering

Academic Year 2021-22

(Students taking admission to B.E in E&EE in 2021-2022)

Total Credits for B.E., 160

Breakdown of Credits as per NEP 2020

Sl.	Course Category	Proposed by		
		AICTE	VTU	BEC(A)
1.	HSMC: HSS, Management courses	12	10	12
2.	BSC: Basic Science Courses (Physics, Chemistry and Mathematics)	25	23	23
3.	ESC: Engineering Science Courses (Basic elect/ electronics/ computer/ mechanics/ workshop/ drawing etc.)	24	20	20
4.	PCC: Professional Core Courses (Fundamental subjects of individual disciplines)	48	43	48
5.	PEC: Professional Elective Courses relevant to chosen branch/specialization	18	14	12
6.	OEC: Open Electives Courses/ Subjects from other technical/ arts/ commerce/ NCC/ NSS & AEC: Ability Enhancement Courses	18	14	6+12=18
7.	Mini and Major projects/ seminar/ summer internships and Research/ Industrial Internships	15	32	25
8.	Mandatory Non-credit Courses (EV, Kan, UHV, Constitution, induction)	No Credits	04	02
Total		160	160	160

Sem	BSC	BEC	HSSM	AEC	PCC	PEC	OEC	Proj.	INT	Seminar	UHV-2	Total
I	7	10	2	1								20
II	7	10	2	1								20
III	3		2	1 (ss-I)	12				2		2	22
IV	3		2	1 (ss-II)+1	15							22
V	3		1	1 (ss-III)	12		3		2			22
VI			3	2 (RM&IPR)	9	3	3	2				22
VII				1		9		8				18
VIII				3 (MOOCS)					10	01		14
Tot.	23	20	12	12	48	12	06	10	14	01	02	160*

First Year B.E in E&EE:

Semester – I:

Sl.	Category	Subject Code	Subject Title	Cr.	Hours/Week			Examination Marks		
					L	T	P	CIE	SEE	Total
1.	BSC		Engineering Mathematics - I	3				50	50	100
2.	BSC		Engineering Physics*	3				50	50	100
3.	ESC		Basic Electrical Engineering**	3				50	50	100
4.	ESC		Basic Electronics Engineering**	3				50	50	100
5.	ESC		Programming with C	3				50	50	100
6.	BSC		Physics Laboratory	1				50	50	100
7.	ESC		C Programming Laboratory	1				50	50	100
8.	HSSM		Technical English – I	2				50	50	100
9.	AEC		Ability Enhancement Course	1				50	50	100
Total				20				450	450	900

Semester – II:

Sl.	Category	Subject Code	Subject Title	Cr	Hours/Week			Examination Marks		
					L	T	P	CIE	SEE	Total
1.	BSC		Engineering Mathematics – II	3				50	50	100
2.	BSC		Engineering Chemistry*	3				50	50	100
3.	ESC		Basic Mechanical Engineering	3				50	50	100
4.	ESC		Basic Civil Engineering	3				50	50	100
5.	ESC		CAED (Integrated Laboratory)	3				50	50	100
6.	BSC		Chemistry Laboratory	1				50	50	100
7.	ESC		Basic Engineering Practice Lab	1				50	50	100
8.	HSSM		Technical English - II	2				50	50	100
9.	AEC		Ability Enhancement Course	1				50	50	100
Total				20				450	450	900

Second Year B.E in E&EE:

Semester – III:

Sl.	Category	Subject Code	Subject Title	Cr	Hours/Week			Exam Marks		
					L	T	P	CIE	SEE	Total
1.	BSC		Mathematics –III*	3	2	2	0	50	50	100
2.	PCC		Network Analysis	3	2	0	2	50	50	100
3.	PCC		Electronic Circuits	3	3	0	0	50	50	100
4.	PCC		Electrical Machines – I	3	3	0	0	50	50	100
5.	PCC		Measurement Laboratory	1	0	0	2	50	50	100
6.	PCC		Electronic Circuits Lab	1	0	0	2	50	50	100
7.	PCC		Electrical Machines – I Lab	1	0	0	2	50	50	100
8.	INT		Summer Internship – I	2				50	50	100
9.	AEC		Soft Skill – I	1	1	0	0	50	50	100
10.	UHV		UHV – 2	2	2	0	0	50	50	100
11.	HSSM		SK/BK or CI	2	2	0	0	50	50	100
Total				22				550	550	1100

Semester – IV:

Sl.	Category	Subject Code	Subject Title	Cr.	Hours/Week			Exam Marks		
					L	T	P	CIE	SEE	Total
1.	BSC		Mathematics – IV*	3	2	2	0	50	50	100
2.	PCC		Power Systems – I [T D & SG]	3	3	0	0	50	50	100
3.	PCC		Power Electronics	3	3	0	0	50	50	100
4.	PCC		Electrical Machines – II	3	3	0	0	50	50	100
5.	PCC		Control Systems	3	2	0	2	50	50	100
6.	PCC		Power System – I Laboratory	1	0	0	2	50	50	100
7.	PCC		Power Electronics Laboratory	1	0	0	2	50	50	100
8.	PCC		Electrical Machines – II Lab	1	0	0	2	50	50	100
9.	AEC		Agri-Tech	1	1	0	0	50	50	100
10.	AEC		Soft Skill - II	1	1	0	0	50	50	100
11.	HSSM		SK/BK or CI	2	2	0	0	50	50	100
Total				22				550	550	1100

Third Year B.E in E&EE:

Semester – V:

