GEPEA (Global Educational & Professional Excellence Academy)



Name of the Program(s): - Diploma in Electrical Engineering (DEE),

Diploma in Electrical and Electronics Engineering (DEEE), Advanced Diploma in Electrical and Electronics Engineering (ADEEE), Certified Electrical and Electronics Engineer (CEEE).

Are you interested in earning your Diploma in Electrical Engineering and Diploma or Advanced Diploma in Electrical and Electronics Engineering Professional degree? (DEE or DEEE, ADEEE) [™] certification, but you're unsure how to start the process? While this is a great step for your individual career, it doesn't have to be a complex one really if you study from GEPEA. This is the ultimate guide on DEE[™] or DEEE[™] or ADEEE[™] or CEEE[™] certification and it can be your easy roadmap for navigating this process. You may explore some common questions you might have about international Diploma or Advanced Diploma Electrical Engineering, Electrical and Electronics Engineering certification holder.

Why Study Electrical and Electronics Engineering?

Electrical and electronic engineers work at the forefront of practical technology, improving the devices and systems we use every day. Electrical engineers make an integral part of the workforce in all manufacturing and processing industries. Their knowledge and command over signal processing, design, communication, as well and also computer skills make them an essential and indispensable part of the organization.

What does an Electrical Engineer do?

An electrical & electronics engineer designs, develops and maintains the electrical, electronics and computer control system to the required specifications, and focusing on economy, reliability, safety, sustainability and quality. More specifically, Electrical engineers design, develop, test, and supervise the manufacture of electrical equipment, such as electric motors, radar and navigation systems, communications systems, or power generation equipment. Electrical engineers also design the electrical systems of automobiles and aircraft etc.





Diploma in Electrical and Electronics Engineering

ELECTRICIAL ENGINEERING OR ELECTRICAL AND ELECTRONICS ENGINEERING TRANINGS Training Hours: 140 hours.

Program Duration: 8 Months for the Diploma Program (Distance Learning) and 1 Year Program for the Advanced Diploma Program Full time students (Distance Learning).

Admission Requirements: A diploma or an associate degree in general science or science (or global equivalent), Secondary degree (high school diploma, associate degree, or the global equivalent).

Other Requirements: Any Science related degree are needed to take this course, but have some extra skills using Computer/laptop and internet, E-mail for communications will help.

Training Delivery: The course duration will comprise 140 hours of self-study home based delivery through Email/online distance learning. The 140 hours will be delivered in 13 to 14 sessions online distance learning based on given course materials.

Skills are one's own asset and skilled manpower is an asset for his own country, s/he even may contribute in the global economy too. ---- GEPEA DIRECTOR.

Syllabus Outline

Serial	Syllabus component	Assignment	Board	MCQ
No.		TMA (Tutor	Questions	(Multiple
		Mark	(OBS =	Choice
		Assignment)	Open	Questions)
		or Case	Book	10
		Study	System)	Questions
		-	Exam.	(each @ 2
				marks)
	13 parts will count 8 hours each (13 parts/courses x 8	45	35	20
	hours study each = 104 hours total + Additional Sub @			
	8 Hours -Total 112 Hours) + Project Exercises Minimum			
	20 hours - Crond Total 140 Hours			
	28 nours = Grand Total 140 Hours.			
1	Diploma in Electrical Engineering (DEE),			
-	Diploma in Electrical and Electronics	140 Hours		
	Engineering (DEEE),	(Time)		
	Advanced Diploma in Electrical and Electronics	(11110)		
	Engineering (ADEEE) Certified Electrical and			
	Electronics Engineer (CEEE)			
		АГ	25	20
	SEIVIESTER -1	45	35	20
	1. Fundamentals of Electrical Engineering:			
	Signals and Systems			
	Analog Signal Processing	9 Cradit		
	Frequency Domain	8 Creuit		
	Digital Signal Processing	Hours Per		
	Information Communication	Subject		
	2. <u>Fundamentals of Electric Circuits:</u>			
	Basic Concepts			
	Basic Laws			
	Circuit Theorems			
	Operational Amplifiers			
	Capacitors and Inductors			
	First-Order Circuits			
	Second-Order Circuits			
	AC Circuits:			
	Sinusoids and Phasors			
	Sinusoidal Steady-State Analysis			
	Three-Phase Circuits			
	Magnetically Coupled Circuits			
	Frequency Response			
	Advanced Circuit Analysis:			
	Introduction to the Laplace Transform			
	Applications of the Laplace Transform			
	The Fourier Series			
	Two-Port Networks			

