



REAL-TIME SYSTEMS

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INTENDED AUDIENCE : CSE, IT

PREREQUISITES : Operating Systems

INDUSTRY SUPPORT : All software development industries, such as MicroSoft, IBM, Infosys, TCS etc.

COURSE OUTLINE :

The rapid growth of applications deploying real-time technologies has been matched by the evolutionary growth of the underlying technologies supporting the development of real-time systems. In this course, some of the core technologies used in developing real-time systems will be discussed. Mainly, the software issues related to real-time systems will be discussed, keeping the hardware discussions to bare minimum. The software issues that will be addressed are quite expansive, including the operating system and program development issues, the networking and database issues, etc. Also, some of the popular commercial real-time operating systems and their important features will be discussed in this course.

ABOUT INSTRUCTOR :

Prof. Rajib Mall is a Professor, in Department of Computer Science and Engineering, Indian Institute of Technology Kharagpur, West Bengal. He has more than a two decades of teaching experience in the areas of real-time systems, program analysis and testing. He has written five text books and over 150 refereed research papers

Prof. Durga Prasad Mohapatra is a Professor, in Department of Computer Science and Engineering, National Institute of Technology Rourkela, Odisha. He has more than two decades of teaching experience in the areas of Real-Time Systems, Software Engineering, Software Testing, and Discrete Mathematics. He has written one text book on Discrete Mathematics and more than 100 refereed research papers.

COURSE PLAN :

Week 1: Introduction to Real-Time Systems

Week 2: Real-Time Task Scheduling

Week 3: Real-Time Task Scheduling cont ...

Week 4: Real-Time Task Scheduling cont ...

Week 5: Handling Resource Sharing and Dependencies among Real-Time Tasks

Week 6: Handling Resource Sharing and Dependencies among Real-Time Tasks cont ...

Week 7: Scheduling Real-Time Tasks in Multiprocessor and Distributed Systems

Week 8: Commercial Real-Time Operating Systems

Week 9: Commercial Real-Time Operating Systems cont ...

Week 10: Real-Time Communication

Week 11: Real-Time Communication cont...

Week 12: Real-Time Databases