

# Basaveshwar Engineering College (Autonomous), Bagalkot

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

*Scheme of Teaching and Evaluation for B.E Electrical and Electronics Engineering  
based on Joint Board Meeting held on 09.05.2020 and 22.05.2021*

**2020-21 (admitted batch), 2021-22 (sem 3&4), 2022-23 (sem 5&6), 2023-24 (sem 7&8)**

Total Credits for BE =175 (as per VTU/AICTE); Min Cr/sem=16; Max Cr/sem=28; Ave=22

### Breakdown of Credits suggested by the VTU Belagavi/ AICTE New Delhi

Sl.	Undergraduate Programme		Current Credits	% allotted by EE	% range as per VTU
1	HSS + Soft skills + UHV-2 + Kannada + English [2X3+1x3+0+1+1]		11	06.3	5-10
2	Basic Sciences		25	14.3	10-20
3	Engg. Sciences		20	11.4	10-20
4	Professional Core Courses Advanced C Programming Lab – 2 credits (Mandatory at VI sem, common for circuit branches)		69	39.4	30-40
5	Dept. Electives		18	10.3	10-15
6	Open Elective at V, VI & VII (3+3+3)		9	05.1	5-10
7	Online course (3)		3	01.7	
8	Mini project (VI)	2	20	11.4	10-15
	Internship (Min 6 weeks from IV-VI), Registration & Evaluation in -VII)	2			
	Seminar (VII)	1			
	Project (VIII)	15			
<b>Total</b>			<b>175</b>	<b>100</b>	<b>100</b>

### First Year Course

Subject	Credits	Contact hours
Basic Electrical Engineering	2 (L)+1 (T)	Lectures 2 Hours/week + Tutorial 2 Hours/week

### Semester Wise Credit Distribution for Semester-III to VIII

Particulars	Semesters						Total	% of total credits	% range as per VTU
	III	IV	V	VI	VII	VIII			
Core + Lab	16+3	16+3	12+3	6+2+2	6+2	--	71	39.4	30-40
Dept. Electives	--	--	3	3	3	3+3+3	18	10.3	10-15
Open Electives	--	--	3	3	3	--	9	05.1	05-10
Online Course	--	--	--	--	3	--	3	01.7	
Mini Project	--	--	--	2	--	--	2	18	11.0
Internship	--	--	--	--	2	--	2		
Technical Seminar	--	--	--	--	1	--	1		
Project	--	--	--	--	--	13	13		
HSS + Soft Skills	--	1	1	3+1	3	--	9	05.7	5-10
UHV-2 (Mandatory)	--	--	--	--	--	--	---		
Kannada (HSS)		1					1		
Maths	3	3	--	--	--	--	6		
<b>Total</b>	<b>22</b>	<b>24</b>	<b>22</b>	<b>22</b>	<b>23</b>	<b>22</b>	<b>135</b>		

\* additional online course (student's choice)

**Semester-I Physics Group****(Common to branches EE, EC EI, CS, IS & AI )**

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UMA161C	Engineering Mathematics -I	4.0	3	2	0	50	50	100
02	UPH162C	Engineering Physics	4.0	3	2	0	50	50	100
03	UEE164C	Basic Electrical Engineering	3.0	2	2	0	50	50	100
04	UCS165C	Programming with C	3.0	3	-	0	50	50	100
05	UEC169C	Basic Electronics	3.0	2	2	0	50	50	100
06	UPH166L	Engineering Physics Laboratory	1.5	0	0	3	50	50	100
07	UCS167L	C Programming Laboratory	1.5	0	0	3	50	50	100
08	UHS126M	Constitution of India*	0	2	0	0	50	50	100
Total			20	15	8	6	400	400	800

**Semester-II Chemistry Group****(Common to branches EE, EC EI, CS, IS & AI )**

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UMA261C	Engineering Mathematics -I	4.0	3	2	0	50	50	100
02	UME263C	Elements of Mechanical Engineering	3.0	2	2	0	50	50	100
03	UCH268C	Engineering Chemistry	4.0	3	2	0	50	50	100
04	UCV270C	Engineering Mechanics	3.0	2	2	0	50	50	100
05	UCH272L	Engineering Chemistry Laboratory	1.5	0	0	3	50	50	100
06	UME275L	Computer Aided Engineering Graphics	2.0	0	0	4	50	50	100
07	UBE176L	Basic Engineering Laboratory	1.5	0	0	4	100	-	100
08	UHS177C	English for Engineers	1.0	2	0	0	50	50	100
09	UBT233M	Environmental Studies*	0	2	0	0	50	50	100
Total			20	14	08	11	500	400	900

## Semester-3

CAY 2021-22 (175 Credits 2020-21 admitted batch)