3 Introduction to Digital Electronics/Digital		
Flectronics - Principles Devices and		
Applications:		
Applications. Number Systems		
Binary Codes		
Digital Arithmetic		
Logic Gates and Related Devices	8 Cradit	
Logic Families		
Boolean Algebra and Simplification Techniques	Hours Per	
Arithmetic Circuits	Subject	
Multiplexers and Demultiplexers		
Programmable Logic Devices		
Flip-Flops and Related Devices		
Data Conversion Circuits – D/A and A/D Converters		
Microprocessors		
Microcontrollers		
Computer Fundamentals		
Troubleshooting Digital Circuits and Test Equipment		
4. Introduction to Microcontrollers:		
Microcontroller Basics		
Microcontroller Components		
Communication Interfaces		
Software		
Hardware		
5. <u>Introduction-to-instrumentation-and-</u>		
measurements:		
Measurement Systems		
Analog Signal Conditioning		
Noise and Conerent Interference in Measurements		
AC Null Measurements		
Survey of Sensor Input Mechanisms		
Applications of Sensors to Physical Measurements		
Basic Electrical Measurements		
Introduction to Digital Signal Conditioning		
6. Signal Conditioning for Transducers:		
Photomultiplier Tube (PMT)		
Pyroelectric Detector		
Piezoelectric Ultrasonic Resonators		
Piezoelectric Accelerometer		
Linear Variable Differential Transformer (LVDT)		
Force-Balanced Pendulous Accelerometer		
Rate Gyro		
Flux Gate		
Low Power Strain Gauge Bridge Signal Conditioning		
SEMESTER -2		
7. <u>Electric Circuit Theory & Technology:</u>		
Basic Electrical Engineering Principles (Only Major Areas will be		
focused)	8 Credit	
Engineering Principles and Technology (Only Major Areas will be	Hours Per	
thought)	Subject	
Advanced Circuit Theory and Technology	1 -	

8. <u>Electric Power System/Basics:</u>

The Physics of Electricity Basic Circuit Analysis Generators Loads Transmission and Distribution Power Flow Analysis System Performance System Operation, Management, and New Technology 8 Credit Hours Per Subject

9. Electrical Machine Drives Control:

Introduction to Electrical Machine Drives Control 1 7 DC and AC Power Electronic Topologies – Modulation for the 13 Other Considerations: The Motor Cable, Voltage Stresses, 2 Aspects Common to All Controlled Electrical Machine Drive Types 17 3 The Fundamentals of Electric Machines 36 4 The Fundamentals of Space-Vector Theory 66 5 Torque and Force Production and Power 91 6 Basic Control Principles for Electric Machines 107 Control of Rotating-Field Motors 147 8 Synchronous Electrical Machine Drives 191 9 Permanent Magnet Synchronous Machine Drives 296 10 Synchronous Reluctance Machine Drives 346 11 Asynchronous Electrical Machine Drives 373 12 Switched Reluctance Machine Drives 449

(Only Major and very important areas from the above will be focused during Distance Mode lecture delivery).

10. Advanced Electronics Digital:

experiment 00001 BINARY NUMBER SYSTEM 1 experiment 00010 BOOLEAN ALGEBRA 9 experiment 0001 1 OSCI LLOSCOPE WAVEFORM MEASUREMENTS 19 experiment 00100 BASIC WAVEFORMS 26 experiment 00101 TRANSISTOR SWITCHING 37 experiment 00110 DESIGN OF THE TRANSISTOR SWITCH 47 experiment 001 1 1 DIODE CLIPPERS 59 experiment 01000 TRANSISTOR CLIPPERS AND CLAMPS 67 experiment 01001 DIODE LOGIC GATES 76 experiment 01010 RESISTOR-TRANSISTOR LOGIC (RTL) CI RCUITS 85 experiment 01011 DI RECT COUPLED TRANSISTOR LOGIC (DCTL) GATES . . 95 experiment 01 100 INHIBITORS 106 experiment 01 101 FUNDAMENTALS OF MULTIVIBRATORS 115 experiment 01 110 BISTABLE MULTIVIBRATORS 121 experiment 01 1 1 1 MULTIVIBRATOR TRIGGER CI RCUITS 127 experiment 10000 INTEGRATED CIRCUIT LOGICAL FLIP-FLOPS 133 experiment 10001 BLOCKI NG OSCI LLATORS 140 experiment 10010 TWO-DIODE STORAGE COUNTER 148 experiment 10011 BASIC COUNTERS 156 experiment 10100 RING COUNTER 165 experiment 10101 SHIFT REGISTERS 172 experiment 10110 DIODE MATRIX CI RCUITS 184 experiment 10111 PARITY CHECKING CI **RCUITS 192 experiment 11000 INTRODUCTION TO DIGITAL TEMPERATURE** CONTROL . 199 experiment 11001 TEMPERATURE CONTROL CLOCK 203 experiment 11010 MANUAL TEMPERATURE CONTROL 210 experiment 11011 **TEMPERATURE CONTROL COUNTERS 215 experiment 11100 AUTOMATIC** TEMPERATURE CONTROL 221 experiment 11101 COMPUTER PROBLEM SOLUTIONS 230 experiment 11110 SUMMARY OF LOGIC OPERATIONS 233 (Only Major and very important areas from the above will be focused during Distance Mode lecture delivery).

