



# SCHEME 2021



## I to VIII Semester 2021 Scheme

### Electrical & Electronics Engineering

#### **GLOBAL ACADEMY OF TECHNOLOGY**

(Autonomous institution affiliated to  
VTU, Belagavi.

Accredited by NAAC with 'A' grade,  
NBA Accredited CS, E&C, E&E,  
MECH and

IS branches) Ideal Homes Township,

Department of Electrical and Electronics  
Engineering



# Global Academy of Technology

Ideal Homes Township, RR Nagar, Bengaluru - 98



## VISION OF THE INSTITUTE

Become a premier institution imparting quality education in engineering and management to meet the changing needs of society.

## MISSION OF THE INSTITUTE

- **M1:** Create environment conducive for continuous learning through quality teaching and learning processes supported by modern infrastructure
- **M2:** Promote Research and Innovation through collaboration with industries.
- **M3:** Inculcate ethical values and environmental consciousness through holistic education programs.

*Abhisand*





# Global Academy of Technology

Ideal Homes Township, RR Nagar, Bengaluru - 98



## VISION OF THE DEPARTMENT

To be a foremost education program in the field of Electrical & Electronics Engineering to train the students to face global challenges and succeed in their careers.

## MISSION OF THE DEPARTMENT

- Strengthen learning environment that facilitates quality education in the field of Electrical & Electronics Engineering.
- Enhance the Industry Institute interaction continuously to enable students to work on real-time engineering problems.
- Improve the quality of value-added programs to enhance the technical and intellectual capabilities of students ensuring their success in competitive examinations for higher studies, employment, and research.

*Abhisand*





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## Program Educational Objectives

After successful completion of Electrical & Electronics Engineering program, the graduates will be able to:

1. **PEO1:** Engage in the design of systems and applications in the field of Electrical and Electronics Engineering and allied Engineering Industries.
2. **PEO2:** Apply the knowledge of Electrical and Electronics Engineering to solve problems of societal relevance.
3. **PEO3:** Engage in life-long learning through continued education, professional practices and technical training and/or higher education and research.
4. **PEO4:** Exhibit increasing levels of leadership and commitment to professional ethics and social awareness in their professional careers.

## Program Specific Outcomes

**Graduates in Electrical & Electronics Engineering will be able to:**

**PSO1:** Design DC machines, transformers, and dynamic AC machines for given specifications.

**PSO2:** Understand generation, transmission, distribution, and utilization of electric power.

**PSO3:** Design analog and digital electronic circuits and controller for operation and maintenance of electrical systems.

*Abhisand*



**GLOBAL ACADEMY OF TECHNOLOGY (Autonomous Institution Under VTU)**  
Scheme of Teaching and Examination 2021-22 (Effective from the academic year 2021 - 22)

**I SEMESTER B.E. (PHYSICS GROUP)**

Sl. No	Course and Course Code		Course title	Offering Department	Teaching Department	Teaching Hours / Week			Examination			Credits
						Theory Lecture	Tutorial	Practical / Drawing	CIE Marks	SEE Marks	Total Marks	
						L	T	P				
1	BSC	21MAT11	Linear Algebra and Calculus	Mathematics	Mathematics	2	2	--	50	50	100	3
2	BSC	21PHY12	Engineering Physics	Physics	Physics	2	2	-	50	50	100	3
3	ESC	21CSE13	C Programming	CSE	Any	2	2	--	50	50	100	3
4	ESC	21CIV14	Engineering Mechanics	Civil	CV/ME	2	2	--	50	50	100	3
5	ESC	21MEG15	Computer Aided Engineering Drawing	Mechanical	Mechanical	2	--	2	50	50	100	3
6	ESC	21ELN16	Elements of Electronics Engineering	EC	EC	3	-	-	50	50	100	3
7	ESC	21CSCL17	C Programming Laboratory	CSE	Any	--	--	2	50	50	100	1
8	BSC	21PHYL18	Engineering Physics Laboratory	Physics	Physics	-	--	2	50	50	100	1
9	HSMC	21EGH19	Communicative English	Humanities	Any	1	--	--	50	50	100	1
<b>TOTAL</b>						<b>14</b>	<b>08</b>	<b>06</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>21</b>

Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course

*H. R. Rajashekar Swamy*  
Dean Academic

Global Academy of Technology,  
Rajarajeshwarinagar, Bengaluru-98

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**GLOBAL ACADEMY OF TECHNOLOGY (Autonomous Institution Under VTU)**