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UMA391C	Numerical Techniques and Integral Transforms	3	3	0	0	50	50	100
02	UEE351C	Analog and Digital Electronics	4	4	0	0	50	50	100
03	UEE352C	Network Analysis	4	3	2	0	50	50	100
04	UEE353C	Electrical and Electronics Measurements	4	4	0	0	50	50	100
05	UEE354C	Transformers and Induction Machines	4	4	0	0	50	50	100
06	UEE355L	Transformers and Induction Machines Laboratory	1	0	0	2	50	50	100
07	UEE356L	Electrical & Electronic Measurement Laboratory	1	0	0	2	50	50	100
08	UEE357L	Network Analysis Laboratory	1	0	0	2	50	50	100
09	UMA330M	Bridge Course Mathematics-I*	0	3	0	0	50	50	100
10	UBT133M	Environmental Studies**	0	2	0	0	50	50	100
Total			22	23	02	06	550	550	1100

*Bridge Course Mathematics-I	:	is a mandatory subject only for students admitted to 3 <sup>rd</sup> Semester through lateral entry scheme (Diploma quota). Passing the subject is compulsory, however marks will not be considered for awarding grade/class. A PP/NP grade will be awarded for passing/not passing the subject.
**Environmental Studies	:	is a mandatory subject for lateral entry students. Question Paper will be of Objective type. Students have to pass the subject compulsorily, however marks will not be considered for awarding Grade / Class / Rank.

## Semester-4

CAY 2021-22 (175 Credits 2020-21 admitted batch)

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UMA491C	Statistics and Probability distribution	3	3	0	0	50	50	100
02	UEE451C	Signals and Systems	4	3	2	0	50	50	100
03	UEE452C	Power Electronics	4	4	0	0	50	50	100
04	UEE453C	Operational Amplifiers and Linear IC's	4	4	0	0	50	50	100
05	UEE454C	DC Machines and Synchronous Machines	4	4	0	0	50	50	100
06	UEE456L	Power Electronics Laboratory	1	0	0	2	50	50	100
07	UEE457L	DC Machines and Synchronous Machines Laboratory	1	0	0	2	50	50	100
08	UEE458L	Linear IC's Laboratory	1	0	0	2	50	50	100
09	UHS001N	Fundamentals of Quantitative Aptitude & Soft Skills	1	2	0	0	50	50	100
10	UHS488C	Saamskrutika Kannada***	1	2	0	0	50	50	50
		OR							
10	UHS489C	Balake Kannada***	1	2	0	0	50	50	50
11	UMA430M	Bridge Course Mathematics-II*	0	3	0	0	50	50	100
12	UHS226M	Constitution of India**	0	2	0	0	50	50	100
13	UHS004M	Universal Human Values-II	0	3	0	0	50	50	100
Total			24	27	04	06	650	650	1300

*Bridge Course Mathematics –II	:	is a mandatory subject only for students admitted to 4 <sup>th</sup> Semester through lateral entry scheme (Diploma quota). Passing the subject is compulsory, however marks will not be considered for awarding grade /class. A PP/NP grade will be awarded for passing/not passing the subject.
**Constitution of India	:	is a mandatory subject for lateral entry students. Question Paper will be of Objective type. Students have to pass the subject compulsorily, however marks will not be considered for awarding Grade / Class /Rank.
***Saamskrutika Kannada	:	Is for students who speak read and write kannada
***Balake Kannada	:	Is for non-kannada speaking reading and writing

**Semester-5****CAY 2022-23 (175 Credits 2020-21 admitted batch)**

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UEE551C	Field Theory	3	2	2	0	50	50	100
02	UEE552C	Digital Signal Processing	3	2	2	0	50	50	100
03	UEE553C	Control Systems	3	2	2	0	50	50	100
04	UEE554C	Generation Transmission and Distribution	3	3	0	0	50	50	100
05	UEE5XXE	Dept. Elective – 1	3	3	0	0	50	50	100
06	UEE5XXN	Open Elective – 1	3	3	0	0	50	50	100
07	UEE561L	Digital Signal Processing Laboratory	1	0	0	2	50	50	100
08	UEE562L	Control System Laboratory	1	0	0	2	50	50	100
09	UEE563L	Analog and Digital Laboratory	1	0	0	2	50	50	100
10	UHS002N	Advanced Quantitative Aptitude and Soft Skills	1	2	0	0	50	50	100
<b>Total</b>			<b>22</b>	<b>20</b>	<b>00</b>	<b>06</b>	<b>500</b>	<b>500</b>	<b>1000</b>

**List of Elective Subjects**

Fundamentals of Solar Thermal ECS	Electrical Engineering Materials
Electrical Machine Design	Electrical Engineering Materials
Testing and Commissioning of Electrical Equipment	Micro Electro Mechanical Systems
Advanced Power Electronics	Reactive Power management
Fundamentals of Solar Thermal ECS	

