

Sapthagiri NPS University, BENGALURU-560057.

B.E. in Electrical and Electronics Engineering; Scheme of Teaching and Examinations 2024 batch
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2024-25)

SN	Course Type	CT	I	II	III	IV	V	VI	VII	VIII	Total Credits	No of courses
1	Basic Sciences	BS	4	7	3	3	-	-	-	-	17	5
2	Engineering Science Course	ES	15	13	-	-	-	-	-	-	28	8
3	Professional Core Course	PC	-	-	20	16	14	13	-	-	63	19
4	Professional Elective Course	PE	-	-	-	3	6	6	-	-	15	5
5	Open Elective	OE	-	-	-	-	-	-	6	-	6	2
6	Project Work/Mini Project	PW	-	-	-	-	-	2	3	9	14	3
7	Internship / Technical Seminar	IS	-	-	-	-	-	-	3	-	3	2
8	Humanities, Social Science & Management Course	HS	3	-	-	-	3	3	-	-	9	5
9	Ability Enhancement Course - Skill Development	AE	-	2	1	1	-	-	-	-	4	4
10	UHV Course	UV	-	-	1	1	1	-	-	-	3	3
11	Mandatory Course - non credit	NC	-	-	-	-	y	y	-	-	0	2
	Total		22	22	25	24	24	24	12	9	162	58

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I Semester E Cycle

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P					
1.	HS	24BEELY101A/ 24BEELY101B	Kannada Samskruthi/ Kali Kannada	TD: KANNADA PSB: KANNADA	1	0	0	01	50	50	100	1
2.	BS	24BEELY102	Linear Algebra and Calculus	TD: MATHS PSB: MATHS	3	0	2	03	50	50	100	4
3.	HS	24BEELY103	Environmental Science and Engineering	TD: CIVIL PSB: CIVIL	1	0	0	03	50	50	100	1
4.	ES	24BEELY104	Basics of Electrical and Electronics Engineering	TD: ECE PSB: ECE	3	0	2	03	50	50	100	4
5.	ES	24BEELY105	Problem Solving Using C	TD: CSE-AIML PSB: CSE-AIML	3	0	2	03	50	50	100	4
6.	ES	24BEELY106	Fundamentals of Data Structure	TD: CSE-AIML PSB: CSE-AIML	3	0	2	03	50	50	100	4
7.	ES	24BEELY107	Fundamentals of Data Science	TD: CSE-AIML PSB: CSE-AIML	3	0	0	03	50	50	100	3
8.	HS	24BEELY108	Indian Constitution	TD: CSE-AIML PSB: CSE-AIML	1	0	0	01	50	50	100	1
Total								400	400	800	22	

HS: Humanities, Social Science & Management Course, **BS:** Basic Sciences, **ES:** Engineering Science Course, **PC:** Professional Course, **UV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AE:** Ability Enhancement Course, **PW:** Project Work/Mini Project, **OE:** Open Elective, **IS:** Internship / Technical Seminar, **NC:** Non-Credit, **PE:** Professional Elective Course, **L:** Lecture, **T:** Tutorial, **P:** Practical, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

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I Semester P Cycle

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	AE	24BEPHY101	Professional Communication-I	TD: ENGLISH PSB: ENGLISH	1	0	0	01	50	50	100	1
2.	BS	24BEPHY102	Linear Algebra and Calculus	TD: MATHS PSB: MATHS	3	0	2	03	50	50	100	4
3.	BS	24BEPHY103	Engineering Physics	TD: PHYSICS PSB: PHYSICS	2	0	2	03	50	50	100	3
4.	ES	24BEPHY104	Problem Solving Using C	TD: CSE-AIML PSB: CSE-AIML	3	0	2	03	50	50	100	4
5.	ES	24BEPHY105	Computer Organization and Architecture	TD: CSE-AIML PSB: CSE-AIML	3	0	0	03	50	50	100	3
6.	ES	24BEPHY106	Fundamentals of AI& ML	TD: CSE-AIML PSB: CSE-AIML	3	0	0	03	50	50	100	3
7.	ES	24BEPHY107	Computer Aided Engineering and Graphics	TD: MECH PSB: MECH	2	0	2	03	50	50	100	3
8.	AE	24BEPHY108	Intellectual Property Rights (IPR)	TD: CSE-AIML PSB: CSE-AIML	1	0	0	01	50	50	100	1
Total								400	400	800	22	

