EE5110/EE6110:Autonomous Systems

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1. Write your Name, Matriculation Number, Module Code (EE5110/6110) on the cover page,

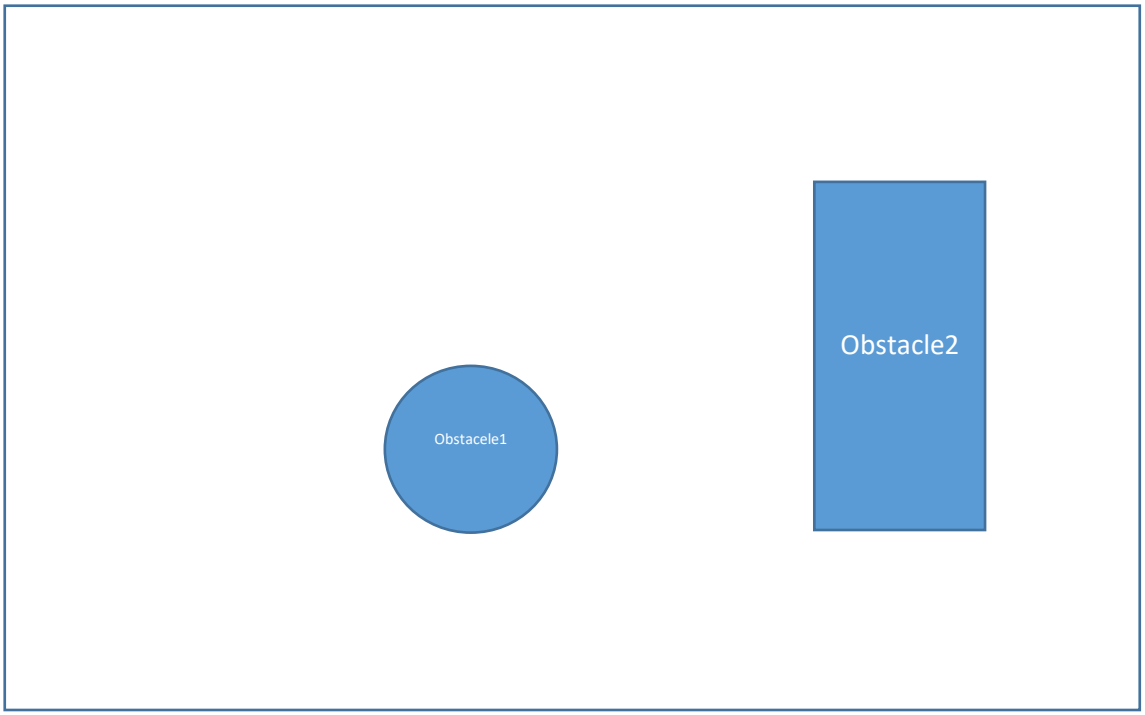
2. List your answers in order; Name your report as A1234567.pdf (where A1234567 is your matric number)

3. Submit your report to the website by 16 Nov. 2021.

Based on the lecture notes, and any additional reading materials of yours, answer the following questions

1.It is assumed that one environment is known (see the following figure). You can construct a C-space by using grid-based method. Based on the following figure size, you can choose your grid resolution size (1unit) by discretizing the environment. Here, the circular form Cobstacle1 is one obstacle (radius≈2units, approximately), while the rectangle form Cobstacle2 is another obstacle (width≈8units, length≈4units). Consider a circular robot with radius=1unit. Please draw a grid net based on the following figure (it is not necessary to draw a precise grid net and you can copy the following figure if you want to do) and answer

a)Cobstacle1 set and Cobstacle2 set (please express them using matrix form M(i,j), for example, {(1,2),(1,3),(1,4)….})



2. How many the classes in **the motion planning architecture** have we learnt from this module? Please draw block diagrams to illustrate each class and give your explanations.