



GLOBAL ACADEMY OF TECHNOLOGY

(An Autonomous Institution, affiliated to VTU, Belagavi, recognized by Karnataka and Approved by AICTE, New Delhi.)

B.E. in Electrical and Electronics Engineering

Scheme of Teaching and Examinations - 2024



III SEMESTER

Sl. No	Course	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	PCC/BSC	BMATE24301	Transform calculus and Special Functions	TD- HS PSB: Maths	3	0	0		03	50	50	100	3
2	IPCC	BEE24302	Electrical Machines-I	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
3	IPCC	BEE24303	Analog Electronics Circuits	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
4	PCC	BEE24304	Electric Circuits	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
5	PCCL	BEEL24305	MATLAB Programming	TD: EEE PSB: EEE	0	0	2		03	50	50	100	1
6	ETC/PLC	BEE24306x	ETC/PLC	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
7	UHV	BSCK24307	Social Connect and Responsibility	Any Department	0	0	2		01	100	---	100	1
8	AEC/ SEC	BEE24358x	Ability Enhancement Course/Skill Enhancement Course - III	TD: EEE PSB: EEE	If the course is a Theory				01	50	50	100	1
					1	0	0						
					If a course is a laboratory				02				
					0	0	2						
9	MC	BNSK24359	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK24359	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24359	Yoga	Yoga Teacher									
		BLAK24359	Liberal Arts	Prominent NGO									
Total									550	350	900	20	

PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, MC: Mandatory Course (Non-credit), AEC: Ability Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE:

Semester End Evaluation. K : This letter in the course code indicates common to all the stream of engineering. ESC: Engineering Science Course, ETC: Emerging Technology Course, PLC: Programming Language Course			
Emerging Technology Course/Programming Language Course (ETC/PLC)			
BEE24306A	Digital Logic Design	BEE24306C	Computer Organization & Architecture
BEE24306B	Measurements & Instrumentation	BEE24306D	Electro Magnetic Field Theory
Ability Enhancement Course/Skill Enhancement Course – III			
BEE24358A	Electrical Hardware Lab	BEE24358C	Python Programming for Electrical Applications
BEE24358B	Circuits Lab Using LT SPICE	BEE24358D	Measurement Lab



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IV SEMESTER

Sl. No	Course	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	PCC/BSC	BMATE24401	Probability and Complex Analysis	TD- HS PSB	3	0	0		03	50	50	100	3
2	IPCC	BEE24402	Electrical Machines-II	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
3	PCC	BEE24403	Power System-I	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
4	PCC	BEE24404	Control Systems	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
5	PCCL	BEEL24405	Control Systems Lab	TD: EEE PSB:EEE	0	0	2		03	50	50	100	1
6	ETC/PLC	BEE24406x	ETC /PLC		3	0	0		03	50	50	100	3
7	AEC/ SEC	BEE24457x	Ability Enhancement Course/Skill Enhancement Course- IV	TD and PSB: Concerned department	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is a lab				02				
					0	0	2						
8	BSC	BBOK24407	Biology For Engineers	TD / PSB: BT, CHE,	1	0	0		01	50	50	100	1
9	UHV	BUHK24408	Universal human values course	Any Department	1	0	0		01	50	50	100	1
10	MC	BNSK24459	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK24459	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24459	Yoga	Yoga Teacher									
		BLAK24459	Liberal Arts	Prominent NGO									
Total									550	450	1000	20	

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. K :This letter in the course code indicates common to all the stream of engineering.

Ability Enhancement Course / Skill Enhancement Course – IV

BEE24457A	Digital Logic Design Lab	BEE24457C	Arduino Based Projects
BEE24457B	Data Handling With MS Excel	BEE24457D	Assembly Language Programming

Emerging Technology Course/Programming Language Course (ETC/PLC)

BEE24406A	Data Structures Using C	BEE24406C	Digital Systems Design using Verilog HDL
BEE24406B	Engineering Materials	BEE24406D	Micro Electrical Mechanical Systems (MEMS)



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V SEMESTER

Sl. No	Course	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	HSMC	BEE24501	Engineering Economics and Management (This course must be pertaining to economics and management of the concerned degree program. The course syllabus should have both economics and management topics and the course title should bear the word Management.)	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
2	IPCC	BEE24502	Power Electronics	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
3	PCC	BEE24503	Power Systems-II	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
4	PCCL	BEEL24504	AUTO CAED	TD: EEE PSB: EEE	0	0	2		03	50	50	100	1
5	PEC	BEE24505x	Professional Elective Course I	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
6	AEC/ SEC	BEE24556x	Ability Enhancement Course/Skill Enhancement Course- V	TD: EEE PSB: EEE	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is Lab				02				
					0	0	2						
7	PROJ	BEEP24507	Mini Project	TD: EEE PSB: EEE	0	0	4		03	100	-	100	2
8	AEC	BRMK24557	Research Methodology and IPR	Any Department	2	2	0		03	50	50	100	3
9	MC	BESK24508	Environmental Studies	Civil	1	0	0		01	100	--	100	0
10	MC	BNSK24559	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	--	100	0
		BPEK24559	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24559	Yoga	Yoga Teacher									
		BLAK24559	Liberal Arts	Prominent NGO									
Total									650	350	1000	20	