11. Communicative English:

Unit I: Listening and Speaking Reading and Writing Study Skills – 1 Grammar in Context: Naming and Describing Unit II: Listening and Speaking Reading and Writing

Study S	kills II:		
Gramm	ar in Context Involving Action-I		
Unit III:			
Listenin	ig and Speaking		
Gramm	ar in Context: Involving Action - II		
Gramm	Ar in context: involving Action – if		
(Only	Wajor and very important dreas from the above will be jocused during		
	Distance Mode lecture delivery).		
	12. Elements of Electrical Machines:		
Module	e I: D.C. Generator, D.C. Motor	8 Credit	
Module	e II: Single phase Transformer, Three Phase Transformer, Three- phase	Hours Dor	
Module	e III: Three-Phase Synchronous Motor	nouis Per	
Module	e IV: Three-Phase Induction Motor, Single-Phase Induction Motor etc.	Subject	
	13. <u>Programmable Logic Controllers:</u>		
Program	nmable logic controllers		
Input-o	utput devices		
Numbe	r systems		
I/U pro	LESSING		
	and renetional block programming and ST programming methods		
Interna	l relays etc.		
	,		
<u>ADDI</u>	FIONAL/OPTIONAL SUBJECTS (Students may choose		
Any o	ne/Two subjects):		
### Co	omputer Hardware And Network Maintenance.	8 Credit	
### Fl	ectrical Machines	Hours Per	
### Sr	pecial Electrical Machines	Cubicct	
### 1 ir	pear Integrated Circuits	Subject	
FOLL	OWING ADDITIONAL TASKS SHOULD HAVE TO DONE		
	BY PARTICIPANTS OR STUDENTS:		
a)	Electrical Engineering, Electrical and Electronics Engineering		
	Certification Test MCQ Questions answer practicing		
b)	Electrical Engineering, Electrical and Electronics Engineering		
	Certification Test Board Questions/TMA (Tutor Mark Assignment)		
c)	Electrical Engineering, Electrical and Electronics Engineering		
	Certification Case Studies		
	Exercises and projects		
. د ام ۱/۱	on Electrical and Electronics Engineering		
video	US ON Electrical and Electronics Engineering:		
1.	what is Electronic & Electrical Engineering?		
2	Electronics Introduction - What is Electronics -		
۷.	Applications of Electronics- Electronics Components		
	https://www.youtube.com/watch?v=AfPZiNM9hsQ&list=PLDp9Jik5WjRu-		
3.	Simple Electronic Circuits You Can Build		
	https://www.youtube.com/watch?v=tAv2b1j3Qz0		
4.	Circuit Basics - The Learning Circuit		
E	https://www.youtube.com/watch?v=iZYedWOERN0		
э.	https://www.voutube.com/watch?v=OEL5laB3hfU		
6.	All electronic components names and symbols		
	https://www.youtube.com/watch?v=vZ1m_kOxEvo		
7.	Operational Amplifier		
8	nttps://www.youtube.com/watch?v=8URcBelu8yA		
0.	https://www.youtube.com/watch?v=nIPguCP_DUs		