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II Semester P Cycle

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1.	AE	24BEPHY201	Professional Communication-I	TD: ENGLISH PSB: ENGLISH	1	0	0	01	50	50	100	1
2.	BS	24BEPHY202	Computational Mathematics	TD: MATHS PSB: MATHS	3	0	2	03	50	50	100	4
3.	BS	24BEPHY203	Engineering Physics	TD: PHYSICS PSB: PHYSICS	2	0	2	03	50	50	100	3
4.	ES	24BEPHY204	Problem Solving Using Python	TD: CSE-AIIML PSB: CSE-AIIML	3	0	2	03	50	50	100	4
5.	ES	24BEPHY205	Computer Organization and Architecture	TD: CSE-AIIML PSB: CSE-AIIML	3	0	0	03	50	50	100	3
6.	ES	24BEPHY206	Fundamentals of AI & ML	TD: CSE-AIIML PSB: CSE-AIIML	3	0	0	03	50	50	100	3
7.	ES	24BEPHY207	Computer Aided Engineering and Graphics	TD: MECH PSB: MECH	2	0	2	03	50	50	100	3
8.	AE	24BEPHY208	Intellectual Property Rights (IPR)	TD: CSE-AIIML PSB: CSE-AIIML	1	0	0	01	50	50	100	1
Total								400	400	800	22	

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II Semester E Cycle

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	HS	24BEELY201A/ 24BEELY201B	Kannada Samskruthi/ Kali Kannada	TD: KANNADA PSB: KANNADA	1	0	0	01	50	50	100	1
2.	BS	24BEELY202	Computational Mathematics	TD: MATHS PSB: MATHS	3	0	2	03	50	50	100	4
3.	HS	24BEELY203	Environmental Science and Engineering	TD: CIVIL PSB: CIVIL	1	0	0	03	50	50	100	1
4.	ES	24BEELY204	Basics of Electrical and Electronics Engineering	TD: ECE PSB: ECE	3	0	2	03	50	50	100	4
5.	ES	24BEELY205	Problem Solving Using Python	TD: CSE-AIML PSB: CSE-AIML	3	0	2	03	50	50	100	4
6.	ES	24BEELY206	Fundamentals of Data Structure	TD: CSE-AIML PSB: CSE-AIML	3	0	2	03	50	50	100	4
7.	ES	24BEELY207	Fundamentals of Data Science	TD: CSE-AIML PSB: CSE-AIML	3	0	0	03	50	50	100	3
8.	HS	24BEELY208	Indian Constitution	TD: CSE-AIML PSB: CSE-AIML	1	0	0	01	50	50	100	1
Total								400	400	800	22	

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III SEMESTER

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	BS	24BEEEE301	Vector Calculus, Transform Techniques and Fourier Series	TD: Maths PSB: Maths	3	0	0	03	50	50	100	3
2.	PC	24BEEEE302	Electric Circuit Analysis	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
3.	PC	24BEEEE303	Analog Electronics circuits	TD: EEE PSB: EEE	3	0	2	03	50	50	100	4
4.	PC	24BEEEE304	Transformers and Generators	TD: EEE PSB: EEE	3	0	2	03	50	50	100	4
5.	PC	24BEEEE305	Digital system design	TD: EEE PSB: EEE	2	0	2	03	50	50	100	3
6.	PC	24BEEEE306	Measurements and instrumentation	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
7.	PC	24BEEEE307	Electrical Power Generation	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
8.	AE	24BEEEE308	Cyber Laws and Ethics	TD: CSE PSB: CSE	1	0	0	01	50	50	100	1
9.	UV	24BEEEE309	Out Reach Activity-I	Any Department	0	0	0	01	100	---	100	1
Total								500	400	900	25	
10.	BS	24BEEEE310	Maths-Dip (for Lateral entry)	TD: Maths PSB: Maths	3	0	0	03	50	--	50	-

