



SCHEME 2022



I to VIII Semester 2022 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





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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.

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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.

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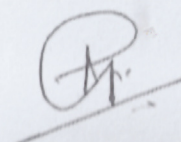


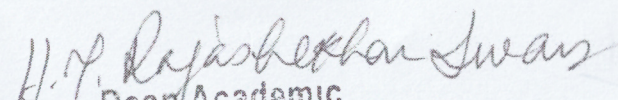
GLOBAL ACADEMY OF TECHNOLOGY (Autonomous Institution Under VTU)
Scheme of Teaching and Examination 2022-23 (Effective from the academic year 2022 - 23)

I SEMESTER B.E. (PHYSICS GROUP) – EEE Stream (ECE/EEE)

| 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 | 22MAT 11 | LINEAR ALGEBRA AND CALCULUS | MAT | MAT | 3 | 2 | 0 | 50 | 50 | 100 | 4 |
| 2 | BSC | 22PHY12 | ENGINEERING PHYSICS (INTEGRATED) | PHY | PHY | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 3 | ESC | 22ELN13 | ELEMENTS OF ELECTRONICS ENGINEERING | ECE | ECE | 2 | 2 | 0 | 50 | 50 | 100 | 3 |
| 4 | ESC-1 | 22CSE14 | C PROGRAMMING (INTEGRATED) | CSE | ANY | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 5 | ETC-1 | 22ECE151/ 22EEE151 | INTRODUCTION TO EMBEDDED SYSTEM/ RENEWABLE ENERGY SOURCES | ECE/EEE | ECE/EEE | 3 | 0 | 0 | 50 | 50 | 100 | 3 |
| 6 | AEC | 22EGH16 | COMMUNICATIVE ENGLISH | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| 7 | HSMC | 22KSK17/ 22KKB17 | Sanskrutika Kannada / Balake Kannada | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| TOTAL | | | | | | 16 | 4 | 4 | 350 | 350 | 700 | 20 |

Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course, AEC – Ability Enhancement Course, ETC – Emerging Technology Course, PLC – Programming Language Course


HEAD OF THE DEPARTMENT
Dept of Science & Humanities
Global Academy of Technology,
Rajarajeshwari Nagar Bengaluru-98.


Dean Academic
Global Academy of Technology,
Rajarajeshwari Nagar, Bengaluru-98

GLOBAL ACADEMY OF TECHNOLOGY (Autonomous Institution Under VTU)
Scheme of Teaching and Examination 2022–23 (Effective from the academic year 2022 – 23)

I SEMESTER B.E. (CHEMISTRY GROUP) – EEE Stream (ECE/EEE)

| 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 | 22MAT 11 | LINEAR ALGEBRA AND CALCULUS | MAT | MAT | 3 | 2 | 0 | 50 | 50 | 100 | 4 |
| 2 | BSC | 22CHE12 | ENGINEERING CHEMISTRY (INTEGRATED) | CHE | CHE | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 3 | ESC | 22MEG13 | COMPUTER AIDED ENGINEERING DRAWING | ME | ME | 2 | 0 | 2 | 50 | 50 | 100 | 3 |
| 4 | ESC-1 | 22ELE14 | FUNDAMENTALS OF ELECTRICAL ENGINEERING | EEE | EEE | 2 | 2 | 0 | 50 | 50 | 100 | 3 |
| 5 | PLC-1 | 22ISE151 | PYTHON PROGRAMMING (INTEGRATED) | ISE | ANY | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 6 | HSMC | 22IDT16 | INNOVATION AND DESIGN THINKING | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| 7 | HSMC | 22CIP17 | CONSTITUION OF INDIA AND PROFESSIONAL ETHICS | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| TOTAL | | | | | | 15 | 4 | 6 | 350 | 350 | 700 | 20 |


Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course, AEC – Ability Enhancement Course, ETC – Emerging Technology Course, PLC – Programming Language Course

GLOBAL ACADEMY OF TECHNOLOGY (Autonomous Institution Under VTU)
Scheme of Teaching and Examination 2022–23 (Effective from the academic year 2022 – 23)

