GEPEA (Global Educational & Professional Excellence Academy)

Name of the Program(s): - BSC (Bachelor of Science) in Computer Science Engineering) -BSCCSE,
BSC (Bachelor of Science) in IT (Information Technology)-BSCIT,
Graduate Diploma in ITCSE (Information Technology & Computer Science Engineering) (GDITCSE),
Graduate Diploma in IT (Information Technology), Graduate Diploma in CSE (Computer Science Engineering) (GDCSE).

Are you interested in earning your Information Technology (IT) or Computer Science Engineering (CSE) Professional degree? (IT or CSE) ™ 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 BSCCSE™ or BSCIT™ or GDITCSE™, GDCSE™ certification and it can be your easy roadmap for navigating this process. You may explore some common questions you might have about international IT or CSE certification holder.

What is Information Technology (IT)?

Information Technology (IT) encompasses all of the technology a company uses and how they use it. This includes aspects of hardware, software, cloud computing and storage. Those who work in the IT field find themselves working with all or some of these components and often interact directly with the individuals they're assisting.

What is Computer Science Engineering (CSE)?

Computer science engineering involves more of the happenings behind the hardware, like software and software development. Those in the field work with application creation, database systems, programming languages and computing theory. Their work tends to be more individual in nature.

Moreover, Computer science and information technology (IT) are two distinct subjects, despite their many similarities. Generally, computer science refers to designing and building computers and computer programs. Information technology, on the other hand, refers to maintaining and troubleshooting those computers and their networks, systems, and databases to ensure they run smoothly.

INFORMATION TECHNOLOGY OR COMPUTER SCIENCE ENGINEERING PROFESSIONAL TRANINGS

Training Hours: *90 hours.*

Program Duration: 1 Year (Fast Track) for Diploma holders, 1.50 Year for regular studies or 2 Years max. of part time self-studies (Certifications) under distance learning.

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

Other Requirements: No special requirements or prerequisites 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 of self-study home based or lecture based delivery. The 90 hours will be delivered in 10 sessions online distance learning based on given course materials.

Syllabus Outline

Serial No.	Syllabus component	Assignment **TMA** (Tutor Mark Assignment) or **Case Study**	Board Questions (**OBS** = Open Book System) Exam.	**MCQ** (Multiple Choice Questions) 10 Questions (each @ 2 marks)
	11 parts/Subjects will count 6 hours each (11 courses x 6 hours study each = 66 hours total) + Additional Two Subjects @ 12 hours + Project Exercises Minimum 12 hours **= Grand Total 90 Hours.**	**45**	**35**	**20**
1	**BSC (Bachelor of Science) in Computer Science Engineering) -BSCCSE, BSC (Bachelor of Science) in IT (Information Technology)-BSCIT, Graduate Diploma in ITCSE (Information Technology & Computer Science Engineering) (GDITCSE), Graduate Diploma in IT (Information Technology), Graduate Diploma in CSE (Computer Science Engineering) (GDCSE).**	*90 Credit Hours (Time)*		
	SEMESTER -1 **1) Computer and Information Technology:** **Introduction** –Computer? 1.2 Evolution of Computers 1.3 Classification of Computers 1.4 Applications of Computers 1.5 Advantages and Disadvantages of Computers 1.6 Similarities Difference between computer and Human 1.7 A Computer System 1.8 Components of a Computer System **Input Devices and Output Devices:** Introduction 2.2 Input Devices 2.3 Output Device **Primary Storage and Secondary Storage Devices:** Introduction 3.2 Primary Storage 3.3 Secondary Storage Devices **Boolean algebra and Logic Circuits:** Introduction 5.2 Boolean Algebra 5.3 Principle of Duality 5.4 Logic Gates 5.5 Logic Circuits 5.6 Design of Combinational Circuit **Computer Software, Programming Languages and Program Development:**	**45** 6 Credit Hours (Per Course)	**35**	**20**

	Introduction 6.2 Classification of Software 6.3 Programming Languages 6.4 Program Development Process **Introduction to Operating Systems:** Introduction 7.2 Definition 7.3 Computer Processing Techniques **Popular Operating System:** Introduction 8.2 Operating System 8.3 Unix Operating System 8.4 MS-DOS-Disk Operating System 8.5 Windows XP 8.6 Windows Vista 8.7 Windows 8 8.8 Linux **2) Software (Project) Management:** Introduction to Software Project Management Project Evaluation Activity planning Monitoring and control Managing People and Organizing Teams **3) Hardware Management (Computer Hardware Repair & Maintenance):** Hardware Fundamentals Motherboards and their related components Bios & CMOS Operating Systems Antivirus Software Basic Hardware components Computer Ports etc. **4) Networking Management:** What is Computer Network Network Management Details An overview of Networks **SEMESTER -2** **5) E-Commerce Management:** Introduction 1.2 e-business, e-commerce, types of application 1.3 Evolution and trend 1.4 Drivers of E-commerce 1.5 Characteristics 1.6 Business models, technology 1.7 Government Regulation 1.8 Let us sum up 1.9 Key Terms 1.10 Self – Assessment Questions **6) Database Management System(BDMS):** Describe the basic concepts of Relational Database Design 2. Explain Database implementation and tools 3. Describe SQL and Database System catalog. 4. Describe the process of DB Query processing and evaluation. 5. Discuss the concepts of transaction management. 6. Explain the	6 Credit Hours (Per Course) 6 Credit Hours (Per Course)		