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IV SEMESTER

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	BS	24BEEEEE401	Numerical Methods, Probability and Statistical Methods	TD: Maths PSB: Maths	3	0	0	03	50	50	100	3
2.	PC	24BEEEEE402	Electric Motors	TD: EEE PSB: EEE	3	0	2	03	50	50	100	4
3.	PC	24BEEEEE403	Control Systems	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
4.	PC	24BEEEEE404	Microcontroller	TD: EEE PSB: EEE	2	0	2	03	50	50	100	3
5.	PC	24BEEEEE405	Transmission and distribution	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
6.	PC	24BEEEEE406	Power Electronics	TD: EEE PSB: EEE	2	0	2	03	50	50	100	3
7.	PE	24BEEEEE41X	Professional Elective-I	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
8.	AE	24BEEEEE407	Life Skills for Engineers	TD: EEE PSB: EEE	1	0	0	01	50	50	100	1
9.	UV	24BEEEEE408	Out Reach Activity-II	Any Department	0	0	0	01	100	---	100	1
Total								500	400	900	24	

Professional Elective 1

24BEEEEE411	Electromagnetic Field Theory	24BEEEEE412	Op Amp & LIC	24BEEEEE413	Sensors and their Application
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V SEMESTER

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	PC	24BEEEE501	Digital Signal Processing	TD: EEE PSB: EEE	3	0	2	03	50	50	100	4
2.	PC	24BEEEE502	Power system Analysis-1	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
3.	PC	24BEEEE503	Fundamentals of Embedded system	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
4.	PC	24BEEEE504	Electrical machine Design & Drawing	TD: EEE PSB: EEE	3	0	2	03	50	50	100	4
5.	PE	24BEEEE52X	Professional Elective-II	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
6.	PE	24BEEEE53X	Professional Elective-III	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
7.	HS	24BEEEE505	Digital Marketing	Any Department	3	0	0	03	50	50	100	3
8.	PW	24BEEEE506	Professional Ethics and Human Values	Any Department	1	0	0	01	50	50	100	1
9.	NC	24BEEEE507	Value Added Program-I	Any Department	0	0	0	01	---	---	---	-
Total								400	400	800	24	

Professional Elective - II

24BEEEE521	Power electronics for Renewable energy sources	24BEEEE522	Fundamentals of VLSI	24BECSE523	Switch mode power conversion
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Professional Elective - III

24BEEEE531	Soft Computing for Electrical Applications	24BEEEE532	Hybrid Energy Technologies	24BEEEE533	Smart System Automation
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VI SEMESTER

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					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	PC	24BEEEE601	High Voltage Engineering	TD: EEE PSB: EEE	2	0	2	03	50	50	100	3
2.	PC	24BEEEE602	Power System Protection	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
3.	PC	24BEEEE603	Power system Analysis -2	TD: EEE PSB: EEE	3	0	2	03	50	50	100	4
4.	PC	24BEEEE604	Electric Vehicles Technologies	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
5.	PE	24BEEEE64X	Professional Elective-IV	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
6.	PE	24BEEEE65X	Professional Elective-V	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
7.	OE	24BEEEE605	Management & Entrepreneurship	Any Department	3	0	0	03	50	50	100	3
8.	PW	24BEEEE606	Mini Project	TD: EEE PSB: EEE	0	0	0	01	50	50	100	2
9.	NC	24BEEEE607	Value Added Program-II	TD: EEE PSB: EEE	0	0	0	01	---	---	---	-
Total								400	400	800	24	

Professional Elective - IV

24BEEEE641	Industrial Drives and Application	24BEEEE642	Smart grid	24BEEEE643	Power System Planning
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Professional Elective - V

24BEEEE651	Electric power utilization	24BEEEE652	Estimation and costing	24BEEEE653	Energy storage system
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VII SEMESTER

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1.	OE	24BEEEE7xx	Open Elective/ MOOC/NPTEL-I	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
2.	OE	24BEEEE7xx	Open Elective/ MOOC/NPTEL-II	TD: EEE PSB: EEE	3	0	0	03	50	50	100	3
3.	IS	24BEEEE703	Summer Internship	-	0	0	4	-	-	100	100	2
4.	IS	24BEEEE704	Technical Seminar	-	-	-	-	-	-	100	100	1
5.	PW	24BEEEE705	Project Phase-I	-	-	-	-	-	-	100	100	3
Total								400	400	800	12	

Open Elective - I

24BEEEE711	Renewable Energy Sources	24BEEEE712	Electric Vehicle Technologies	24BEEEE713	Smart Grid
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Open Elective - II

24BEEEE721	Energy Conservation and Audit	24BEEEE722	Sensors and Automation	24BEEEE723	Energy storage systems
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VIII SEMESTER

SN	Course Type	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1.	PW	24BEEEE801	Project Phase-II		-	-	-		-	-	100	100	9

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