ENGI 9874
Software Design and Specification

[Assignment 1 Rubric]
October 20th, 2018

Question 1: Domain Analysis [25 marks]

1. Must be create a class diagram [2]
2. Member identification member [2]
3. Joining rewards program [1]
4. Gain and Sustain Elite: Threshold earning 10000 or sum of earned and spent > 1000 [6]
5. In-Flight services: Regular members, and elite members [6]
6. Advanced services: Regular members, and elite members [6]
7. Elite members: Purchase tickets using points, get priority boarding [2]

Question 2: Software Design [35 marks]

a) [12 Marks]
   1. Supporting resistors, inductors, capacitors, a single DC power supply, and switches [4]
   2. Class hierarchy for components and nets [4]
   3. Associations with navigability, multiplicity, and annotations indications bags, ordered sets [4]

b) [11 Marks]
   1. Attributes and operations [3]
   2. Specificity: specific terminals of components can be added to specific nets [4]
   3. Circuit simulation : timestep starting power supply [4]

c) [12 Marks]
   1. Sequence Diagram (power supply, resistors, and appropriate nets)
      [objects instantiations, lifelines and messages with proper annotations are considered]

Question 3: Chess Game Design [40 marks]

a) [14 Marks]
   1. Pawn, Rook, Knight, Bishop, King, and Queen specializations of a general Piece [4]
   2. Piece moving and drawing signal's capability [2]
   3. Board that knows where all the pieces and Move, resolve of capability of board [4]
   4. Referee object and Game-Over Object [2]
   5. Redraw capability [2]

b) [12 Marks]
   1. Object diagram showing the Board when there are 2 Kings (Black and White) and a Queen (Black) left on the board. [Required pieces should be present, proficiency with object diagrams]

c) [14 Marks]
   2. Sequence diagram - Black Queen to capture the White King piece.
      [objects instantiations, lifelines and messages with proper annotations are considered]