Birla Institute of Technology and Science, Pilani – KK Birla Goa Campus

Real Time Systems

Assignment 2

Maximum Credit:5 **Submission deadline : 24th Jan 2021 Midnight**

A real time system consists of 3 independent, preemptive, periodic tasks $T_1(5,1)$, $T_2(8,2)$ and $T_3(12,2)$. The server also has to run a sporadic server, whose execution time will be the last digit of your BITS registration number (if it is 0, take it as 3 units of time). Make the period of the server in such a way that the overall utilization (U) is between 0.95 and 1.0.

Task 1: Schedule the system using EDF algorithm (consider the server also as a periodic task with the previously defined execution time and period) using Cheddar software

Task 2: Assume the following aperiodic jobs have to be scheduled by the system

A_1 arrives at 1 with execution time 3

A_2 arrives at 8 with execution time 4

A_3 arrives at 20 with execution time 3

A_4 arrives at 28 with execution time 5

Use EDF algorithm for scheduling the periodic tasks and the server (Refer page 216, section 7.3.3)

This you will have to do manually

Task 3: Find the response time of the aperiodic jobs

Submission

You will have to submit a single pdf file with

1. Screenshot of scheduling by cheddar

2. Manual scheduling of the server showing scheduling of periodic jobs and aperiodic jobs (server). The plot showing how budget varies at each time instant. Prepare it using any software (like the ones in lecture slides)

3. Response times of aperiodic jobs