Scheduling of corrugated paper production

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Corrugated paper is produced by gluing three types of papers of the same breadth. Given a set of orders, we first assign each other to one of the standard breadths, and then sequence those assigned to each standard breadth so that they are continuously manufactured from the three rolls of the specified standard breadth equipped in the machine called corrugator. Here we are asked to achieve multi-goals of minimizing total length of roll papers, total less of papers caused by the differences between standard breadths and real breadths of the orders, and the number of machine stops needed during production. We use integer programming to assign orders to standard breadths, and then develop a special purpose algorithm to sequence the orders assigned to each standard breadth. This is a first attempt to handle scheduling problems of the corrugator machine.