GEPEA (Global Educational & Professional Excellence Academy)



Name of the Program(s): - Diploma or Advanced Diploma in Automobile Engineering (ADAE) / Diploma or Advanced Diploma in Mechanical Engineering (ADME), Graduate Diploma in Automobile & Mechanical Engineering (GDAME).

Are you interested in earning your Diploma in Automobile Engineering (ADAE) or Mechanical Engineering (ADME) Professional degree? (ADAE or ADME) [™] 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 ADAE[™] or ADME[™] certification and it can be your easy roadmap for navigating this process. You may explore some common questions you might have about international Automobile and Mechanical Engineering certification holder.

Why Choose to Study Mechanical Engineering?

Mechanical engineers design and build solutions to a range of problems, improving efficiency across a wide range of industries. By studying mechanical engineering, you can look forward to good job prospects, high salaries, and varied work. Mechanical engineering skills are transferable, meaning they will be useful across a variety of industries and help you to become more employable. Mechanical engineering is a broad field, which has more impact on people's daily lives than you may realize, from manufacturing the clothes they wear, to building the apps on their phones. You will study a range of interesting subjects during the course of your degree program. This may include:

- **Computer applications** computer technology continues to evolve at an incredible pace, stretching its impact into almost every part of life.
- Electricity study the science behind electricity and how it can further change the world
- Design and manufacture learn how to draw designs digitally and how manufacturing processes work.
- **Robotics and Artificial intelligence** study the mechanics of robotics and the influence that this relatively new technology is having across a number of industries.
- Mathematics and physics having a good grounding in pure mathematics and physics is vital, as they are the basis of all engineering.





What is Automobile Engineering?

Automobile Engineering is the branch of engineering which deals with designing, manufacturing, mechanical mechanisms as well operations of automobiles. It is also an introduction to vehicle engineering which includes cars, motorcycles, trucks and buses etc.

Nowadays, due to the rapid growth of auto component manufacturers and automobile industries, there is a great demand for Automobile Engineers. Automobile Engineering Alias Automotive Engineering or Vehicle Engineering is one of the most challenging careers in the field of engineering with a wide scope. This branch deals with the designing, developing, manufacturing, testing and repairing and servicing automobiles such as cars, trucks, motorcycles, scooters etc. & the related sub Engineering systems. For the perfect blend of manufacturing and designing automobiles, Automobile Engineering uses the features of different elements of Engineering such as mechanical, electrical, electronic, software and safety engineering.

To become a proficient automobile engineer, specialized training is essential and it is a profession, which requires a lot of hard work, dedication, determination and commitment.

AUTOMOBILE, AUTOMOTIVE ENGINEERING OR MECHANICAL ENGINEERING PROFESSIONAL TRANINGS Training Hours: <u>90 hours or 120 hours.</u>

Program Duration: 1.5 Year in Full Time study and 2 years in Part Time Study.

Admission Requirements: For admission in Diploma or Advanced Diploma or Graduate Diploma in Automobile Engineering, Mechanical Engineering candidates who have passed Class 10 or 12th with mathematics or physics are eligible. The candidates must have a minimum of 50% of marks in board exams.

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

Training Delivery: The course duration will comprise 90 hours or 120 hours of self-study home based or lecture based delivery. The 90 or 120 hours will be delivered in 12 to 15 sessions online distance learning based on given course materials.

