

Scheme and Syllabus of UG Autonomous Program – 2022 batch

III SEMESTER

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS	
					L	T	P	CIE	SEE	Total		
1	22MAT31D	Transform Calculus and Numerical Methods	BS	MAT	2	2	0	50	50	100	3	
2	22EEE32	Electrical Machines-I	IPC	Respective Department	3	0	2	50	50	100	4	
3	22EEE33	Analog Electronic Circuits	IPC		3	0	2	50	50	100	4	
4	22EEE34	Electric Circuits	PC		2	2	0	50	50	100	3	
5	22EEE35	Measurements & Transducers	ESC/ETC/PLC		3	0	0	50	50	100	3	
6	22EEE36	Ability Enhancement Course – I (Theory)	AEC		3	0	0	50	50	100	3	
		OR			OR							
		Digital logic Design	AEC		2	0	2	50	50	100	3	
					Total			300	300	600	20	

H. N. Rajeshwar Swamy
Dean Academic
Global Academy of Technology,
Rajarajeshwarinagar, Bengaluru-98



**Scheme and Syllabus
of
UG Autonomous Program – 2022 batch**

IV SEMESTER

Sl. No.	Course Code	Course Title	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			CREDITS
					L	T	P	CIE	SEE	Total	
1	22MAT41D	Complex Variables and Probability	BS	MAT	2	2	0	50	50	100	3
2	22EEE42	Electrical Machines-II	IPC	Respective Department	3	0	2	50	50	100	4
3	22EEE43	Control Systems	IPC		3	0	2	50	50	100	4
4	22EEE44	Power System –I	PC		2	2	0	50	50	100	3
5	22EEE45	Signal and Systems	ESC/ETC/PLC		2	2	0	50	50	100	3
6	22EEE46	Ability Enhancement Course – II (Theory)	AEC		3	0	0	50	50	100	3
		OR			OR						
		Data structures using C	AEC		2	0	2	50	50	100	3
Total								300	300	600	20

H.N. Rajan
Dean Academic
Global Academy of Technology,
Rajarajeshwarinagar, Bengaluru-560011-98





Global Academy of Technology

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

B.E. in EEE Engineering Scheme of Teaching and Examinations 2022

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2023-24)



V SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Board (PSB)	Teaching Hours /Week					Examination				Credits
				Theory	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks		
												L	
1	HSMS 22EEE51	Management & Economics	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3	
2	IPCC 22EEE52	Power Electronics	TD: EEE PSB: EEE	3	0	2		03	50	50	100	4	
3	PCC 22EEE53	Power Systems II	TD: EEE PSB: EEE	3	2	0		03	50	50	100	4	
4	PCCL 22EEE54	Auto CAD	TD: EEE PSB: EEE	0	0	2		03	50	50	100	1	
5	PEC 22EEE55X	Professional Elective - I	TD: EEE PSB: EEE	3	0	0		03	50	50	100	3	
6	PROJ 22EEE56	Mini Project	TD: EEE PSB: EEE	0	0	4		03	100		100	2	
7	AEC 22RMIK57	Research Methodology and IPR	EEE	3	0	0		03	50	50	100	3	
8	MC 22CIVK58	Environmental Studies	TD: CV/Env/Chem PSB: CV	2	0	0		02	50	50	100	2	
9	MC 22NSK59	National Service Scheme (NSS)	NSS coordinator										
		Physical Education (PE) (Sports and Athletics)	Physical Education Director	0	0	2			100		100	0	
		Yoga	Yoga Teacher										
				Total					300	800	22		

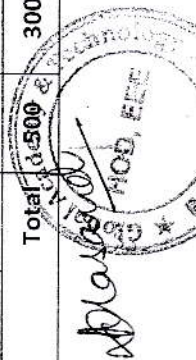
U.P. Rajan Kumar Sheela

H.P. Rajarajeshwar

Dean Academic

Global Academy of Technology,

Rajarajeshwarinagar, Bengaluru 560099



Professional Elective Course - I			
22EE55A	Object Oriented Programming Using C++	22EE55C	Digital System Design Using Verilog HDL
22EE55B	Embedded Systems	22EE55D	Electromagnetic Field Theory
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 : The letter in the course code indicates common to all the stream of engineering. PROJ: Project /Mini Project. PEC: Professional Elective Course.			
Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching-Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23 National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree. Mini-project work: Mini Project is a laboratory-oriented/hands on course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications etc. Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students. CIE procedure for Mini-project: (i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batches mates. (ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project. The CIE marks awarded for the Mini-project, shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates. No SEE component for Mini-Project.			
Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering a professional elective is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.			