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	9. Introduction to Electric Power Systems		
	10. Programable Logic Controller Basics Explained		
	https://www.youtube.com/watch?v=uOtdWHMKhnw		
	11. What are the Applications of the Electronics Electronic Devices		
	and Circuits		
	https://www.youtube.com/watch?v=s3vpH3A_eTA		
	12. NEW Top 2 Electronics Projects 2021-22 LED Chaser and Li-ion		
	Battery Tester <u>https://www.youtube.com/watch?v=xg8nVxb5AgA</u>		
	https://www.voutube.com/watch?v=smsIUgxYJvk		
_		Γ	
	Project/Thesis/Case Studies		
	Student have to take a Project/Thesis/Case studies as per their		
	major subject in order to complete his/her Graduate		
	Diploma/BSC.		
	 In case Project/Thesis, respective students should submit 		
	25 to 45 (A4 Size) pages long report. Course Tutor or		
	Concern Authority will assign/fix Project/Thesis Tonic or		
	Title with consultation with respective student		
	 In Case Studies, respective students should submit case 		
	 In case studies, respective students should subline case studies answer ceript in written form to the CEDEA within 		
	studies answer script in written form to the GEPEA within		
	stipulated time frame. Concern Authority will assign case		
_	studies question paper in time.		
	TOTAL HOURS REQURIED TO BE COMPLETED FOR THE		
	DIPLOMA IN ELECTRICAL ENGINEERING OR		
	ELECTRICAL & ELECTRONICS ENGINEERING= 13 parts		
	will count 8 hours each (13 parts/courses x 8 hours		
	study each = 104 hours total + Additional Sub @ 8		
	Hours =Total 112 Hours) + Project Exercises Minimum		
	28 hours = Grand Total 140 Hours.		



What Do Electrical Engineers Do daily basis?

Daily activities include studying technical manuals, articles, and other publications; designing, testing, and assembling devices; and writing reports and keeping track of

various assignments. Also, Computer skills are a must. Moreover, Electrical engineers are the innovators and designers that create these systems and keep them running smoothly, working on everything from the nation's power grid to the microchips inside our cell phones and smart watches. An electrical engineer applies the physics and mathematics of electricity, electromagnetism, and electronics to design and develop new electrical equipment and systems, to solve problems, and to test equipment. Electrical engineers can work on various projects, from designing household appliances to designing large-scale electrical telecommunication systems, electrical power stations, and satellite communications systems.

What Kind of Jobs Do Electrical Engineers Do?

Today, there are countless industries that rely on electronic components and machines, making the profession of electrical engineering very promising for the future. As a result, electrical engineers can find work in a variety of industries such as: Aerospace, Automotive, Engineering services, Manufacturing, Telecommunications, The federal government, Research and development, Utilities and construction and so on. Also, an electrical & electronics engineer can work with the industries deals in product development, control system, system management, product design, sales, consumer's electronics, transportation, wireless communication, manufacturing, chemical, automotive, defense and space research organizations.

COURSE MATERIAL

Besides using the traditional books GEPEA has also modernized the learning process by providing students with online portal consisting of –

- Study Materials (Soft copies) PDF of books are provided to students making studies nomadic & convenient. GEPEA Department of Students Affairs will assign Study Materials via Email or other methods after registration and admission.
- The focal point of **GEPEA** study materials is enhancing Practical Education. **GEPEA** Kit provided to applicants is a world full of practical scenarios, explanation in terms of facts rather than theoretical phrases. Customized to be self-explanatory & easy to understand.
- **Faculty Guidance** GEPEA panel of intellectuals guide students personally with regards to any query through email about any concept in the notesprovided, being the author of the same.

EXAMINATION

GEPEA Professionals are given the privilege to answer exams from any examination center in the world along with the freedom to pick the exam schedule for the same, as time permits in the particular examination months of GEPEA. Students are allotted 2 modes of examinations – Home Based/Center Based.

- Question papers would be drafted by **GEPEA** panel of veteran professors which would be TMA (Tutor Mark Assignment), OBS (Open Book System) and MCQ study pattern. A single course will consist 100 marks based on these three pattern of exam types. In each program will consist a major (Thesis Research) course or theory in order to complete the respective Diploma Program.
- This unique & novel methodology teaches a student how to assess business situations and make decisions based upon those assessments, allowing students to display their potential.
- In case of home based/distance learning exams question paper would be emailed to the students, which they would have to answer & courier back to GEPEA

office or GEPEA directed authority in therespectable exam slab.