	Database Security and Authorization. 7. Describe the design of Distributed Databases. 8. Know how to design a Database and XML. 9. Describe the basic concept of Data warehousing and Data mining 10. Discuss the emerging Database Models, Technologies and Applications **7) Enterprise Application Support:** Enterprise Systems Supply Chain Management Support Customer Relationship Management Systems Enterprise Applications New Opportunities and Challenges **8) Information/Cyber Law/Cyber Security Management:** Evolution of a Profession 1 Chapter 2: Threats and Vulnerabilities 15 Chapter 3: The Information Security Manager 31 Chapter 4: Organizational Security 43 Chapter 5: Information Security Implementation 63 Chapter 6: Standards, Frameworks, Guidelines, and Legislation 71 Chapter 7: Protection of Information 95 Chapter 8: Protection of People 113 Chapter 9: Protection of Premises 131 Chapter 10: Protection of Systems 155 Chapter 11: Digital Evidence and Incident Response 179 Chapter 12: Cloud Computing Security193 Chapter 13: Industrial Control Systems 205 Chapter 14: Secure Systems Development 213 AND Cyber Law brief ……. (Vide annexure sheets) **SEMESTER -3** **9) Introduction to Computer Programming:** **1 You Can Program** 1 What Is Programming? Introduction to Your Programming Tools **2 Our First Program** Elements of C++ Programs A Playpen Doesn't Have To Be White Plotting a Point Mixing Colors Modern Art? Tasks, Exercises and Fun Roberta's Comments Summary viii C O N T E N T S You Can Loop Drawing a Cross for-Loops	6 Credit Hours (Per Course) 6 Credit Hours (Per Course)		

	Drawing a Cross Revisited Practicing Looping Simple Arithmetic Operators Roberta's Comments Solutions to Exercises Summary **3 You Can Write a Function** Drawing a Square The Function Concept Functions in C++ Writing a Function Header and Implementation Files Drawing Lines Drawing Sets of Lines Creating Your Own Utility Functions Roberta's Comments Solutions to Exercises Summary **4 You Can Communicate** Names and Namespaces Interaction The char and int Types Streams The string Type Creating a Simple Dialog Sequence Containers Walkthrough Getting ints from the Keyboard Handling the Unexpected Roberta's Comments etc. **5 You Can Create a Type** On Not Being Underrated Designing a Type The double Type Creating a Two-Dimensional Point Type Roberta's Comments etc. **6 You Can Use point2d** Adding Functionality with Free Functions Supporting I/O for point2d C O N T E N T S ix Drawing Lines and Polygons Drawing Regular Polygons A Type and an Origin Roberta's Comments etc. **7 You Can Have Fun** Valuing Your Skills Just for Fun Fun Programming Ideas Looking Forward **8 You Can Write a Menu** Offering a Set of Choices Dealing with Dependencies Functions that Fill a Polygon Roberta's Comments etc. **9 You Can Keep Data** Saving and Restoring Images	6 Credit Hours (Per Course)		

	Using Captured Data A Menu-Driven Program with Persistence Further Practice Iterators Before the Next Chapter Hints Solutions to Tasks Summary **10 Lotteries, Ciphers and Random Choices** Random and Pseudo-Random Sequences Algorithms for Random Numbers Understanding a Lottery Program Sending Hidden Messages Over to You Roberta's Comments etc. **11 Keyboards and Mice** A Keyboard Type Using a Mouse Refactoring Code More Practice Roberta's Comments etc. **12 A Pot Pourri Spiced with Bitset** Computing a List of Primes A Weaving Simulation Dr Conway's Game of Life Roberta's Comments etc. **13 How Many...? in Which Set and Map Lend a Hand** What Is an Associative Container? What Is a Set? What Is a Map? Roberta's Comments etc. **14 Getting, Storing and Restoring Graphical Items** Preparing to Program Icons, Sprites and Related Items Making a Font Displaying a String in the Playpen Roberta's Comments etc. **15 Functions as Objects and Simple Animation** Functions that Remember First Steps to Animation A Matter of Palettes More Advanced Animation Roberta's Comments etc. **16 Turtles and Eating Your Own Tail** Some History Designing a Turtle Type Exploring Turtle Graphics Recursion Wrapping It Up Roberta's Comments etc. **17 You Can Program** What Use Is What You Have Learnt? Games-Based Problems Analytical Problems Mathematical Problems Conclusion **10) Software Engineering:**	6 Credit Hours (Per Course)		