II SEMESTER B.E. (PHYSICS GROUP) – EEE Stream (ECE/EEE)

| 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 | 22MAT 21 | INTEGRAL CALCULUS AND DIFFERENTIAL EQUATION | MAT | MAT | 3 | 2 | 0 | 50 | 50 | 100 | 4 |
| 2 | BSC | 22PHY22 | ENGINEERING PHYSICS (INTEGRATED) | PHY | PHY | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 3 | ESC | 22ELN23 | ELEMENTS OF ELECTRONICS ENGINEERING | ECE | ECE | 2 | 2 | 0 | 50 | 50 | 100 | 3 |
| 4 | ESC-2 | 22CSE24 | C PROGRAMMING (INTEGRATED) | CSE | ANY | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 5 | ETC-2 | 22ECE251/ 22EEE251 | INTRODUCTION TO EMBEDDED SYSTEM/ RENEWABLE ENERGY SOURCES | ECE/EEE | ECE/EEE | 3 | 0 | 0 | 50 | 50 | 100 | 3 |
| 6 | AEC | 22EGH26 | COMMUNICATIVE ENGLISH | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| 7 | HSMC | 22KSK27/ 22KBK27 | Samskrutika Kannada / Balake Kannada | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| TOTAL | | | | | | 16 | 4 | 4 | 350 | 350 | 700 | 20 |

Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course, AEC – Ability Enhancement Course, ETC – Emerging Technology Course, PLC – Programming Language Course



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 Scheme of Teaching and Examination 2022-23 (Effective from the academic year 2022 - 23)

II SEMESTER B.E. (CHEMISTRY GROUP) – EEE Stream (ECE/EEE)

| 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 | 22MAT 21 | INTEGRAL CALCULUS AND DIFFERENTIAL EQUATION | MAT | MAT | 3 | 2 | 0 | 50 | 50 | 100 | 4 |
| 2 | BSC | 22CHE22 | ENGINEERING CHEMISTRY (INTEGRATED) | CHE | CHE | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 3 | ESC | 22MEG23 | COMPUTER AIDED ENGINEERING DRAWING | ME | ME | 2 | 0 | 2 | 50 | 50 | 100 | 3 |
| 4 | ESC-2 | 22ELE24 | FUNDAMENTALS OF ELECTRICAL ENGINEERING | EEE | EEE | 2 | 2 | 0 | 50 | 50 | 100 | 3 |
| 5 | PLC-2 | 22ISE251 | PYTHON PROGRAMMING (INTEGRATED) | ISE | ANY | 3 | 0 | 2 | 50 | 50 | 100 | 4 |
| 6 | HSMC | 22IDT26 | INNOVATION AND DESIGN THINKING | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| 7 | HSMC | 22CIP27 | CONSTITUION OF INDIA AND PROFESSIONAL ETHICS | HUMANITIES | ANY | 1 | 0 | 0 | 50 | 50 | 100 | 1 |
| TOTAL | | | | | | 15 | 4 | 6 | 350 | 350 | 700 | 20 |
| Note: BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanity, Social Science and Management course, AEC – Ability Enhancement Course, ETC – Emerging Technology Course, PLC – Programming Language Course | | | | | | | | | | | | |



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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)



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 |





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(Effective from the academic year 2023-24)



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 | Respective Department | 2 | 2 | 0 | 50 | 50 | 100 | 3 | |
| 2 | 22EEE42 | Electrical Machines-II | IPC | | 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 | | | | | | | | | | |
| | | Data structures using C | AEC | | 2 | 0 | 2 | 50 | 50 | 100 | 3 | |
| Total | | | | | | | | 300 | 300 | 600 | 20 | |

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 Bangalore-98



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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 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 | P | S | | | | | |
| 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 | 22EEEL54 | 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 | 22EEEP56 | 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 | 0 | 0 | 2 | | | 100 | | 100 | 0 |
| | | 22PEK59 | Physical Education (PE) (Sports and Athletics) | Physical Education Director | | | | | | | | | |
| | | 22YOK59 | Yoga | Yoga Teacher | | | | | | | | | |
| Total | | | | | | | | | 550 | 350 | 900 | 22 | |



Professional Elective Course - I

| | | | |
|----------|---------------------------------------|----------|---|
| 22EEE55A | Object Oriented Programming Using C++ | 22EEE55C | Digital System Design Using Verilog HDL |
| 22EEE55B | Embedded Systems | 22EEE55D | 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.





