United International University

School of Science and Engineering

Course Title: Simulation and Modeling Laboratory

Course Code: CSI 424

Lab: 06

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| **Problem name :** Pure pursuit problem |
| **Problem description :**  A fighter aircraft sights an enemy bomber and flies directly toward it, in order to catch up and destroy it. **We have to determine whether the fighter aircraft can catch/destroy the enemy bomber or not within a given time.** |
| **Necessary theories :**   |  | | --- | |  | |  |   **Task description :**   |  |  |  |  | | --- | --- | --- | --- | | Task -1 :  Marks distribution :  Code : 3  Graph : 2   |  | | --- | |  | | Task -2 :  Marks distribution :  Code : 3  Graph : 2   |  | | --- | |  | |   **Sample input and output :**   |  |  | | --- | --- | | **Task-1 :**  **Input :**  Position of A (0,0)  Position of B(10,000,10,000)  Va = 60 m/s  Da(attack distance) : 1000m  Time limit : 300sec.  deltaT = 2sec  Vb = 50 m/s(x-coordinate changes only) | **Output :**    defense A wins......... | | **Task-2:**  **Input :**  Position of A (0,1000)  Position of B (12000,2000)  Position of C (10000,10000)  Position of D (5000,15000)  Va = 60 m/s  Vb = 60 m/s  Vc = 60 m/s  Vd = 60 m/s(x-coordinate changes only)  Da(attack distance) : 1000m  Time limit : 300sec.  deltaT = 2sec | **Output :**  A  A attacks B | |