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Exercises for
Embedded Systems
Wintersemester 18/19

Exercise Sheet 12 (Theory)

(11 Points)

Please note: Solutions must be submitted (individually or in pairs) until 21.01.2019 at 10:00 AM (post box in OH16, ground floor, in front of room E16). Submitting solutions via mail is *not* possible. Discussion: 23.-25.01.2019.

1 Arrival Curves (1 Point)

What are the definitions of the maximum arrival curve $\alpha^u(\Delta)$ and the minimum arrival curve $\alpha^l(\Delta)$?

2 Service Curves (1 Point)

What are the definitions of the maximum service curve $\beta^u(\Delta)$ and the minimum service curve $\beta^l(\Delta)$?

3 Real-Time Calculus (4 Points)

Consider a stream of events, where at the end of each period p an event burst occurs. At the begin of each period, two events with distance d arrive. How do the *arrival curves* for the **maximum** number of events within a time window Δ look like for this stream of events? Draw the curve for the interval $[0..3p]$.

4 TDMA (4 Points)

Consider a TDMA bus with a transmission rate of b . How do the *service curves* look like for one participant to which the bus is assigned for s time units within each period p ?

5 Multiprocessor Scheduling (1 Point)

Explain shortly what are the differences between global and partitioned scheduling.