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Department of Computer Science and Engineering

<b>Course Title:</b>	<b>Object Oriented Programming Language Lab</b>
<b>Course Code:</b>	<b>CSE 2141-0613</b>
<b>Credit/Hours:</b>	<b>3hrs/Week</b>
<b>Prerequisites:</b>	CSE 1213-0613
<b>Course Instructor:</b>	<b>Md. Nurul Islam</b>
<b>Email:</b>	<a href="mailto:nisakib@ius.edu.bd">nisakib@ius.edu.bd</a>
<b>Course Objectives:</b>	<ul style="list-style-type: none"><li>● To learn the basics of computer programming.</li><li>● To explain different computer programming generations and their structures.</li><li>● To improve algorithm design skill through lectures and exercises.</li><li>● To develop leadership quality through Group works.</li><li>● To grow programming skill through assignments.</li><li>● To expand confidence by doing various practical problems.</li><li>● To become a professional programmer in real life problem-solving.</li></ul>
<b>Course Outcome:</b>	<ul style="list-style-type: none"><li>● <b>CLO1:</b> Students will be able to gain programming knowledge and practice through various IDEs of Java.</li><li>● <b>CLO2:</b> Able to identify problems, design the structure, analyze and coding to create applications by system software.</li><li>● <b>CLO3:</b> Able to research and implement OOP to solve various engineering problems during the development process in dispersed situations.</li></ul>

**Mapping Course Learning outcomes (CLOs) with PLOs:**

CLOs	PLO 1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO 9	PLO 10	PLO 11
CLO1	✓			✓							
CLO2	✓	✓	✓		✓						
CLO3	✓							✓			✓

**Grading policy:**

Assessment Strategy	Marks
Class attendance	10
Class performance (viva/presentation)	20
Lab report/ Project	30
Final exam	
Experiment/ Test	20
Viva-voce	20
<b>Total</b>	<b>100</b>

Lecture	Topics/Experiments	Teaching Strategy
1	Setup Java environment, Introduction to Java and visualization of Main() Method	Lecture Discussion and Q&A Session

<b>2</b>	Exploring the fundamental concepts of Java with IDE	Lecture Discussion and Q&A Session
<b>3</b>	Setup of Spring Boot & Run first code with spring boot	Lecture Discussion and Q&A Session
<b>4</b>	Create Classes with instances, methods in java and visualize the output with spring boot.	Lecture Discussion and Q&A Session
<b>5</b>	Create class and object with constructor on java spring boot platform	Lecture Discussion and Q&A Session
<b>6</b>	Create multiple methods with different types of Return types and show outputs using java spring boot framework	Lecture Discussion and Q&A Session
<b>7</b>	Implementation of single inheritance based on Java	Lecture Discussion and Q&A Session
<b>8</b>	Implementation of Multi-level and Hierarchical inheritance	Lecture Discussion and Q&A Session
<b>9</b>	Review of class, objects and Inheritance with problem solving approach	Lecture Discussion and Q&A Session
<b>10</b>	Introduction to Encapsulation	Lecture Discussion and Q&A Session
<b>11</b>	Implementation and problem solving with Encapsulation	Lecture Discussion and Q&A Session
<b>12</b>	Project Idea Presentation	Lecture Discussion and Q&A Session
<b>13</b>	Implementation of Polymorphism with problem solving	Lecture Discussion and Q&A Session
<b>14</b>	Problem solving based on polymorphism	Lecture Discussion and Q&A Session
<b>15</b>	Implementation of Abstraction and interface	Lecture Discussion and Q&A Session
<b>16</b>	Java File Handling	Lecture Discussion and Q&A Session

<b>17</b>	Representation of Multi-Threading Operation with problem solving approach.	Lecture Discussion and Q&A Session
<b>18</b>	Java Exception Handling with problem solving	Lecture Discussion and Q&A Session
<b>19</b>	Server configuration through Spring Boot	Lecture Discussion and Q&A Session
<b>20</b>	NoSQL Database Connectivity Operation through Spring Boot	Lecture Discussion and Q&A Session
<b>21</b>	Demonstration of a sample application based on CRUD operation.	Lecture Discussion and Q&A Session
<b>Lab Final, project presentation and demonstration</b>		

<b>References:</b>		
<b>Learning Materials</b>		
<b>SL No.</b>	<b>Text Books</b>	<b>Others Learning Materials</b>
1	Paul Deitel, Harvey Deitel, Java How to Program, Ninth Edition.	Journals, Web Materials, etc.
2	Kathy Sierra, Bert Bates, Sun Certified Programmer for Java 6 Study Guide	