



# Yogoda Satsanga Palpara Mahavidyalaya

NAAC Accredited ('B' Grade) and NCTE Recognized (B.Ed. and M.Ed Courses)  
affiliated to  
Vidyasagar University, Midnapore and WBUTTEPA, Kolkata, (Govt. of West Bengal)  
At + P.O : Palpara, Dist : Purba Medinipur, PIN Code – 721458, West Bengal, India

## B. Sc. General in Computer Science Programme Specific Outcome (PSO)

After finishing the B. Sc. General in Computer Science programme, the student will be able to:

- Improve problem-solving skills using computers.
- Create the application using programming languages.
- The capacity to comprehend computer system ideas and development approaches.
- To encourage students to pursue successful careers in computer science and to create businesspeople who can create innovative and software-based goods.
- To acquire the skill set and analytical capabilities required for creating computer-based solutions for issues encountered in daily life.
- Apply computer and mathematical expertise pertinent to the discipline

### Semester - I

#### **COSGCC01: Problem Solving using Computers**

##### {Theory}

**Outcomes:** The course is intended to teach Python expertise. Students will be able to build logics that will aid them in developing apps and programmes.

The following knowledge will be available to the students upon completion of this course:

- Be familiar with the computer program's fundamental planning.
- Basic Python language concepts.
- Loop Control Functions and Structures.
- The linguistic syntax of Python.
- Recursion and iterations.
- Dictionary, strings, and lists.
- Python-based object-oriented programming.
- Sorting as well as searching
- The capacity to write, read, and debug programmes.

##### {Practical}



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**Outcomes:** Students will be able to know the following:

- Have a solid understanding of data types, loops, functions, lists, and strings.
- Examine issues, mistakes, and exceptions.
- Compose and debug Python programmes using programming ideas to come up with fixes.
- Recognize the many forms of object-oriented programming.

## Semester – II

### **COSGCC02: Database Management System**

#### **{Theory}**

**Outcomes:** You should be able to grasp contemporary database management system theory and practise after completing this course. The course gives you a thorough technical overview of database management systems and uses a contemporary database product as a case study to help you better understand their nature. Along with technical challenges, broader issues are highlighted. These include database design principles, database management, and the concepts of data independence, integrity, security, recovery, and performance.

The following should be possible for students to undertake after completing this course:

- Recognize a database management system's function within a company.
- Be familiar with fundamental database principles, such as the relational data model's operation and structure.
- Create and implement queries for somewhat complex databases using Structured Query Language (SQL).
- Recognize and effectively use the concepts of logical database architecture, such as E-R diagrams and database normalisation up to BCNF.
- Create and put into action a simple SQL database project.
- Recognize the idea of a database transaction as well as associated database features including concurrency control, journaling, backup and recovery, and data object locking and protocols.

#### **{practical}**

**Outcomes:** Students will be able to know



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1. Structured Query Language Creating a Database Creating a Table Specifying Relational Data Types Specifying Constraints Creating Indexes.
2. Table and Record Handling INSERT statement Using SELECT and INSERT together DELETE, UPDATE, TRUNCATE statements DROP, ALTER statements
3. Retrieving Data from a Database the SELECT statement Using the WHERE clause Using Logical Operators in the WHERE clause Using IN, BETWEEN, LIKE, ORDERBY, GROUPBY and HAVING Clause.

## Semester – III

### **COSGCC03: Operating System**

#### **{Theory}**

**Outcomes:** Students will study the following after completing the course:

- The fundamentals of operating systems, including kernel, shell, types, and operating system views.
- Outline the different CPU scheduling strategies and eliminate deadlocks.
- Describe different memory management approaches and the idea of thrashing.
- Use disc scheduling and management methods to optimise the use of external memory.
- Recognize the file system interface, security, and protection features.
- Describe the different characteristics of operating systems including UNIX, Linux, and Windows.
- Cloud computing fundamentals on a Linux system.
- Policy mechanism, internal access authorization, and authentication.

#### **{practical}**

#### **Outcomes:**

Students will study the following after completing the course:

The fundamentals of operating systems, including kernel, shell, types, and operating system views.

- Outline the different CPU scheduling strategies and eliminate deadlocks.



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- Describe different memory management approaches and the idea of thrashing.
- Use disc scheduling and management methods to optimise the use of external memory.
- Recognize the file system interface, security, and protection features.
- Describe the different characteristics of operating systems including UNIX, Linux, and Windows.
- Cloud computing fundamentals on a Linux system.

