Assignment 1

A. INTRODUCTION:

The objective of this first assignment is to analyze the response time and feasible schedule of EDF (Earliest deadline first) algorithm in real-time systems. In order to do that, the students need to download sched_edf.xml and open it using Cheddar simulator then follow the requirements which are described in TODO (from 1 to 5) as below

B. TODO-1:

Write a theoretic explanation of EDF scheduling algorithm. (Preemptive & non-preemptive)

C. TODO-2:

1) Download file sched_edf.xml and open it using cheddar simulator
2) Open scheduling simulation dialog from Cheddar toolbar and input the below parameters:
    - Schedule from 0 to 30
    - Draw from 0
    - Draw up to 30
3) Test the feasible schedule by click on scheduling feasibility from Cheddar toolbar. Explain the output results that are shown on the output window.

D. TODO-3:

1) Experiment by increasing the execution time (capacity) of each tasks in increments of 1 till a feasible schedule cannot be found (no task can meet its deadline in the scheduling simulation)
2) Report the values of execution time that a feasible schedule cannot be found
3) Explanation the experiment and report that which task fail first and why?

E. TODO-4:

1) Modify the period of Task 1 from 10 to 20 with a deadline of 20, task 2 to a period of 30 and deadline of 7.
2) Do again TODO-2 & TODO-3

F. TODO-5:

1) Change EDF algorithm from non-preemptive to preemptive in XML file
2) Do again TODO-2 & TODO-3

G. NOTES:

1) The submission date is due on 20 May, 2011.
2) Each TODO is marked of 2 for the maximum result.
3) A hardcopy of the report is needed to submit for each group.
4) Cheating and plagiarism between the groups will attract zero marks.