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

B.E. in Electrical & Electronics Engineering Scheme of Teaching and Examinations 2022

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2023-24)

VI SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week						Examination				Credits
					Theory Lecture	Tutorial	Practical		Drawing /	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
							T	P							
1	IPCC	22EEE61	Internet of Things and its Applications	TD:EEE PSB:EEE	2	2	2			03	50	50	100	4	
2	PCC	22EEE62	Power Systems III	TD:EEE PSB:EEE	3	2	0			03	50	50	100	4	
3	PEC	22EEE63X	Professional Elective - II	TD:EEE PSB:EEE	3	0	0			03	50	50	100	3	
4	OEC	22EEE64X	Open Elective -I	TD:EEE PSB:EEE	3	0	0			03	50	50	100	3	
5	PROJ	22EEEP65	Major Project Phase - I	TD:EEE PSB:EEE	0	0	4			03	100	--	100	2	
6	PCCL	22EEEL66	Power System Simulation Lab	TD:EEE PSB:EEE	0	0	2			03	50	50	100	1	
7	AEC/ SDC	22EEE67X	Ability Enhancement Course/ Skill Development Course - III	TD & 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										
8	MC	22NSK68 22PEK68 22YOK68	National Service Scheme (NSS) Physical Education (PE) (Sports and Athletics) Yoga	NSS coordinator Physical Education Director Yoga Teacher	0	0	2				100	---	100	0	
9	IKS	22IKSK69	Indian Knowledge System		1	0	0			01	50	50	100	0	
10	MC	22UHV69	Universal Human Values	Any Department	1	0	0			01	50	50	100	0	
Total										600	400	1000	18		

U. P. Rajashekar Swam
1999 Academic

Global Academy of Technology

Rajarajeshwarinagar, Bengaluru-98

Handwritten signature: *Handwritten signature*

Professional Elective Course			
22EEE63A	Artificial Intelligence	22EEE63C	VLSI Design
22EEE63B	Micro grids	22EEE63D	Industrial Drives and its Applications
Open Elective Course			
22EEE64A	Electric Vehicles	22EEE64C	Utilization of Electrical Power
22EEE64B	Industrial Automation	22EEE64D	Technologies of Renewable Energy Sources
Ability Enhancement Course / Skill Enhancement Course - III			
22EEE67A	Embedded Systems Lab	22EEE67C	Energy Audit Project
22EEE67B	Simulation of Control of Power Electronic Circuits	22EEE67D	Project on Renewable Energy Sources
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 : The letter in the course code indicates common to all the stream of engineering. PROJ: Project /Mini Project. PEC: Professional Elective Course. PROJ: Project Phase -I, OEC: Open Elective Course Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching- Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23 National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree. Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.			
Open Elective Courses: Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor. The minimum numbers of students' strength for offering Open Elective Course is 10. However, this condition shall not be applicable to class where the admission to the program is less than 10.			
Project Phase-I : Students have to discuss with the mentor /guide and with their help he/she has to complete the literature survey and prepare the report and finally define the problem statement for the project work.			



Global Academy of Technology

(An Autonomous Institution, affiliated to VTU, Belagavi, recognized by Karnataka and Approved by AICTE, New Delhi.)
B.E. in Electrical & Electronics Engineering Scheme of Teaching and Examinations 2022
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
 (Effective from the academic year 2023-24)