Scheme of Teaching and Examination 2021-22 (Effective from the academic year 2021 – 22)

**I SEMESTER B.E. (CHEMISTRY GROUP)**

Sl. No	Course and Course Code		Course title	Offering Department	Teaching Department	Teaching Hours / Week			Examination			Credits
						Theory Lecture	Tutorial	Practical / Drawing	CIE Marks	SEE Marks	Total Marks	
						L	T	P				
1	BSC	21MAT11	Linear Algebra and Calculus	Mathematics	Mathematics	2	2	--	50	50	100	3
2	BSC	21CHE12	Engineering Chemistry	Chemistry	Chemistry	2	2	-	50	50	100	3
3	ESC	21CSE13	C Programming	CSE	Any	2	2	--	50	50	100	3
4	ESC	21ELE14	Fundamentals of Electrical Engineering	EEE	EEE	2	2	-	50	50	100	3
5	ESC	21MEE15	Elements of Mechanical Engineering	ME	ME/AE	3	--	--	50	50	100	3
6	ESC	21ELEL16	Fundamentals of Electrical Engineering Laboratory	EEE	EEE	-	--	2	50	50	100	1
7	ESC	21CSCL17	C Programming Laboratory	CSE	Any	--	--	2	50	50	100	1
8	BSC	21CHEL18	Engineering Chemistry Laboratory	Chemistry	Chemistry	-	--	2	50	50	100	1
9	HSMC	21IDT19	Innovation and Design Thinking	Humanities	Any	1	--	--	50	50	100	1
<b>TOTAL</b>						<b>12</b>	<b>08</b>	<b>06</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>19</b>

Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course

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Scheme of Teaching and Examination 2021–22 (Effective from the academic year 2021 – 22)

**II SEMESTER B.E. (PHYSICS GROUP)**

Sl. No	Course and Course Code		Course title	Offering Department	Teaching Department	Teaching Hours / Week			Examination			Credits
						Theory Lecture	Tutorial	Practical / Drawing	CIE Marks	SEE Marks	Total Marks	
						L	T	P				
1	BSC	21MAT21	Differential Equations and Integral Calculus	Mathematics	Mathematics	2	2	--	50	50	100	3
2	BSC	21PHY22	Engineering Physics	Physics	Physics	2	2	-	50	50	100	3
3	ESC	21CSE23	Python Programming	CSE	Any	2	2	--	50	50	100	3
4	ESC	21CIV24	Engineering Mechanics	Civil	CV/ME	2	2	--	50	50	100	3
5	ESC	21MEG25	Computer Aided Engineering Drawing	Mechanical	Mechanical	2	--	2	50	50	100	3
6	ESC	21ELN26	Elements of Electronics Engineering	EC	EC	3	-	-	50	50	100	3
7	ESC	21CSPL27	Python Programming Laboratory	CSE	Any	--	--	2	50	50	100	1
8	BSC	21PHYL28	Engineering Physics Laboratory	Physics	Physics	-	--	2	50	50	100	1
9	HSMC	21EGH29	Communicative English	Humanities	Any	1	--	--	50	50	100	1
<b>TOTAL</b>						<b>14</b>	<b>08</b>	<b>06</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>21</b>

Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSM- Humanity, Social Science and Management course

*(Signature)*

**GLOBAL ACADEMY OF TECHNOLOGY (Autonomous Institution Under VTU)**  
**Scheme of Teaching and Examination 2021–22 (Effective from the academic year 2021 – 22)**

**II SEMESTER B.E. (CHEMISTRY GROUP)**

Sl. No	Course and Course Code		Course title	Offering Department	Teaching Department	Teaching Hours / Week			Examination			Credits
						Theory Lecture	Tutorial	Practical / Drawing	CIE Marks	SEE Marks	Total Marks	
						L	T	P				
1	BSC	21MAT21	Differential Equations and Integral Calculus	Mathematics	Mathematics	2	2	--	50	50	100	3
2	BSC	21CHE22	Engineering Chemistry	Chemistry	Chemistry	2	2	-	50	50	100	3
3	ESC	21CSE23	Python Programming	CSE	Any	2	2	--	50	50	100	3
4	ESC	21ELE24	Fundamentals of Electrical Engineering	EEE	EEE	2	2	-	50	50	100	3
5	ESC	21MEE25	Elements of Mechanical Engineering	ME	ME/AE	3	--	--	50	50	100	3
6	ESC	21ELEL26	Fundamentals of Electrical Engineering Laboratory	EEE	EEE	-	--	2	50	50	100	1
7	ESC	21CSPL27	Python Programming Laboratory	CSE	Any	--	--	2	50	50	100	1
8	HSMC	21CHEL28	Engineering Chemistry Laboratory	Chemistry	Chemistry	-	--	2	50	50	100	1
9	HSMC	21IDT29	Innovation and Design Thinking	Humanities	Any	1	--	--	50	50	100	1
<b>TOTAL</b>						<b>12</b>	<b>08</b>	<b>06</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>19</b>

Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course



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 Scheme of Teaching and Examination 2021-22  
 Department of Electrical and Electronics Engineering

**III SEMESTER**

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	21MAT31D	Transform Calculus and Numerical Methods	BS	MAT	2	2	0	50	50	100	3
2	21EEE32	Electrical Machines - I	IPC	Respective Department	3	0	2	50	50	100	4
3	21EEE33	Analog Electronic Circuits	IPC		3	0	2	50	50	100	4
4	21EEE34	Electrical Circuits	PC		2	2	0	50	50	100	3
5	21EEE35	Electrical & Electronic Measurements	PC		2	2	0	50	50	100	3
7	21KSK36/46	Sanskritika Kannada	HSM	Any Department	1	0	0	50	50	100	1
	21KBK36/46	Balake Kannada									
	<b>OR</b>										
	21CPH36/46	Constitution of India and Professional Ethics									
8	21EEE37X	Ability Enhancement Course - I	PC	Respective Department	1	0	0	50	50	100	1
<b>Total</b>								<b>350</b>	<b>350</b>	<b>700</b>	<b>19</b>

9	21MATDIP31	Additional Mathematics (For Lateral Entry Students)	BS	MAT	2	2	0	100	--	100	0
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<b>Ability Enhancement Course - I</b>	
21EEE371	Data Structures Using C
21EEE372	Circuits Lab using PSPICE
21EEE373	Integrated Circuits Laboratory





**Global Academy of Technology**  
(Autonomous Institution Affiliated to VTU)  
**Draft Scheme of Teaching and Examination 2021-22**  
**Department of Electrical and Electronics Engineering**

**IV SEMESTER**

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	21MAT41D	Complex Variables and Probability	BS	MAT	2	2	0	50	50	100	3
2	21EEE42	Electrical Machines - II	IPC	Respective Department	3	0	2	50	50	100	4
3	21EEE43	Control Systems	IPC		3	0	2	50	50	100	4
4	21EEE44	Power System - I	PC		2	2	0	50	50	100	3
5	21EEE45	Digital Logic Design	PC		2	2	0	50	50	100	3
7	21KSK36/46	Sanskrutika Kannada	HSM	Any Department	1	0	0	50	50	100	1
	21KBK36/46	Balake Kannada									
	<b>OR</b>										
	21CPH36/46	Constitution of India and Professional Ethics									
8	21EEE47X	Ability Enhancement Course - II	PC	Respective Department	0	0	2	50	50	100	1
9	21INT48	Inter/Intra Institutional Internship	INT	Respective Department	0	0	3	100	-	100	2
					<b>Total</b>			<b>450</b>	<b>350</b>	<b>800</b>	<b>21</b>

**Ability Enhancement Course - II**

21EEE471	Digital Circuits Laboratory
21EEE472	SCI Lab of Electrical Machines
21EEE473	SCI Lab for Electrical & Electronics Measurements





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**Draft Scheme of Teaching and Examination 2021-22**  
**Department of Electrical and Electronics Engineering**

**V SEMESTER**

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	21EEE51	Power System - II	PC	Respective Department	2	2	0	50	50	100	3
2	21EEE52	Power Electronics	IPC		3	0	2	50	50	100	4
3	21EEE53	Embedded Systems	IPC		3	0	2	50	50	100	4
4	21EEE54X	Program Elective 1	PEC		3	0	0	50	50	100	3
5	21EEE55	Research Methodology	AEC		3	0	0	50	50	100	3
6	21EEE56X	Ability Enhancement Course – III	AEC		0	0	2	50	50	100	1
7	21CIV57/67	Environmental Science	HSM	Civil	1	0	0	50	50	100	1
	<b>OR</b>										
	21UHV57/67	Universal Human Values	HSM	Any Department							
<b>TOTAL</b>								350	350	700	<b>19</b>

