IT 114 Object Oriented Programming

Course Outline

This course is designed to provide a rigorous understanding of Object Oriented Programming (OOP) paradigm in general and hands-on training in this style of software design and development using JAVA as the programming language. The course is intended for B.Tech first year students with basic background in functional programming using C. The course will be conducted in the tentative order as listed below:

- Historical development of the area (1 lecture)
- Why OOP? (1 lecture)
- Overview of OOP style (3 lectures)
  - Object
  - Properties
  - Methods
- Abstraction techniques (3 lectures)
  - Class
  - Encapsulation
- Object Interaction (3 lectures)
  - Method calling
  - Parameter passing
- Advanced OOP features (4 lectures)
  - Inheritance
  - Polymorphism
  - Interfaces
- Data Structures as Objects (8 lectures)
  - Arrays
  - Linked List
  - Trees
  - Graphs
- Strings as Objects (3 lectures)
- Basic Design Patterns (4 lectures)
- GUI development in the OOP way (8 lectures)
- Abstract Window Toolkit
- Java Swing (extended)
- Google Windows Toolkit

- Weekly in-lab assignments
- Examination
  - Lab assignment – 15%
  - Mid-term – 35%
  - Final – 35%
  - Project – 15%

**Attendance Policy**

*Minimum Attendance requirement: 60%*

*Penalization policy:*

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<tr>
<th>Attendance Slab</th>
<th>Penalty (% out of total score)</th>
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<td>[50, 60)</td>
<td>5%</td>
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<td>[40, 50)</td>
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NT: All students whose total is score $\geq 80\%$ are exempted from penalization.