Requirements:

Write a high level temporal logic specification for a simple course registration system with user authentication, and add course functionalities. Specifically, you need to

(1) Define an adequate set of predicates to denote the states, and changed states with regard to the above functionalities;
(2) Define temporal logic formulas to represent safety properties such as mutual exclusion, and partial correctness with regard to add course functionality;
(3) Define temporal logic formulas to represent liveness properties such as progress with regard to user authentication functionality.

Note:

(1) Use proper temporal logic symbols / notations,
(2) Give clear description and explanation.