Program Elective 1

Sl. No.	Course Code	Course Title
1	21EEE541	Modern Utilization of Electrical Power
2	21EEE542	Electromagnetic Field theory
3	21EEE543	Digital System Design using Verilog HDL
4	21EEE544	Object oriented programming using C++

<b>Ability Enhancement Course - III</b>	
21EEE561	Computer Aided Electrical Drawing
21EEE562	SCI Lab for Power Electronics
21EEE563	Energy Audit Projects





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**Draft Scheme of Teaching and Examination 2021-22**  
**Department of Electrical and Electronics Engineering**

**VI SEMESTER**

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	21EEE61	Internet of Things & Its Application	PC	Respective Department	3	0	0	50	50	100	3
2	21EEE62	Signal Processing	IPC		3	0	2	50	50	100	4
3	21EEE63	Power System - III	IPC		3	0	2	50	50	100	4
4	21EEE64X	Program Elective 2	PEC		3	0	0	50	50	100	3
5	21EEE65X	Open Elective 1	OEC	Respective Offering Department	3	0	0	50	50	100	3
6	21EEE66X	Ability Enhancement Course – IV	AEC	Respective Department	1	0	0	50	50	100	1
7	21CIV57/67	Environmental Science	HSM	Civil	1	0	0	50	50	100	1
	<b>OR</b>										
	21UHV57/67	Universal Human Values	HSM	Any Department							
8	21MPT68	Mini Project	MP	Respective Department	Two Contact hours per week			50	50	100	2
<b>TOTAL</b>								<b>400</b>	<b>400</b>	<b>800</b>	<b>21</b>

**Program Elective 2**

Sl. No.	Course Code	Course Title
1	21EEE641	FACTS & HVDC
2	21EEE642	Advanced Control Systems
3	21EEE643	VLSI Design
4	21EEE644	Introduction to AI & ML

**Open Elective - I**

Sl. No.	Course Code	Course Title
1	21EEE651	Electrical Vehicles
2	21EEE652	Industrial Automation

**Ability Enhancement Course - IV**

21EEE661	IOT Lab
21EEE662	SCADA Lab
21EEE663	Machine Learning Lab





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**Draft Scheme of Teaching and Examination 2021-22**  
**Department of Electrical and Electronics Engineering**

**VII SEMESTER**

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	21EEE71	Smart Grid	PC	Respective Department	3	0	0	50	50	100	3
2	21EEE72	Power System - IV	IPC		3	0	2	50	50	100	4
3	21EEE73	Electric Vehicles	IPC		3	0	2	50	50	100	4
4	21EEE74X	Program Elective 3	PEC		3	0	0	50	50	100	3
5	21EEE75X	Open Elective 2	OEC	Respective Offering Department	3	0	0	50	50	100	3
6	21EEE76	Project Phase 1	MP	Two Contact hours per week			100	-	100	2	
<b>TOTAL</b>								<b>350</b>	<b>250</b>	<b>600</b>	<b>19</b>

Program Elective 3

Sl. No.	Course Code	Course Title
1	21EEE741	Electric Power Quality
2	21EEE742	Non-Linear Control Systems
3	21EEE743	Robotics & Automation
4	21EEE744	Reliability Engineering

Open Elective - II

Sl. No.	Course Code	Course Title
1	21EEE751	Smart Grid Technology
2	21EEE752	Smart Internet of Things



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 Department of Electrical and Electronics Engineering

**VIII SEMESTER**

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	21EEE81X	Program Elective 4	PEC	Respective Department	3	0	0	50	50	100	3
2	21EEE82X	Program Elective 5	PEC		3	0	0	50	50	100	3
3	21EEE83	Project work phase – II	MP	Two Contact hours per week			100	100	200	12	
4	21EEE84	Technical Seminar	MP	One Contact hours per week			100	--	100	1	
5	21EEE85	Internship	INT	Completed during the intervening period of VI and VII Semester			100	--	100	2	
<b>TOTAL</b>							<b>400</b>	<b>200</b>	<b>600</b>	<b>21</b>	

Program Elective 4

Sl. No.	Course Code	Course Title
1	21EEE811	Micro grids
2	21EEE812	Industrial Drives & Control
3	21EEE813	Micro Electro Mechanical Systems (MEMS)
4	21EEE814	Block Chain Technology

Program Elective 5

Sl. No.	Course Code	Course Title
1	21EEE821	Energy Storage Systems
2	21EEE822	Industrial Servo Control Systems
3	21EEE823	Electrical Energy Conservation & Auditing
4	21EEE824	Big Data Analytics in Power Systems