Syllabus Outline

Serial	Syllabus component	Assignment	Board	MCQ
No	-,	TMA (Tutor	Questions	(Multiple
NO.		Mark	(OBS =	Choice
		Assignment)	Open Book	Questions)
		or Case	Svstem)	10 Questions
		Study	Exam.	(each @ 2
			-	marks)
	15 parts will count 7 hours each (15	45	35	20
	narts/courses x 7 hours study each = 105			
	hours total) - Drojast Evaraisas Minimum 1			
	nours total) + Project Exercises Minimum 15			
	hours = Grand Total 120 Hours. OR			
	12 parts will count 6.5 hours each (12			
	parts/courses x 6.5 hours study each= 78			
	hours total) + Project Exercises Minimum 12			
	hours - Grand Total 90 Hours			
	Diploma or Advanced Diploma in	00 Hours		
1	Automobile Engineering (ADAE) (90 HOUIS		
	Automobile Engineering (ADAE) /	(Time) or		
	Diploma or Advanced Diploma in	120 Hours		
	Mechanical Engineering (ADME),	(Time)		
	Graduate Diploma in Automobile &	. ,		
	Mechanical Engineering (GDAME).			
	SEMESTER -1	Local and	35	20
		Long-Distance		
		Notworks		
	1) Automobile Mechanical and	Networks		
	1) <u>Automobile Mechanical and</u>	Networks		
	1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u>	Networks		
	1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u> Chapter 1 Overview and introduction	Networks		
	1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u> Chapter 1 Overview and introduction Chapter 2 Engine systems	Networks		
	1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u> Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems	Networks		
	1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u> Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems	Networks		
	1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u> Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems Chapter 5 Transmission systems Chapter 6 Learning activities	Networks		
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	 Automobile Mechanical and Electrical Systems: Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems Chapter 5 Transmission systems Chapter 6 Learning activities Automotive Mechanics: Automotive Fundamentals Fuel System Fundamentals Fuel System Operations 	Networks		
	 Automobile Mechanical and Electrical Systems: Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems Chapter 5 Transmission systems Chapter 6 Learning activities Automotive Fundamentals Fuel System Fundamentals Fuel System Operations Automotive Carburetors 	Networks		
	 1) <u>Automobile Mechanical and</u> <u>Electrical Systems:</u> Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems Chapter 5 Transmission systems Chapter 6 Learning activities 2) <u>Automotive Mechanics:</u> Automotive Fundamentals Fuel System Fundamentals Fuel System Operations Automotive Carburetors Fuel Injection and LPF Fuel Systems 	Networks		
	 Automobile Mechanical and Electrical Systems: Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems Chapter 5 Transmission systems Chapter 6 Learning activities Automotive Fundamentals Fuel System Pundamentals Fuel System Operations Automotive Carburetors Fuel Injection and LPF Fuel Systems Diagnosing Fuel System Troubles 	Networks		
	1) Automobile Mechanical and Electrical Systems: Chapter 1 Overview and introduction Chapter 2 Engine systems Chapter 3 Electrical systems Chapter 4 Chassis systems Chapter 5 Transmission systems Chapter 6 Learning activities 2) Automotive Mechanics: Automotive Fundamentals Fuel System Fundamentals Fuel System Operations Automotive Carburetors Fuel Injection and LPF Fuel Systems Diagnosing Fuel System Troubles Fuel System Service	Networks		
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3) <u>Chassis Body and</u>		
Transmission:		
Chassis Frame and Pody		
Stooring System		
Braking System		
Braking System		
Suspension System		
Seat, Door and Window mechanism		
Air Conditioning of Motor Venicles		
Painting of Automobiles		
Automobile Pollution		
Legal aspects of Motor Vehicles		
() Motor Vahiala Structures		
4) <u>Wotor venicle Structures:</u>		
Fundamental vehicle loads and their estimation		
Terminology and overview of vehicle structure types		
Introduction to the simple structural surfaces (SSS)		
method		
Standard sedan (saloon) – baseline load paths		
Alternative construction for body subassemblies and		
model variants		
Structural surfaces and floor grillages		
Application of the SSS method to an existing vehicle		
structure		
Introduction to vehicle structure preliminary design SSS		
method		
Fundamentals and preliminary sizing of sections and		
joints		
5) Automotive Systems		
5) Automotive bystems		
Engineering:		
Part 1: Background and definitions		
Part 2: Requirements Analysis and system Architectures		
Part 3: Functional Safety		
Part 4: Evaluation of perception capabilities		
6) Computer Aided Engineering		
o) Computer Alded Engineering		
<u>Design (CAED Tools):</u>		
Transformations and Projections		
Differential Geometry of Curves		
Design of Surfaces		
Solid Modeling		
Computations for Geometric Design		
Geometric Modeling Using Point Clouds		
Finite Element Method		
Optimization		
7) Vahiolo Dedu Engineering		
∩ venicle body Engineering:		
Car Body Details		
Vehicle Aerodynamics		
Bus Body and Commercial Vehicle Details		
Interior Ergonomics		
Body Materials, Trim and Mechanisms		

SEMESTER -2

8) <u>Mathematical Methods for</u> <u>Physics and Engineering</u>:

Complex numbers and hyperbolic functions Series and limits Partial differentiation Multiple integrals Vector algebra Matrices and vector spaces Line, surface and volume integrals Integral transforms First-order ordinary differential equations Higher-order ordinary differential equations Special functions Applications of complex variables Numerical methods **Representation theory** Probability Statistics

9) Artificial Intelligence (AI):

Overview of AI (Artificial Intelligence) Intelligent Systems Research Areas of AI Agents and Environments Popular Search Algorithms Natural Language Processing Expert Systems Robotics Neural Networks

10) <u>Auto Repair and</u> <u>Maintenance:</u>

Chapter 1: Safety Rules & Introduction to 2 Chapter 2: General Maintenance 15 Chapter 3: Dashboard Indicator Lights 27 Chapter 4: Tires 32 Chapter 5: The Internal Combustion Engine & Engine Oil 43 Chapter 6: Cooling System 46 Chapter 7: Fuel System 49 Chapter 7: Fuel System 49 Chapter 8: Electrical System 52 Chapter 9: Drive Train 56 Chapter 10: Brakes 64 Chapter 11: The Auto Repair Industry 67 **11)** <u>Vehicle Maintenance:</u>

Auto Workshop Layout and Equipments Maintenance Management and Record Keeping Engine Maintenance Chassis and Body Maintenance Service Station Services of Motor Vehicle

12) <u>Tractor and Heavy</u> Machinery:

Tractor types and utilities, Orientation of Heavy Machineries/Describe heavy equipment's mechanical systems, Heavy Equipment's, spare parts list (Common Spare parts lists for all machines), etc.