Professional Elective Course I			
BEE24505A	Embedded Systems	BEE24505C	Utilization of Electrical Power
BEE24505B	OOPS Using C++	BEE24505D	Technologies of Renewable Energy Sources
Ability Enhancement Course / Skill Enhancement Course – V			
BEE24556A	Embedded C Programming	BEE24556C	Project Management with GIT
BEE24556B	Data Visualization using Power BI	BEE24556D	PCB Design



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VI SEMESTER

Sl. No	Course	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	IPCC	BEE24601	Signal Processing	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
2	PCC	BEE24602	Power System-III	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
3	PCC	BEE24603	Industrial Drives & Applications	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
4	PEC	BEE24604x	Professional Elective Course II	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
5	OEC	BEE24605x	Open Elective Course I	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
6	PROJ	BEEP24606	Project Phase I	TD: EEE PSB: EEE	0	0	4		03	100	--	100	2
7	PCCL	BEEL24607	Power System Simulation Lab	TD: EEE PSB: EEE	0	0	2		03	50	50	100	1
8	AEC/SDC	BEE24657x	Ability Enhancement Course/Skill Development Course VI	TD: EEE PSB: EEE	If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If course is offered as a practical				02				
					0	0	2						
9	IKS	BIKS24608	Indian Knowledge System	Any Dept.	1	0	0		01	100	---	100	0
10	MC	BNSK24659	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK24659	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24659	Yoga	Yoga Teacher									
		BLAK24659	Liberal Arts	Prominent NGO									
Total									650	350	1000	20	

Professional Elective Course II			
BEE24604A	Introduction to AI&ML	BEE24604C	VLSI Design
BEE24604B	Micro Grid	BEE24604D	Internet of Things (IoT)
Open Elective Course I			
BEE24605A	Electric Vehicles	BEE24605C	Technologies of Renewable Energy Sources
BEE24605B	Industrial Automation	BEE24605D	Utilization of Electrical Power
Ability Enhancement Course / Skill Enhancement Course-VI			
BEE24657A	Internet of Things (IoT) Lab	BEE24657C	Energy Audit Projects
BEE24657B	Python Programming for ML Application	BEE24657D	Project on Renewable Energy Sources



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VII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course	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	IPCC	BEE24701	Power System-IV	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
2	IPCC	BEE24702	Electric Vehicles	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
3	PCC	BEE24703	Smart Grid	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
4	PEC	BEE24704x	Professional Elective Course / (Online) III	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
5	OEC	BEE24705x	Open Elective Course /(online) II	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
6	PROJ	BEEP24706	Major Project Phase-II	TD: EEE PSB: EEE	0	0	14		03	100	100	200	7
										350	350	700	24

Professional Elective Course III

BEE24704A	Switched Mode Power Converter	BEE24704C	Robotics & Automation
BEE24704B	FACTS & HVDC	BEE24704D	Big DATA Analytics in Power System

Open Elective Course II

BEE24705A	Smart IoT	BEE24705C	Energy Storage System
BEE24705B	Smart Grid Technology	BEE24705D	Energy Auditing

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **OEC:** Open Elective Course **PR:** Project Work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:** Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **PROJ:** Project work

Note: VII and VIII semesters of IV years of the program

- (1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examinations to accommodate research internships/ industry internships after the VI semester.
- (2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether the VII or VIII semesters is completed during the beginning of the IV year or the later part of IV years of the program.



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VIII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course	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	PEC	BEE24801x	Professional Elective (Online Courses) IV	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
2	PEC	BEE24802x	Professional Elective (Online Courses) V	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
3	INT	BEE24803	Internship (Industry/Research) (14 - 20 weeks)	TD: EEE PSB: EEE	0	0	12		03	100	100	200	10
										200	200	400	16

Professional Elective Course (Online courses) IV

BEE24801A	AI Techniques for Electric Vehicles	BEE24801C	Electrical power Quality
BEE24801B	Battery Management Systems	BEE24801D	Soft Computing Techniques

Professional Elective Course (Online courses) V

BEE24802A	Programmable Logic Controllers	BEE24802C	Embedded Systems for EV Application
BEE24802B	Advance Control Systems	BEE24802D	Energy Conservation & Auditing

L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. TD- Teaching Department, PSB: Paper Setting department, OEC: Open Elective Course, PEC: Professional Elective Course. PROJ: Project work, INT: Industry Internship / Research Internship / Rural Internship

Note: VII and VIII semesters of IV years of the program

Swapping Facility

- Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate **research internships/ industry internships/Rural Internship** after the VI semester.
- Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

Elucidation:

At the beginning of IV years of the program i.e., after VI semester, VII semester classwork and VIII semester **Research Internship /Industrial Internship / Rural Internship** shall be permitted to be operated simultaneously by the University so that students have ample opportunity for an internship. In other words, a good percentage of the class shall attend VII semester classwork and a similar percentage of others shall attend to Research Internship or Industrial Internship or Rural Internship.