Sl.	Category	Subject Code	Subject Title	Cr.	Hours/ Week			Exam Marks		
					L	T	P	CIE	SEE	Total
1.	BSC		Mathematics – V*	3	2	2	0	50	50	100
2.	PCC		Power System - II	3	3	0	0	50	50	100
3.	PCC		Logic Design	3	3	0	0	50	50	100
4.	PCC		Digital Signal Processing	3	3	0	0	50	50	100
5.	OEC		Open Elective Course – I	3	3	0	0	50	50	100
6.	PCC		Logic Design Laboratory	1	0	0	2	50	50	100
7.	PCC		Digital Signal Processing Lab	1	0	0	2	50	50	100
8.	PCC		Auto CAD Electrical Laboratory	1	0	0	2	50	50	100
9.	INT		Summer Internship - II	2				50	50	100
10.	HSSM		Environmental Studies	1	1	0	0	50	50	100
11.	AEC		Soft Skills - III	1	1	0	0	50	50	100
Total				22				550	550	1100

List of Open Elective Subjects – I		
Sl.	Subject Code	Subject Title
1.		MATLAB for Engineers
2.		Renewable Energy Resources
3.		Electric Vehicle

Semester – VI:

Sl.	Category	Subject Code	Subject Title	Cr.	Hours/ Week			Exam Marks		
					L	T	P	CIE	SEE	Total
1.	HSSM		HRM	3	3	0	0	50	50	100
2.	PCC		Power System – III	3	3	0	0	50	50	100
3.	PCC		Embedded Systems	3	3	0	0	50	50	100
4.	PEC		Professional Elective Course – I	3	3	0	0	50	50	100
5.	OEC		Open Elective Course – II	3	3	0	0	50	50	100
6.	PCC		Power System – II Lab	1	0	0	2	50	50	100
7.	PCC		Embedded Systems Laboratory	1	0	0	2	50	50	100
8.	PCC		Advanced Programming Lab	1	0	0	2	50	50	100
9.	AEC		Research Methodology & IPR	2	2	0	0	50	50	100
10	Proj		Mini Project	2	0	0	4	50	50	100
Total				22				500	500	1000

List of Professional Elective Subjects – I (Sem-VI)		
Sl.	Subject Code	Subject Title
1.		Electrical Machine Design
2.		Electrical Engineering Materials
3.		Testing and Commissioning of Electrical Equipment
4.		Micro Electro Mechanical Systems
5.		Advanced Power Electronics
6.		Reactive Power management
7.		SPV based Irrigation Systems

List of Open Elective Subjects – II (Sem-VI)		
Sl.	Subject Code	Subject Title
1.		Energy Conservation in Industrial System
2.		Electrical Safety for Engineers
3.		Energy Storage Systems

Fourth Year B.E in E&EE:

Semester – VII:

Sl.	Category	Subject Code	Subject Title	Cr.	Hours/ Week			Exam Marks		
					L	T	P	CIE	SEE	Total
1.	PEC		Professional Elective Course-II	3	3	0	0	50	50	100
2.	PEC		Professional Elective Course-III	3	3	0	0	50	50	100
3.	OEC		Professional Elective Course-IV	3	3	0	0	50	50	100
5.	Proj		Project Work	8	0	0	16	50	50	100
6.	AEC		Professional Communication	1	1	0	0	50	50	100
Total				18				300	300	600

OR

Semester – VII:

Sl.	Category	Subject Code	Subject Title	Cr.	Hours/ Week			Exam Marks		
					L	T	P	CIE	SEE	Total
1.	AEC		MOOCs*	3	3	0	0			
2.	Seminar		Technical Seminar	1	0	0	2	50	50	100
3.	INT		Research/Industrial Internship	10				100	--	100
Total				14				150	50	200

List of Professional Elective Subjects – II (Sem-VII)		
Sl.	Subject Code	Subject Title
1.		Standards and Indian Electricity Act
2.		Automotive Electronics
3.		Advances in Instrumentation
4.		Power System Operation and Control
5.		Energy Conservation, Audit and DSM
6.		Flexible AC Transmission Systems
7.		HVDC Transmission

List of Professional Elective Subjects – III (Sem-VII)		
Sl.	Subject Code	Subject Title
1.		Electrical Safety in Industrial Plants
2.		AI Applications to Power Systems
3.		Internet of Things
4.		Electric Vehicles
5.		Solar Photovoltaic System Design
6.		Operation Research
7.		Energy conservation in Industrial Systems

List of Professional Elective Subjects – IV (Sem-VII)		
Sl.	Subject Code	Subject Title
1.		Modern Control Theory
2.		Battery Management Systems
3.		Data Base management Systems
4.		Energy Efficient Motors
5.		Electrical Power Utilization and Drives
6.		Fundamentals of Wind Energy Conversion Systems
7.		Smartgrids and Microgrids

Awards at the different levels of study

Sl.	Minimum Credits to be earned	End of Year	Award
1	36	First	Certificate
2	78	Second	Diploma
3	120	Third	Bachelor of Science (Engineering)
4	160	Fourth	Bachelor of Engineering (B.E)
5	178 [160 + 18 (online)]	Fourth	Bachelor of Engineering (B.E honors)
6	178 [160 + 18* (blended)]	Fourth	Bachelor of Engineering (B.E) with major and minor streams

- A student has to earn a minimum of 36 credits for award of Certificate at the end of first year.
- A student has to earn a minimum of 78 credits for award of Diploma at the end of second year.
- A student has to earn a minimum of 120 credits for award of Bachelor of Science (Engineering) at the end of third year.
- A student has to earn a minimum of 160 credits for award of Bachelor of Engineering (B.E) at the end of fourth year.
- A student has to earn a minimum of 178 [160 + 18 (online)] credits for award of Bachelor of Engineering (B.E honors) at the end of fourth year.
- A student has to earn a minimum of 178 [160 + 18* (blended)] credits for award of Bachelor of Engineering (B.E) with major and minor streams at the end of fourth year.