

CANDIDATES' DECLARATION

This is to certify that the work which is being presented in the B.Tech. Project Report entitled “**SCHEDULING OF FLEXIBLE MANUFACTURING SYSTEM USING GENETIC ALGORITHM**”, in partial fulfilment of the requirements for the award of the **Bachelor of Technology in Computer Science & Engineering** and submitted to the **Department of Computer Science & Engineering** of **IMS Engineering College, Ghaziabad, UP** is an authentic record of our own work carried out during a period from July, 2013 to April, 2014 under the supervision of **Mr VIJAI SINGH (Asst. Professor)**, Computer Science and Engineering Department.

The matter presented in this project report has not been submitted by me for the award of any other degree elsewhere.

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CERTIFICATE

This is to certify that the B.Tech. Project Report entitled “**Scheduling of flexible manufacturing system using genetic algorithm**” submitted by Navnikaa Rajan (1014310068), Srishti Jaiswal (1014310104), Tanya Kalsi (1014310111) to the **Department of Computer Science & Engineering of IMS Engineering College, Ghaziabad (UP)**, is a bonafide work carried out under my supervision and guidance and is worthy of consideration for the award of the degree of **Bachelor of Technology in Computer Science & Engineering**.

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ABSTRACT

A flexible manufacturing system is an integrated, computer-controlled environment allows the system to react on occurrence of changes, whether predicted or unpredicted. Scheduling machines of varying capabilities in such an environment has always been a difficult task. This work reviews the various approaches applied to the scheduling problem in an FMS, the latter half of the project is an attempt to find a possible solution to the scheduling problem . Various genetic algorithm based approaches considering varied objectives and constraints have been studied and analysed to result in a comparative study. For achieving the desired performance in an FMS it is required that a good scheduling system, taking into account the system conditions should generate an optimal schedule at the right time. Genetic algorithm is capable of finding near to optimal solution in a short time although it doesn't guarantee to find an optimal solution. The project also applies genetic algorithm to generate a machine sequence to determine the order in which the various jobs would be assigned to a number of machines. The tool developed takes the input in tabulated form. Many iterations of genetic algorithm are applied in order to get a schedule with the minimum make span. The project also incorporates breakdown in the job shop environment. If a breakdown occurs then the existing schedule is discarded the system is rescheduled. The aim is to generate optimal schedule suitable for a medium sized system, with constant setup and delay times considering that breakdown occurs in the job floor.

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