DEPARTMENT OF COMPUTER SCIENCE
HARINGHATA MAHAVIDYALAYA
(Affiliated to University of Kalyani)

Course Name- B.Sc. in Computer Science (Major, Minor & Multidisciplinary)
Under NEP 2020

Program Specific Outcomes (PSO)
And
Course Outcomes (CO)

Program specific Outcomes (PSO):

After successful completion of B.Sc. in Computer Science, students gain the knowledge of the following:

PSO1. An essential skill of problem solving with different dimensions of computer science and computing.

PSO2. Ability to understand the principles and working of computer systems to assess both the hardware and software aspects.

PSO3. Professional skills of software design including familiarity and practical competence with a broad range of programming language and open source platforms.

PSO4. Ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm.

PSO5. Ability to use knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations.

PSO6. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PSO7. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PSO8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PSO9. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Course Title- Computer Fundamentals and Programming using C

Course Outcomes (CO):

After completing this course satisfactorily, a student will be able to:

• Confidently operate computers to carry out computational tasks

• Understand working of Hardware and Software and the importance of operating Systems

• Understand programming languages, number systems, peripheral devices, networking, multimedia and internet concepts

• Read, understand and trace the execution of programs written in C language

• Write the C code for a given problem

• Perform input and output operations using programs in C

• Write programs that perform operations on arrays, strings , structures, unions and functions

Course Title- Computer Science for Beginners

Course Outcomes (CO):

(i) Understand the historical development and evolution of computers, including the main features and advancements of each generation.

(ii) Describe the components of modern computers, including the CPU, primary and secondary storage, and various I/O devices.

(iii)Gain knowledge of different number systems and fundamentals of Boolean Algebra and circuit design.

(iv) Understand problem-solving techniques using flowcharts, decision tables, and pseudo codes.

(v) Comprehend the history of programming languages, including Machine Language, Assembly Language, and High-Level Language.

(vi) Gain an overview of different types of DBMS architectures and their applications.

(vii) Understand the history of the internet, its role in daily life, and different internet service providers.

(viii) Learn about Information Technology laws related to electronic commerce, electronic signatures, data protection, cybersecurity, penalties, offenses under the IT Act, and dispute resolution.

Course Title- Office Automation

Course Outcomes (CO):

After completing this course satisfactorily, a student will be able to:

• Compare and contrast various types of operating systems

• Explain the purpose of office automation

• Describe how information is stored and retried in/from computer memory

• Know about various types of office automation software and their applications

• Create document using word processing software

• Design presentation using presentation software

• Create worksheets and analyse data using spreadsheet software

Course Title- Digital System Design

Course Outcomes (CO):

On successful completion of the course, students will be able to

(i) explain the concept of organization of digital computer its different hardware components such as Input Unit, Output Unit, Storage Unit, CPU. Control Unit, Arithmetic Logic Unit

(ii) solve problems on different number systems, binary arithmetic operation, floating point number and signed magnitude number representation, overflow, under flow, and different computer error detection and correction codes

(iii) have thorough idea on memory Hierarchy, and different types of memory, hit and miss

(iv) solve problems on Boolean algebra and simplification of boolean Functions

(v) Design different digital Combinational and Sequential Logic circuitry.

Course Title- Database Management Systems

Course Outcomes (CO):

On successful completion of the course, students will be able to:

(i) Gain knowledge of database systems and database management systems software.

(ii) Ability to model data in applications using conceptual modelling tools such as ER Diagrams and design data base schemas based on the model.

(iii)Formulate, using SQL, solutions to a broad range of query and data update problems.

(iv) Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.

(v) Be acquainted with the basics of transaction processing and concurrency control. Become familiar with database storage structures and access techniques. Compare, contrast and analyse the various emerging technologies for database systems such as NoSQL.

(vi) Analyse strengths and weaknesses of the applications of database technologies to various subject areas.

Course Title- Web Development and Applications

Course Outcomes (CO):

On successful completion of the course, students will be able to:

(i) Understand basics of HTML.

(ii) Use of CSS in web design.

(iii)Understand the basics of Javascript

(iv) They will be able to build basic static web pages.