Scheme A- VII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting (PSB)	Teaching Hours /Week					Examination			Credits
				Theory	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	IPCC 22EEE71	Power Systems IV	TD: EEE PSB:	3	0	2		03	50	50	100	4
2	IPCC 22EEE72	Electric Vehicles	TD: PSB:EEE	3	0	2		03	50	50	100	4
3	PCC 22EEE73	Digital Signal Processing	TD: PSB:EEE	3	2	0		03	50	50	100	4
4	PEC 22EEE74X	Professional Elective-III	TD:EEE PSB:EEE	3	0	0		03	50	50	100	3
5	OEC 22EEE75X	Open Elective- II	TD:EEE PSB:EEE	3	0	0		01	50	50	100	3
6	PROJ 22EEEP76	Major Project Phase-II		0	0	12		03	100	100	200	6
Total									400	300	700	24

Professional Elective Course

22EEE74A	Machine Learning	22EEF74C	Switched Mode Power Converter's
22EEE74B	Robotics and Automation	22EEF74D	FACTS & HVDC

Open Elective Course

22EEE75A	Smart Grid Technology	22EEE75C	Smart Internet of Things
22EEE75B	Electrical Energy Conservation and Auditing	22EEE75D	Energy Storage System

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

H.P. Rayachaudhary
 Dean Academic

Global Academy of Technology,

Rajarajeshwarinagar, Bengal - 98



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.

Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

Open Elective Courses: Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor. The minimum numbers of students' strength for offering Open Elective Course is 10. However, this condition shall not be applicable to class where the admission to the program is less than 10.

- PROJECT WORK (21MEP75):** The objective of the Project work is
- (i) To encourage independent learning and the innovative attitude of the students.
 - (ii) To develop interactive attitude, communication skills, organization, time management, and presentation skills.
 - (iii) To impart flexibility and adaptability.
 - (iv) To inspire team working.
 - (v) To expand intellectual capacity, credibility, judgment and intuition.
 - (vi) To adhere to punctuality, setting and meeting deadlines.
 - (vii) To install responsibilities to oneself and others.
 - (viii) To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve ingroup discussion to present and exchange ideas.

CIE procedure for Project Work:

(1) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the project work, shall be based on the evaluation of the project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(2) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

Global Academy of Technology

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

B.E. in Electrical & Electronics Engineering Scheme of Teaching and Examinations 2022

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2023-24)



Scheme A- VIII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week					Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self-Study		Duration in hours	CIE Marks	SEE Marks	Total Marks	
							L	T					
1	PEC 22EEE81X	Professional Elective -IV (Online Courses)	TD: EEE PSB:EEE	3	0	0			03	50	50	100	3
2	OEC 22EEE82X	Open Elective - III (Online Courses)	TD: EEE PSB:EEE	3	0	0			03	50	50	100	3
3	INT 22EEE183	Internship (Industry/Research) (14 - 20 weeks)	TD: EEE	0	0	12			03	100	100	200	10
Total										200	200	400	16

Professional Elective Course (Online Courses)

22EEE81A	Smart Grid	22EEE81C	Image processing
22EEE81B	Electrical Power Quality	22EEE81D	Energy Conservation & Auditing
Open Elective Courses (Online Courses)			
22EEE82A	MOOCs (Online)	22EEE82C	MOOCs (Online)
22EEE82B	MOOCs (Online)	22EEE82D	MOOCs (Online)

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. PR(DI): Project work, INT: Industry Internship / Research Internship / Rural Internship

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

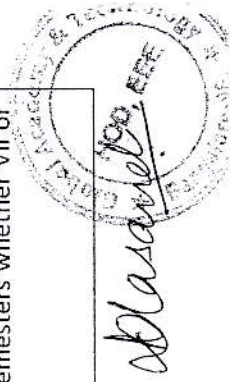
Swapping Facility

- 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:

A. R. Dasgupta
Dean Academic

Global Academy of Technology,
Rajarajeshwari Nagar, Bengaluru-98



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 centre, 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 Internship is 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 flavour 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 of 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.

List of MOOCs Courses

Cyber Security and Privacy	Data Science for Engineers
Sustainable Transportation System	Introduction to Deep Learning
Cloud Computing	Fabrication Techniques for MEMs based sensors
Programming in Java	Introduction to Biomedical Imaging Systems
Enclosure Design of electronics Equipment	Introduction to Industry 4.0 and Industrial Internet of Things
Introduction to Aerospace Engineering	Data Science Using Python

Signature