SEMESTER – I

CPS 2a Part I - PEDAGOGY OF COMPUTER SCIENCE

Credits: 4 **Internal: 40 marks**

Hours/Week: Theory-4hrs & Practical- 4hrs **External: 60 marks**

Total: 100 marks

Course Learning Outcomes

At the end of the course, the student-teachers will be able to

- predict the historical evolution of computers and its components;
- determine the aims and objectives of teaching Computer Science at the Primary, Secondary and Higher Secondary level;
- observe the classes of subject experts and reflect on the demonstration of concepts in Computer Science; and
- prepare mini teaching lessons and Educational Technology record.
- apply the teaching skills in the teaching - learning situation;
- explore the varied needs of learners and plan for teaching accordingly;
- acquaint with the various methods, approaches and strategies of teaching Computer Science;
- utilize the various learning resources effectively in the teaching of Computer Science;

Unit I: Historical Perspectives

Historical development of computers – Generation of Computers and their characteristics – Types of computers – Hardware and Software – Types of Software - Operating System – Functions of an operating system- Database – Computer Organization – Principles of programming logic – Network Communication – Computer viruses – Protective measures.

Unit II: Aims and Objectives of Teaching Computer Science

Goals and Objectives of teaching Computer Science with reference to Revised Bloom's Taxonomy of Educational Objectives - General and Specific Objectives of teaching Computer Science – Writing Objectives in behavioural terms- Aims of teaching Computer Science at different levels: Primary, Secondary and Higher Secondary.

Unit III: Development of Skills through Mini Teaching

Mini teaching: Meaning, Characteristics, Phases of mini teaching, Teaching Skills : Skill of set induction, Skill of explaining, Skill of blackboard writing, Skill of illustrating with examples, Skill of probing questions, Skill of fluency in questioning, Skill of stimulus variation, Skill of reinforcement, Skill of achieving closure, Advantages and Limitations of Mini teaching, Link Lesson.

Unit IV: Exploring learners

Identifying Interest, Attitudes, motivation of students. - Developing listening, and questioning skill among teachers and students - Grouping students based on ability (ability grouping). Individual differences – meaning, nature, characteristics - identification of gifted and Enrichment programmes for the gifted –Causes for slow learning and remedial measures for the backward.

Unit V: Methods and Strategies of Teaching Computer Science

Teacher centered methods: Lecture – Demonstration – Lecture cum demonstration- Augmented and Virtual Reality. *Child centered methods* Problem solving, Project method – Heuristic method – Laboratory method Assignment: Type – Needs – Characteristics of good Assignment -Inductive – Deductive, Analytic –Synthetic methods. *Strategies of Teaching*: Meaning, special features and characteristics of strategies - Types of teaching strategies: Narration strategy- Illustration strategy- Questioning - Answering Teaching strategy- Exposition strategy- Description strategy - Independent study strategy- Assignment strategy- Tutorial strategy - Brainstorming strategy.

Unit VI: Teaching Aids

Concept of Teaching Aids - Importance of using aids in the teaching of Computer Science- Edgar Dale's Cone of Experience- Principles for selection of Teaching Aids- Classification of Teaching Aids- Audio, Visual, Audio-Visual Aids, SMART Interactive Whiteboard and ICT based aids- – Criteria for selection of appropriate teaching aids- E-Content Development and Digital tools for Online Teaching and

Learning-LMS:Google Classroom,digital tool: Kahoot.

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