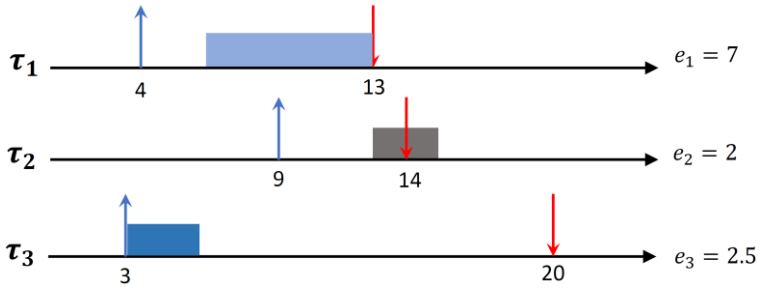
Course: Real-Time Systems

Assignment 1

1) Write a piece of code for 3 tasks τ_1, τ_2, τ_3 in FreeRTOS with approximate execution times e_1, e_2, e_3 (in msec) respectively as shown in the figure below? Schedule the tasks using the FIFO scheduling mechanism considering the following arrival times. Please show a screenshot of the task execution start times and end times as the result. **Additionally, you can record how many tasks violate the deadline.** (10 marks)



2) For a task system $\{T_1, T_2, T_3, T_4\}$, with parameters (8,3), (15,8) , (20,4) and (22,10) (Every value in msec and approximate the execution times to as close as what is required), find the minimum average response time possible with release times $r_1 = 0$, $r_2 = 0$, $r_3 = 0$ and $r_4 = 0$. Write the code for the tasks and please show the screenshot of the executions and also the response times of each task. (10 marks)