Orientation of different types Tractors

SEMESTER -3

13) <u>Thermal Engineering &</u> <u>Hydraulic Engineering:</u>

Basic concepts of Thermodynamics, Properties of pure substances, First law of Thermodynamics, Second law of Thermodynamics and Entropy, Thermodynamics relations, Fuels and Combustion, Basic steam power cycles, Steam engine etc.

Hydraulic Engineering: Fluid Statics, Fluid flow concepts and measurements, Flow of incompressible Fluids in pipelines, Pump Pipeline System/network analysis & design, Steady flow in open channels, etc.

ELEMENTARY FLUID MECHANICS, Water pumps, turbines, fluid mechanics etc.

14) Applied Mechanics:

Part-1: Applied Mechanics Theory Basic Concepts Laws of Forces Moments Centre of Gravity and Centroid Moment of Inertia Friction Rectilinear Motion Laws of motion Work, Power and Energy

Part-2: Experiments

15) <u>Service and Garage</u> Equipment:

Wheel Straightening & Lathe Machines 3 - 18 Tyre Changer Machine 19 - 25 Lifts 26 - 30 Jacks and Cranes 31 - 38 Garage Equipments and Tools 39 - 42 Compressors 43 - 44 Work Shop and Brake Shoe Presses 45 - 49 Oil Suction and Drainer 50 – 51 Coil Car 52 Transpallet 53 - 54

<u>Remote Internship</u> or Workshop		
Practice/Exercises and projects /		
Practical Work related Orientation		
during project work		
ODTIONAL SUBJECTS (Any one /Two subjects		
or he chosen for Graduate Diploma students):		
### Eurodomontals of Electrical Engineering		
### Car Maintenance and Car Care Tins		
### Inspect & Service Cooling Systems		
### Automotive Diesel Engines/ Automotive		
Materials and Metallurgy,		
### Automotive Transmission		
### Manufacturing Processes		
### Quality Control and Reliability Engineering.		
a) Automobile or Mechanical Engineering		
Certification Test MCO Questions answer		
practicing		
b) Automobile or Mechanical Engineering or		
Electronics Engineering Test Board		
Questions/TMA (Tutor Mark Assignment)		
c) Automobile or Mechanical Engineering or Electronics Engineering Cose Studies		
Electronics Engineering Case Studies		
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Ducie at /The sais /Case Studies		
Project/Inesis/Case Studies		
Student have to take a Project/Thesis/Case studies as		
Diploma/Advanced Diploma/Graduate Diploma		
In case Project/Thesis, respective students		
should submit 35 to 45 (A4 Size) pages long		
report. Course Tutor or Concern Authority will		
assign/fix Project/Thesis Topic or Title with		
consultation with respective student.		
• In Case Studies, respective students should		
submit case studies answer script in written		
form to the GEPEA within stipulated time		
studies question namer in time		

TOTAL HOURS REQURIED TO BE	
COMPLETED FOR THE	
AUTOMOBILE/TELECOMMUNICATION	
ENGINEERING DIPLOMA OR PROFESSIONAL	
CERTIFICATIONS = 15 parts will count 7 hours	
each (15 parts/courses x 7 hours study each = 105	
hours total) + Project Exercises Minimum 15 hours =	
Grand Total 120 Hours. OR	
12 parts will count 6.5 hours each (12 parts/courses	
x 6.5 hours study each= 78 hours total) + Project	
Exercises Minimum 12 hours = Grand Total 90	
Hours.	

WHY AUTOMOBILES AND MECHANICAL ENGINEERING CAREER?

A Diploma in Automobile Engineering will prepare you for a variety of jobs in the automotive industry, including designing, creating, inspecting, producing, and evaluating automobiles and their components. There are a lot of job opportunities for an automobile engineer in production plants, service stations of automobile companies, automobile manufacturing industries, motor vehicle departments of control, transport companies, insurance company experts, and state transport corporations, etc. Moreover, there are maintenance engineer jobs for the general supervision in factories, automobile industries and supply chain automobiles of various corporations. On the other hand, Mechanical engineers work all over the world, in countless industries: Becoming a mechanical engineer could take you to some interesting places – oil rigs, deserts, the Antarctic, the deep sea. Mechanical engineering qualifications and experience are like having a passport to work in many different industries and countries.

SCOPE OF MECHANICAL AND AUTOMOBILE ENGINEERING IN INTERNATIONAL ARENA?

Depending on your interests and career ambitions, you can choose from a range of engineering sectors, including:

- Aerospace help to design the next generation of planes, rockets and satellites
- Automotive work on everything from Formula 1 cars to buses, from their wheels to how they are fuelled.
- Biomedical improve lives by designing high-tech medical equipment including artificial limbs and pacemakers
- Energy find greener, more efficient alternatives to power industry and homes
- Manufacturing streamline machines and equipment to create the most efficient manufacturing processes possible.

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>