Research/Industrial /Rural Internship shall be carried out at an Industry, NGO, MSME, Innovation center, Incubation centre, Start-up, centre of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations/institutes.

The mandatory Research internship /Industry internship / Rural Internships for 14 to 20 weeks. The internship shall be considered as a head of passing and shall be considered for the award of a degree. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavor of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industry internship: Is an extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

Rural Internship: Rural development internship is an initiative of Unnat Bharat Abhiyan Cell, RGIT in association with AICTE to involve students of all departments studying in different academic years for exploring various opportunities in techno-social fields, to connect and work with Rural India for their upliftment.

The faculty coordinator or mentor has to monitor the student's internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of the internship.

With the consent of the internal guide and Principal of the Institution, students shall be allowed to carry out the internship at their hometown (**within or outside the state or abroad**), provided favorable facilities are available for the internship and the student remains regularly in contact with the internal guide. **University shall not bear any cost involved in carrying out the internship by students.** However, students can receive any financial assistance extended by the organization.

Professional Elective /Open Elective Course:These are ONLINE courses suggested by the respective Board of Studies. Details of these courses shall be made available for students on the VTU web portal.



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VI SEMESTER(A)

Sl. No	Course	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	IPCC	BEE24601	Internet of Things	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
2	PCC	BEE24602	Power Systems - III	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
3	PCC	BEE24603	Signal Processing	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
4	PEC	BEE24604x	Professional Elective Course II	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
5	OEC	BEE24605x	Open Elective Course I	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
6	PROJ	BEEP24606	Project Phase I	TD: EEE PSB: EEE	0	0	4		03	100	--	100	2
7	PCCL	BEEL24607	Power Systems Simulation Lab	TD: EEE PSB: EEE	0	0	2		03	50	50	100	1
8	AEC/SDC	BEE24657x	Ability Enhancement Course/Skill Development Course V		If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If course is offered as a practical				02				
					0	0	2						
9	IKS	BIKS24608	Indian Knowledge System	Any Department	1	0	0		01	100	--	100	0
10	MC	BNSK24659	National Service Scheme (NSS)	NSS coordinator	0	0	2	--	---	100	---	100	0
		BPEK24659	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24659	Yoga	Yoga Teacher									
		BLAK24659	Liberal Arts	Prominent NGO									
Total									650	350	1000	20	



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VII and VIII semesters for the candidate those who seek an internship with project work (A)

Sl. No	Course	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	IPCC	BEE24701	Power Systems-I To be completed in 5 th /6 th semester	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
2	IPCC	B2EE4702	Electric Vehicles To be completed in 5 th /6 th semester	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4
3	PCC	BEE24703	Smart Grid To be completed in the 6 th semester	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
4	PEC	BEE24704x	Professional Elective Course/Online III	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
5	OEC	BEE24705x	Open Elective Courses/Online II	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
				TD: EEE PSB: EEE									
1	PEC	BEE24801x	Professional Elective (MOOC Courses) IV	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
2	PEC	BEE24802x	Professional Elective (MOOC Courses) V	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3
3	INT	BEE24803	Internship (Industry/Research) (02 semesters)	TD: EEE PSB: EEE	0	0	12		03	100	100	200	10
4	PROJ	BEEP24804	Major Project II - outcome of training	TD: EEE PSB: EEE	0	0	14		03	100	100	200	7
										550	550	1100	40

Professional Elective Course III			
BEE24714A	Switched Mode Power Converter	BEE24714C	Robotics & Automation
BEE24714B	FACTS & HVDC	BEE24714D	Big DATA Analytics in Power System
Professional Elective Course (Online courses) IV			
BEE24801A	AI Techniques for Electric Vehicles	BEE24801C	Electrical power Quality
BEE24801B	Battery Management System	BEE24801D	Soft Computing Techniques
Professional Elective Course (Online courses) V			
BEE24802A	Programmable Logic Controllers	BEE24802C	Embedded Systems for EV Application
BEE24802B	Advance Control Systems	BEE24802D	Energy Conservation & Auditing
Open Elective Course II			
BEE24755A	Smart IoT	BEE24755C	Energy Storage System
BEE24755B	Smart Grid Technology	BEE24755D	Energy Auditing