

# Plant shutdown planning problems.



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## Theme 3

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### Virtual - Researchers Catch-up

Large-scale maintenance activities are conducted in all industrial settings regularly. During this period, all production activities are shut down for comprehensive maintenance activities, including disassembly, inspection, repair, and renewal of parts of equipment and assets. This process is known as 'shutdown and turnaround'.

These processes can vary from one week to four weeks, and at each shutdown, up to several thousands of tasks must be scheduled. Since there are many types of resources involved, hiring and managing resources at a minimum cost is essential while scheduling tasks. In practice, the execution of some tasks involves uncertainty, such as unforeseeable repairs job. Because short schedules offer less flexibility, therefore, short schedules are less robust against delays than longer schedules. Therefore, a good schedule is not necessary a short schedule.

In this presentation, Mojtaba talked about a framework for shutdown planning and scheduling in two steps. In the first steps, he finds resource levels and costs for generating feasible schedules using the time-cost trade-off concept in project scheduling. In the second phase, he uses a resource levelling algorithm to minimise resource idleness throughout their availability. The concept is described through an example.