**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan (Even Semester) Session (2019-2020)**

**Class: BSc 4sem**   **Name of the Teacher : Ramninder Kaur**

**Subject: Computer Science Paper : a) Database Concepts b) Data Structures**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 09-01-2020 to 11-01-2020 | *Basic Concepts*: A Historical perspective, File Systems vs. DBMS, Characteristics of the Data Base Approach |
| Week 2 | 13-01-2020 to 18-01-2020 | Data Base Approach: features. Abstraction and Data Integration, Database users Advantages and Disadvantages of DBMS. Implication of Database approach. |
| Week 3 | 20-01-2020 to 25-01-2020 | Data Independence (physical data independence and logical data independence): concept and difference. Relational Data Model: Relational model concepts, Integrity constraints over Relations. |
| Week 4 | 27-01-2020 to 01-02-2020 | Data Structures: Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures. |
| Week 5 | 03-02-2020 to 08-02-2020 | Arrays: Introduction, Types of Array, Memory representation, one dimensional, two dimensional and multidimensional arrays, Applications and operations. |
| Week 6 | 10-02-2020 to 15-02-2020 | Conventional Data Models: An overview of Network Data Model and Hierarchical Data Models. Comparison of data models. The 12 Rules (Codd’s Rule) for an RDBMS |
| Week 7 | 17-02-2020 to 22-02-2020 | **Stacks**: Introduction, memory representation, Applications and operations on stack data structures( push, pop and traversal) with algorithms |
| Week 8 | 24-02-2020 to 29-02-2020 | **Linked List**: Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list, memory representation, Applications of linked list |
| Week 9 | 02-03-2020 to 05-03-2020 | Polynomial manipulation. **Queues**: Introduction, Types, Memory Representation and Applications.  RDBMS: Entity Relationship model. |
| Mid Semester Exams (06-03-2020 to 13-03-2020) | | |
| Week 11 | 14-03-2020, 16-03-2020 to 21-03-2020 | Relational Algebra and Calculus*:* Storage Organization for Relations, Relational Algebra:Operations - union, intersection, difference operations on relations |
| Week 12 | 24-03-2020 to 28-03-2020 | Cartesian product, projection, selection, division and relational algebra queries. Relational Calculus: Tuple oriented and domain oriented relational calculus and its operations. |
| Week 13 | 30-03-2020 to 04-04-2020 | **Trees** – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Binary Search tree |
| Week 14 | 07-04-2020 to 11-04-2020 | **Graphs**: Introduction, Memory Representation, Graph Traversal techniques (Depth First Search and Breadth First Search) |
| Week 15 | 15-04-2020 to 18-04-2020 | **Searching**: Binary and Linear Search; **Sorting**: Bubble sort, Insertion sort, Selection sort, Merge Sort, Quick sort. |
| Week 16 | 20-04-2020 to 24-04-2020 | *Advance concepts:* Client-Server Architecture, 3-tier Architecture of database, Distributed databases. Normalization: First, second and third Normal Form, Boyce Codd Normal Form; |
| Week 17 | 27-04-2020 to 02-05-2020 | Database Integrity: entity and referential integrity; Security: Concurrency, Recovery of Database. |