• Candidate also has the option of appearing for Center Based Examination wherein they would have to visit one of the many GEPEA exam centers & complete answering the exam in the duration of 3 hours which wouldn't be an open book examination.

CASE STUDY METHOD & STUDY MATERIAL:

Today communication systems have advanced so much that it is much easier, convenient and quicker to gain expertise via online distance learning. GEPEA offer potential students the opportunity to study through an autonomous online distance learning program. This means that people who can't get traditional further education can still achieve what they want and get their qualifications through Online Distance Learning. That gives the opportunity for a much wider range of people to get the qualifications that they want. Today, thanks to technological advances, higher education is more readily available to those who want it.

GEPEA is an institute of excellence offering widest range of autonomous programmes in the field of Business Management and different Professional Training education. In response to the rapidly changing economic environment and the process of globalization, the Academy has made sustained efforts to bring an international perspective to all its wide range of areas and activities.

BENEFITS AND FETURES:

- (i) Flexible Programs & Curriculum: You can earn and study at the same time! From GEPEA International Curriculum, Flexibility is the biggest advantage of distance learning courses. This stands true especially if you are a working professional. Not everyone has the luxury of taking their own time to finish their studies. For those who had to take a break from studies to start working, such courses are a boon and provide the opportunity to pursue higher education.
- (ii) Saves Time & Energy: You save up a lot of time and energy on commuting. You can stay at any place and pursue a course that is available at GEPEA. Or you might be based out of a remote village or town which does not have enough options for higher studies. Distance learning courses eliminate these obstacles.
- (iii)**MCQ, Case Based Learning:** MCQ, A Case-based approach engages students in discussion of specific situations, typically real-world examples of African, Asian and International companies. Allowing the students to put their theoretical knowledge to practice.
- (iv)**Study at your own Pace**: Not everyone has the same pace of learning. Some students pick up things fast, others need time to grasp a concept. One of the biggest advantages of distance learning is that you can study at a pace that is comfortable for you.
- (v) **Saves Money:** These courses are almost always cheaper as compared to their on-campus counter-parts. You also cut down on the costs incurred while commuting etc.
- (vi)**Personal Fulfillment:** An MBA is the key to unlocking both a professionally and personally rewarding future. Education is the foundation upon which you can build lifelong business and personal achievements. The GEPEA MBA program is designed to enrich your personal life, as well as tokeep you informed about a constantly changing industry.
- (vii)**Convenient:** You can submit your assignment with the click of a button or simply drop it off at a post-office! It's sometimes as simple as that!

- (viii) 24X7 Access to Study Material & fellow Students: This is the best way to study if you are comfortable with internet and technology. You can access your study material online whenever you want and also clear doubts, exchange views and discuss with your virtual class-mates!
- (ix)**Study any Topic You Want:** Since you'd already have all your books/online study material with you, you can pick up any topic/chapter that interests you and tackle that first! This way your interest in the subject is sustained.
- (x) **Higher Level of Self-Confidence:** The knowledge gained through our Correspondence MBA program will enhance your effectiveness in your current position and help define your future career path. It will sharpen your skills in critical business areas, giving you the self-confidence youneed to become a leader in your profession.
- (xi)**Specialization:** We provide more than 80 specializations which allow students to gain additional knowledge and background on specific businesstop.

ACCREDITATIONS AND RECOGNITIONS:

ITQSM Accredited & International Partnered Professional Academies.

GEPEA has proudly claimed the Excellence in Online Distance Learning Award presented by its Governing Body Really Matters as a token of appreciation for providing top notch education to professionals globally. This solely proclaims that GEPEA is one of the best Professional Academy in the field of online distance learning.

PROFESSIONAL FACULTIES:

GEPEA Faculty members are highly professional, qualified & experienced. Professors provide substantial assistance through 24*7 web support. Each & every query regarding studies, assignments, cases, projects, research are resolved on time & responded with clear, relevant answers on par with syllabus. They update themselves from time totime about the changing market scenario & syllabus. Thus working professionals have chance to get resourceful information by interacting with professorsthrough web-support from time to time. Timely communication & assistance is key to our successful association with our students & our professors believe in same.

GEPEA (Global Educational & Professional Excellence Academy)

In case any query, please feel free to contact us via E-Mail: <u>gepea.official@gmail.com</u>, <u>office@gepea.eu</u> or visit Website: <u>www.gepea.eu</u> or <u>www.gepea.education</u>