**Session Plan for CSE1002 Winter 2020**

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| **Session** | **Topic Covered** |
| 1 | Overview of C : Operators, Expressions |
| 2 | Conditional Statements, Looping Statements |
| 3 | Arrays – single and multi dimension |
| 4, 5 | Functions (Pass by Value and address) – recursion |
|  | **Inlab Practice Session 1 (IPS 1)** |
| 6,7,8 | Pointers and Dynamic memory allocation |
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| 9,10 | Structure – union – Macros |
|  | **Inlab Practice Session 2 (IPS 2)** |
|  | **Periodic Assessment Test 1 (PAT 1)- (Covering Sessions 1-10 : Max.duration : 30 minutes- 8% Weight)** |
| 11 | **Consolidated Assessment Test (CAT 1) - (Covering sessions 1-10)-Max. Duration: 100 minutes ; Max. Marks :50; - MCQ(10 Marks), Debugging(10 Marks), Two code-tests (30 marks)- Weight 14%** |
| 12 | Overview of Abstraction technique -Travelling salesman Problem\*  Inline functions, functions with default arguments |
| 13,14 | Exception handling (Standard Exceptions), Functions with reference (independent reference, function pass by reference, function return by reference) |
|  | Overview of OOP concepts and UML class diagram  Video lecture    <https://www.youtube.com/watch?v=Vy_gLkxuCnw>  <https://www.youtube.com/watch?v=3cmzqZzwNDM>  <https://www.youtube.com/watch?v=3cmzqZzwNDM>  Video tutorial for drawing class diagrams using Dia:  <https://www.youtube.com/watch?v=SXYjvLZblNo> |
| 15 | Designing UML diagram |
| 16 | Classes and objects, Static data members |
| 17 | Dynamic memory allocation, Array of objects(static and dynamic) |
| 18,19 | Constructors(default, parameterised, copy) and destructors. Shallow and deep copying |
|  | **Inlab Practice Session 3(IPS 3)** |
| 20 | Overview of Exhaustive approach- Cabbage, Goat, farmer problem\*  Case study – Railway Reservation Systems\*\*  Friend functions and Friend classes |
| 21 | Function overloading concept |
|  | **Inlab Practice Session 4 (IPS 4 )** |
| 22 | Operator overloading – unary operator, subscript operator [] |
| 23 | Operator overloading – all operators  Video lecture |
| 24 | Operator overloading – binary operator using friend and member function, Operator overloading – Type Conversion |
|  | **Inlab Practice Session 5 (IPS5)** |
|  | **Periodic Assessment Test II (PAT II)- Covering Sessions 13-24- Max. Duration : 30 minutes- 8% Weight** |
| 25 | Overview of Greedy Technique - Scheduling Problem\*  Case study - Railway Reservation Systems\*\*  Single and hierarchy inheritance |
| 26 | Multilevel inheritance |
| 27 | Multipath, hybrid inheritance |
|  | **Inlab Practice Session 6 (IPS 6)** |
| 28 | Dynamic polymorphism – virtual functions |
| 29 | Dynamic polymorphism – pure virtual functions |
|  | **Inlab Practice Session 7 (IPS 7)** |
|  | **Periodic Assessment Test 3(PAT 3)- Covering Sessions 25-29. Max. Duration : 30 minutes- 8% Weight** |
| 30 | Greedy Technique - Knapsack Problem\*  Case study - Railway Reservation Systems\*\*  exception handling (User-defined Exceptions) |
| 31 | Generic programming – function template |
| 32,33 | Generic programming – Class template, Class Template Inheritance |
|  | **Inlab Practice Session 8 (IPS 8)** |
| 34 | STL – Container, Algorithm, Iterator- vector, map |
| 35,36 | STL –list, stack |
|  | **Inlab Practice Session (IPS 9)** |
|  | **Periodic Assessment Test 4 (PAT 4)- Covering Sessions 30-36. Max. Duration : 30 minutes- 8% Weight** |
| 37,38 | Divide and conquer - Strassen’s Matrix multiplications\*    formatted iostreams  Sequential – writing and reading objects into/from files |
|  | Manipulators , overloading Inserters(<<) and Extractors(>>)  Video lecture  <https://www.youtube.com/watch?v=TmFNZxDw9mk>  <https://www.youtube.com/watch?v=xE8_w5cu99Q> |
| 39 | Random files - writing and reading objects into/from files |
|  | **Inlab Practice Session 10 (IPS 10)** |
| 40 | **Consolidated Assessment Test (CAT 2) - (Covering sessions 13-39)-Max. Duration: 100 minutes ; Max. M**  **arks :50; - MCQ(10 Marks), Debugging(10 Marks), Two code-tests (30 marks)- Weight 14%** |
| 41 | **Final Assessment Test 1 ( Covering Sessions 13-33)** |
| 42 | **Final Assessment Test 2 (Covering Sessions 13-39)** |