**Teaching Plan (Even Semester) Session (2019-2020)**

**Class: BSc 6 Sem**  **Name of the Teacher: Ramninder Kaur**

**Subject: Computer Science Paper: a)E-commerce b) Web Programming**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 09-01-2020 to 11-01-2020 | **Basic Terminology :** Web Server; Web Browser, Understanding Communication between a Browser and Web Server, Webpage, Website, Static Website, Dynamic Website, Internet, Intranet, Extranet, WWW, URL. |
| Week 2 | 13-01-2020 to 18-01-2020 | **HTML :** HTML Program Structure, Paragraph Breaks, Line Breaks; Emphasizing Text: Heading Styles, Drawing Lines; Text Styles :Bold, Italics, Underline; Other Text Effects in HTML webpages. |
| Week 3 | 20-01-2020 to 25-01-2020 | Centering of text and images etc; Lists: Unordered List, Ordered Lists, Definition lists. Adding Graphics to HTML Documents using the Border, Width, Height and Align attributes. |
| Week 4 | 27-01-2020 to 01-02-2020 | **E-Commerce:** Introduction, History, Motivation for E-Commerce, Types of Ecommerce, Advantages, Limitations, E-Commerce applications : Business-to-consumer, Business-to-Business, Consumer-to-Business, Consumer-to-Consumer, Business-within-Business. |
| Week 5 | 03-02-2020 to 08-02-2020 | **Internet and www:** Introduction, History, Benefits of www, Internet Service Providers, Web and Electronic commerce,Web architecture and its components, Interactive web applications, Web and database integration. |
| Week 6 | 10-02-2020 to 15-02-2020 | Tables: Caption Tag, Width, Border, Cell padding, Cell spacing, BGCOLOR, COLSPAN and ROWSPAN Attributes.  Web software development tools, Search engines. |
| Week 7 | 17-02-2020 to 22-02-2020 | **Linking Documents :** Anchor tag, External Document References, Internal Document References and Image Maps; Frames: Introduction to Frames: The <FRAMESET> tag, The <FRAME> tag, Targeting Named Frames |
| Week 8 | 24-02-2020 to 29-02-2020 | **DHTML:** Introduction to Cascading Style Sheets (CSS), Style tag, Link tag, Types of CSS: In-Line, Internal, External.  **Website designing and hosting:** Website content and traffic management, Working of ISPs, Choosing an ISP, Choosing and registering a domain name. |
| Week 9 | 02-03-2020 to 05-03-2020 | Forms: Attributes of Form element: Input element, Text Element, Password, Button, Submit Button, Reset Button, Checkbox, Radio, Text Area, Select and Option. |
| Mid Semester Exams (06-03-2020 to 13-03-2020) | | |
| Week 11 | 14-03-2020, 16-03-2020 to 21-03-2020 | Life cycle of website building  **Implementation and Maintenance of E-Commerce:** Implementation strategies, Maintenance strategies, Legal and Ethical issues in E-commerce. |
| Week 12 | 24-03-2020 to 28-03-2020 | **Payment Systems :** From Barter to money, Requirements of Internet-based payments, Electronic payment media : Credit cards, Debit cards, Smart cards, e-wallets, Issues and implications of payment systems, Latest trends in payment systems. |
| Week 13 | 30-03-2020 to 04-04-2020 | **JavaScript:** Introduction and Features of JavaScript, Writing JavaScript into HTML, Tokens, Data Types, Variables, Operators, Control Constructs, Strings |
| Week 14 | 07-04-2020 to 11-04-2020 | **Marketing on the Internet:** Internet marketing techniques and cycles, Attracting and Tracking customers, Pros and cons of online marketing.  Javascript: Arrays, Functions, Document Object Model, CoreLanguage Objects, Client Side Objects, Event Handling, |
| Week 15 | 15-04-2020 to 18-04-2020 | Applications related to client side form validation Built-In Objects in JavaScript: String Object, Math Object, Date Object;  **Introduction to PHP :** PHP Installation and Configuration; Naming files, Comments, Variables, Operators. |
| Week 16 | 20-04-2020 to 24-04-2020 | Arrays, Flow Control Structures. More language basics; User-defined functions; Input validation, Working with Mathematical, String, Date and Time functions  **Firewalls and Network Security:** Types of firewall, Gateways Proxy Servers and its advantages and disadvantages. |
| Week 17 | 27-04-2020 to 02-05-2020 | Transaction Security: Types of transaction, Requirements for transaction, Encryption: asymmetric and symmetric encryption; Digital signatures, Digital certificates, Implementation and management issues. |
| Week 18 | 04-05-2020 | Revision and discussion |