	Part 1 Introduction to Software Engineering 1 Chapter 1 Introduction 3 Chapter 2 Software processes 27 Chapter 3 Agile software development 56 Chapter 4 Requirements engineering 82 Chapter 5 System modeling 118 Chapter 6 Architectural design 147 Chapter 7 Design and implementation 176 Chapter 8 Software testing 205 Chapter 9 Software evolution 234 **Part 2** Dependability and Security 261 Chapter 10 Sociotechnical systems 263 Chapter 11 Dependability and security 289 Chapter 12 Dependability and security specification 309 Chapter 13 Dependability engineering 341 Chapter 14 Security engineering 366 Chapter 15 Dependability and security assurance 393 **Part 3** Advanced Software Engineering 423 Chapter 16 Software reuse 425 Chapter 17 Component-based software engineering 452 Chapter 18 Distributed software engineering 479 Chapter 19 Service-oriented architecture 508 Chapter 20 Embedded software 537 Chapter 21 Aspect-oriented software engineering 565 **Part 4** Software Management 591 Chapter 22 Project management 593 Chapter 23 Project planning 618 Chapter 24 Quality management 651 Chapter 25 Configuration management 681 Chapter 26 Process improvement 705 **11) Programming Fundamentals:** Part 1: Introduction to Progarmming Part 2: Data and Operators Part 3: Functions Part 4: Conditions Part 5: Loops Part 6: Arrays Part 7: Strings and Files Part 8: Object oriented Programming **OPTIONAL SUBJECTS (Any Two subjects should be chosen from below for Graduate Diploma or Bachelor of Science Degree certificate):** **### An Introduction to the C Programming Language** **### IT operations Management** **### Java Programming** **###Visual Basics and Visual Programming** **### Web Development** **### Advanced Computer Network** **### Mathematics for Computer Science Engineering** **### E-Commerce**	6 Credit Hours (Per Course) 6 Credit Hours (Per Course)		

	### System Analysis ### Introductory Engineering Computing **FOLLOWING ADDITIONAL TASKS SHOULD HAVE TO DONE BY PARTICIPANTS OR STUDENTS:** a) Information Technology or Computer Science Engineering Certification Test MCQ Questions answer practicing b) Information Technology or Computer Science Engineering Test Board Questions/TMA (Tutor Mark Assignment) c) Information Technology or Computer Science Engineering Case Studies **Exercises and projects**			
	Project/Thesis/Case Studies			
	Student have to take a Project/Thesis/Case studies as per their major subject in order to complete his/her Diploma/Advanced Diploma. • 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 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 frame. *Concern Authority will assign case studies question paper in time.*			
	TOTAL HOURS REQURIED TO BE COMPLETED FOR THE IT/CSE BACHELOR DEGREEE OR GRADUATE DIPLOMA PROFESSIONAL CERTIFICATIONS = 11 parts/Subjects will count 6 hours each (11 courses x 6 hours study each = 66 hours total) + Additional Two Subjects @ 12 hours + Project Exercises Minimum 12 hours = **Grand Total 90 Hours.**			

WHY STUDY INFORMATION TECHNOLOGY AND COMPUTER SCIENCE ENGINEERING DIPLOMA?

The purpose of the Diploma in Information Technology (IT) or Computer Science Engineering (CSE) is to provide a career-focused professional qualification featuring industry-referenced knowledge, skills and attitudes.

WHY COMPUTER SCIENCE AND INFORMATION TECHNOLOGY CAREER?

Computer Science degrees are some of the most popular study programs worldwide. If you're passionate about computer hardware and software, you might already know that Diploma and Advanced Diploma in IT lead to rewarding and lucrative careers. As we live in a digital age, most industries rely on data and software programs. Computer Science & IT impacts everything, from scientific research to health development, transport, banking, communications, you name it. Even objects like microwave ovens, fridges, or door locks are now connected to our Wi-Fi networks and personal assistants.

WHAT DO COMPUTER ENGINEERS AND IT STAFF DO?

Computer engineers use a combination of electrical engineering and computer science skills to develop technology, devices and design computer systems networks. Some computer engineers focus more on hardware and updating old equipment, while others focus on designing new technologies. On the other hand, Information Technology (IT) Staff means employees who perform duties relating to retrieving, compiling, constructing, formatting, or extracting electronic public records located on computer systems, software, servers, or networks.

CAREERS SCOPE OF INFORMATION TECHNOLOGY AND COMPUTER SCIENCE?

Careers in both IT and computer science can take you in many directions, but they do have distinct paths. Jobs grounded in computer science will broadly mean working with programming languages or data to develop or improve products. Jobs in IT will focus more heavily on the operation of computers, their networks, and systems, so that others in an organization can do their work smoothly. There are several roles that might straddle the line between computer science and IT, like cloud computing or database administration.

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 courseseliminate these obstacles.

(iii) **MCQ, Case Based Learning:** MCQ, A Case-based approach engages students in discussion of specific situations, typically real-world examples of Indian 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. Oneof 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.

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