## **COSGSEC-1: HTML Programming**

### **Outcomes:**

HTML will be taught to students, which is the common markup language for websites. You can build your own website using HTML.

- Create personal and/or company websites using an HTML editor, HTML expertise, and current professional and/or industry standards.
- Develop websites using critical thinking techniques.
- To upload files to a webserver, use a standalone FTP software.

## **COSGSEC-1: HTML Programming(Lab)**

### **Outcomes:**

- Finishing a multiple-page website
- Create personal and/or company websites using an HTML editor and your knowledge of HTML and CSS code while adhering to the most recent professional and/or industry standards.
- Develop websites using critical thinking techniques.
- To upload files to a webserver, use a standalone FTP software.

## **Semester – IV**

### **COSGCC-04: Computer System Architecture**

#### **Outcomes:**

Students will able to know the following:

- Computer architecture aids in comprehending the fundamental ideas and construction of computers.
- Following course completion, students will study the following:
- Be familiar with the theory and design of the central processing unit.



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- Examine some of the design-related concerns in terms of cost, performance, technology, and speed.
- Create a straightforward CPU by putting the theory concepts to use.
- Design, validate, and test the CPU architecture using the proper tools.
- Become familiar with the ideas of pipelining, parallel processing, and inter-processor communication.
- Be familiar with the design and operation of a central processing unit.
- Better demonstrate the organisation of I/O and memory.
- Define binary addition and various number systems.

## **COSGCC-04: Computer System Architecture (Practical)**

### **Outcomes:**

- Reduce the use of Boolean algebra and use logic gates in the design.
- Construct combinational circuits and analyse them.
- Utilize a combinational circuit to realise the stated function.
- Construct and improve sequential circuits.
- Students will be able to comprehend how a CPU and its parts are organised.
- Students will be able to apply memory organisation to the notion of registers set, counters, and many other memory elements.
- The idea of addressing, instruction sets, machine cycles, CPU to memory fetching, bus organisation, etc. will be taught to students.
- Students will have the opportunity to learn about the format and content of education.
- Students will be able to comprehend the general idea of a CPU and its crucial parts, including the ALU, Registers, CU, and their subparts.

## **COSGSEC-2: PHP Programming**

### **Outcomes:**

Students who successfully complete this course will be eligible to:

- Produce HTML form handling PHP programmes.
- Compose regular expressions with operators, modifiers, and metacharacters.
- Write PHP scripts that operate on files and directories and make use of a variety of PHP library functions.
- Use PHP to analyse and resolve various database-related problems.
- Create PHP programmes to analyse and address typical Web application problems.

## **Semester – V**

### **COSGDSE-01: Programming in Java**

#### **Outcomes:**



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The most well-known platform is Java, which is used to create a variety of programmes for embedded devices such mobile phones, computers, tablets, and many more. Object-oriented programming is used in this language. The potential for this programming language is enormous. Students will be able to comprehend the following after completing the course:

- Capable of comprehending OOPs ideas.
- Capable of employing OOP techniques to address problems in the real world.
- Capable of comprehending abstraction.
- Capable of comprehending how Java's interfaces and packages are used.
- Capable of creating and comprehending applications with many threads and synchronisation that handle exceptions.

## **COSGDSE-01: Programming in Java (Practical)**

### **Outcomes:**

The following will be knowledgeable by students:

- Employ fundamental control syntaxes to implement the object-oriented programming notion. The development of structures, strings, and functions for logic-building activities.
- Recognize the classes, objects, members, and connections between them that are necessary to solve a particular problem.
- Show how to accomplish reusability via inheritance, interfaces, and packages while describing how to construct applications more quickly.
- Use diverse exception handling systems and the idea of multi-threading to design applications that are reliable, quick, and effective.
- Recognize and define typical abstract user interface elements for designing a graphical user interface in Java using Applet & AWT and responding to events.
- Use key Java Swing classes based on MVC architecture to identify, design, and construct complex graphical user interfaces.

## **Semester – VI**

### **COSGDSE-02: E-Commerce Technologies**

### **Outcomes:**

Students who complete this course satisfactorily should be able to:

- Show that you comprehend the principles and significance of eCommerce.
- Show that you are aware of how eCommerce affects business models and strategy.
- Describe business-to-business, business-to-business, and intra-organizational Internet trading ties.
- Describe the eCommerce infrastructure.



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- Show that you are aware of the networking, database, and programming difficulties that are involved with eCommerce.
- Identify legal, international, privacy, security, and risk management concerns in eCommerce.