**List of Open Electives Subjects @ 5<sup>th</sup> Sem**

Renewable Energy Resources	MATLAB for Engineers
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**Semester-6****CAY 2022-23 (175 Credits 2020-21 admitted batch)**

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UEE651C	Power System Analysis and Stability	3	2	2	0	50	50	100
02	UEE652C	Microcontrollers	3	3	0	0	50	50	100
03	UEE653H	Management and Entrepreneurship	3	3	0	0	50	50	100
04	UEE6XXE	Dept. Elective – 2	3	3	0	0	50	50	100
05	UEE6XXN	Open Elective – 2	3	3	0	0	50	50	100
06	UEE661L	Microcontrollers & IoT Laboratory	1	0	0	2	50	50	100
07	UEE662L	Electrical Auto CAD Laboratory	1	0	0	2	50	50	100
08	UEE665P	Mini Project	2	0	0	4	50	50	100
09	UCS659L	Advanced C P Laboratory (mandatory)	2	0	2	2	50	50	100
10	UHS003N	Career Planning and Professional Skills	1	2	0	0	50	50	100
<b>Total</b>			<b>22</b>	<b>20</b>	<b>02</b>	<b>10</b>	<b>550</b>	<b>550</b>	<b>1100</b>

**List of Elective Subjects**

Modern Control Theory	VLSI Design and Applications
Electrical safety in Industrial plants	Battery Management
Electrical Power Utilization and Drives	Energy Efficient Motors
Fundamentals of Wind Energy Conversion Systems	Computer aided electrical drawing

**List of Open Electives Subjects @ 6<sup>th</sup> Sem**

Electric Vehicle	Fundamentals of Wind Energy Conversion Systems
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• Universal Human Values-II	:	is a mandatory subject for all EE students admitted to 6 <sup>th</sup> sem. Students have to pass the subject compulsorily, however marks will not be considered for awarding Grade / Class /Rank. A PP/NP grade will be awarded for passing/not passing the subject.
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**Semester-7****CAY 2023-24 (175 Credits 2020-21 admitted batch)**

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UEE751C	Computer Applications to Power System	3	3	0	0	50	50	100
02	UEE752C	High Voltage, Switchgear and Protection	3	3	0	0	50	50	100
03	UEE753C	Intellectual Property Rights	3	3	0	0	50	50	100
04	UEE7XXE	Department Elective – 3	3	3	0	0	50	50	100
05	UEE7XXN	Open Elective – 3	3	3	0	0	50	50	100
06	UEE761L	Power System Simulation Laboratory	1	0	0	2	50	50	100
07	UEE762L	High Voltage and Relay Laboratory	1	0	0	2	50	50	100
08	UEE764I	Internship*	2	0	0	*	50	50	100
09	UEE765S	Technical Seminar	1	0	0	2	50	50	100
10	UEEXXX	MOOCS online course (4/8/12 weeks)	3	0	0	0	0	0	100
<b>Total</b>			<b>23</b>	<b>15</b>	<b>0</b>	<b>04</b>	<b>400</b>	<b>400</b>	<b>900</b>

\* Working hours will be as per scheduled working hours prescribed by the industry.

**List of Elective Subjects**

Electrical Machine Drives	Operation Research
Solar Photovoltaic System Design	Standards and Indian Electricity Act
Professional Communication and Technical Writing	Autotronics (Automotive Electronics)
AI Applications to Power Systems	Embedded System and PLC

**List of Open Electives Subjects @ 7<sup>th</sup> Sem**

Energy conservation in Industrial Systems	Electrical Safety for Engineers
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**Semester-8****CAY 2023-24 (175 Credits 2020-21 admitted batch)**

Sl.	Sub Code	Subject	C	Hrs/ Week			Exam Marks		
				L	T	P	CIE	SEE	Total
01	UEE8XXE	Dept. Elective – 4	3	3	0	0	50	50	100
02	UEE8XXE	Dept. Elective – 5	3	3	0	0	50	50	100
03	UEE8XXE	Dept. Elective – 6	3	3	0	0	50	50	100
04	UEE871P	Project Work (Industry or Inhouse R&D labs)	13	0	0	26	50	50	100
<b>Total</b>			<b>22</b>	<b>6</b>	<b>0</b>	<b>26</b>	<b>150</b>	<b>150</b>	<b>300</b>

**List of Elective Subjects**

Power System Operation and Control	Speech Signal processing
Power System Dynamics and Stability	Over Voltages in Power Systems
Data Base management Systems	HVDC Transmission
Energy Conservation, Audit and DSM	Advances in Instrumentation
Flexible AC Transmission Systems	Power System Planning
Digital Control Systems	Smart Grids