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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 | | |
| | | | | | | | | | | | | | L | |
| 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 Systems 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 | | | | | | | | | |
| | | | | | 0 | 0 | 2 | | | | | | | |
| 8 | MC | 22NSK68 | National Service Scheme (NSS) | NSS coordinator | | | | | | | | | | |
| | | 22PEK68 | Physical Education (PE) (Sports and Athletics) | Physical Education Director | 0 | 0 | 2 | | 100 | --- | 100 | 0 | | |
| | | 22YOK68 | Yoga | Yoga Teacher | | | | | | | | | | |
| 9 | IKS | 22BIKK69 | Indian Knowledge System | | 1 | 0 | 0 | | 01 | 100 | - | 100 | 0 | |
| 10 | MC | 22UHV69 | Universal Human Values | | 1 | 0 | 0 | | 01 | 100 | - | 100 | 0 | |
| Total | | | | | | | | | 700 | 300 | 1000 | 18 | | |



| 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 |
| <p>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</p> | | | |
| <p>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</p> | | | |
| <p>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.</p> | | | |
| <p>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.</p> | | | |
| <p>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.</p> | | | |
| <p>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.</p> | | | |





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(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 Board (PSB) | Teaching Hours /Week | | | | | Examination | | | Credits |
|--------------|------------------------|----------|---------------------------|---|----------------------|----------|---------------------|------------|-------------------|-------------|------------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical / Drawing | Self-Study | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | | | |
| 1 | IPC C | 22EEE71 | Power Systems IV | TD: EEE PSB: | 3 | 0 | 2 | | 03 | 50 | 50 | 100 | 4 |
| 2 | IPC C | 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 | PRO J | 22EEEP76 | Major Project Phase-II | | 0 | 0 | 12 | | 03 | 100 | 100 | 200 | 6 |
| Total | | | | | | | | | 350 | 350 | 700 | 24 | |

Professional Elective Course

| | | | |
|----------|-------------------------|----------|--------------------------------|
| 22EEE74A | Machine Learning | 22EEE74C | Switched Mode Power Converters |
| 22EEE74B | Robotics and Automation | 22EEE74D | FACTS & HVDC |

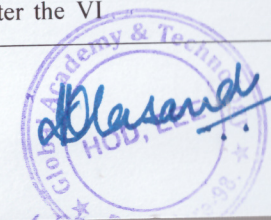
Open Elective Course

| | | | |
|----------|---|----------|--------------------------|
| 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



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 Paper Setting Board (PSB) | Teaching Hours /Week | | | | Examination | | | | Credits |
|--------------|------------------------|----------|--|---|----------------------|----------|---------------------|------------|-------------------|------------|------------|-------------|---------|
| | | | | | Theory Lectur | Tutorial | Practical / Drawing | Self-Study | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | | | |
| 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

| | | | |
|----------|--------------------------|----------|--------------------------------|
| 22EEE81A | Smart Grid | 22EEE81C | Image processing |
| 22EEE81B | Electrical Power Quality | 22EEE81D | Energy Conservation & Auditing |

Open Elective Courses (Online Courses)

| | | | |
|----------|--------------------------------|----------|----------------|
| 22EEE82A | IoT Technology in EV | 22EEE82C | MOOCs (Online) |
| 22EEE82B | Programmable Logic Controllers | 22EEE82D | MOOCs (Online) |

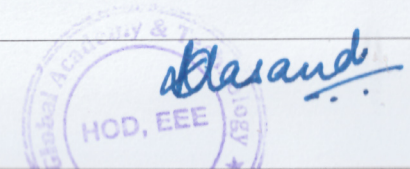
L: Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:**

Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **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 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 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.

