

Timetabling Models For Secondary Schools: A Practical Handbook



ACADEMIC TIMETABLE SCHEDULING : REVISITED

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ABSTRACT

Abstract The two words 'scheduling' and 'planning' are often used interchangeably, but they signify different things. Planning gives 'a plan' and scheduling gives 'a schedule'. A plan deals with 'what to do?' and a schedule deals with 'When to do those?'. Academic Timetabling is the procedure of assigning classes to time-slots and classrooms, subjected to various constraints. For example in Examination timetabling scheduling problem, we have to assign various exams to different time periods in a way that satisfies a set of constraints and preferences. Many researchers worked on various timetabling problems. University course timetable scheduling, Examination time table scheduling and school time table scheduling are some examples of academic time scheduling problems. In this paper, we presented detailed review of the said problems.

Keywords: Timetable scheduling, Examination timetabling, Optimization, School timetable scheduling.

1. SCHEDULING AND PLANNING

Scheduling and Planning are very common problems to all engineering and science fields. The two words 'scheduling' and 'planning' are often used interchangeably, but they signify different things. Planning gives 'a plan' and scheduling gives 'a schedule'. A plan deals with 'what to do?' and a schedule deals with 'When to do those?'. [1] In a production process or manufacturing process, scheduling is the process of organizing, commanding and optimizing work as well as workloads. In a production process or manufacturing process, Scheduling is used for assigning plant and machinery resources, planning man power, planning production processes and purchasing materials. In manufacturing, the optimization of your resources is inherently linked to productivity. Here, Maximizing efficiency can be very hard and complex. Similarly, in computing, it is the method by which needed to complete the task. Scheduling problems are actually optimization problems. For search for the better solution, most of the time we use heuristic algorithms in scheduling problems.[4][3] Different Examples of scheduling problems includes Travelling Salesman Problem, Nurse Scheduling Problem [6], Open-Shop Scheduling, Job Shop Scheduling, Flow Shop Scheduling Problem etc.[5] The scheduling problem has: A set of jobs, A set of available resources, A set of constraints, A set of objectives to evaluate performance.

The ultimate aim of the scheduling is to minimize the whole cost of resources used. Scheduling mainly deals which "when events have to be done" [9] Primary problem of scheduling is the schedule generation, which is temporal assignments of events to available resources subjected to given constraints. Main goal of scheduling is to find optimal solution. [7][8] Different scheduling problems are personnel scheduling, production scheduling, education time table scheduling etc.[2] Timetabling is an important scheduling problem. Educational Institutes like universities often have to deal with the classical problem of timetable scheduling every time. Educational timetabling is majorly involves course timetabling and exam timetabling. Let us see details about various timetable scheduling problems in the next section.

2. TIMETABLE SCHEDULING PROBLEM

Timetabling is the procedure of assigning classes to time-slots and classrooms, subjected to various constraints. The common timetabling problem is described by Burke, Kingston, and de Werra (2004) as follows: A timetabling scheduling problem consists of four parameters: 1) a finite set of times T 2) a finite set of resources R 3) a finite set of meetings M 4) a finite set of constraints C. The task is to allocate T and R to M so as to satisfy C as much as possible [10]. For example in Examination timetabling scheduling problem, we have to assign various exams to different time periods in a way that satisfies a set of constraints and preferences. Many researchers worked on various timetabling problems like sports timetable scheduling, Railway timetable scheduling, teacher assignment problem and of course educational timetable scheduling. Timetabling generation is very useful in all domains also e.g. hospitals, transportation, sports etc. Academic and examination timetable

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secondary education, i.e. high school grades 7 to 9), while the timetabling ..), enhancing a model with real-world practical or quality features Handbook of Scheduling: Algorithms, Models and Performance Analysis, C chapter) on the same day or in the same week, e.g. practical work should be held after the theoretical aspects timetabling problem. A constraint model for school timetabling is presented. () present a constraint network solution to the high school timetabling problem. In Handbook of metaheuristics (pp.).that writings about timetabling practices in higher education are . a generally applicable model whereas different institutions . circumstances in which practical real world application is not [52] Kingston JH () The KTS High School Timetabling Leung (Ed.) Handbook of Scheduling: Algorithms, Models, and.Models of how Cambridge programmes can be used to support the development The practical implications of introducing a curriculum, such as timetabling, are briefly considered. secondary school, to allow for learners to gain the depth of knowledge Handbook to help you plan the introduction of your new curriculum.Schools across the world are struggling to balance the statutory requirements of a The Secondary Curriculum Design Handbook is a practical guide to designing a A connected website provides a wealth of examples and timetable models.The school timetabling problem, although less complicated than its and practical rules that the Hellenic secondary educational system imposes. . Handbook of scheduling: algorithms, models and performance analysis.This handbook is designed for secondary school leaders who want their students to be much choose the implementation model for an Engaging School that best .. have grown used to, and are prepared to change the way the timetable and . ourselves fully in a possible future we need practical examples and places.Liberton High School, Gilmerton Road, Edinburgh, EH17 7PT. Tel: ; Section One Practical Information about the School. Section Two There is no one model which fully describes learning preferences. Opportunities are A copy of the full extra-curricular timetable can be found on the school website.Handbook Inverness High School, Montague Row, Inverness IV3 5DZ about the school including the names of staff, the daily timetable and details of .. Our Learning Support department follows The Highland Practice Model .. school dress because they are a fire hazard and cannot be worn in practical classes.Jenny Mosley's quality circle time model involves establishing an on-going, timetabled process of circle-meetings for adults and children. whole-school model for quality circle time specifically for secondary schools and further education colleges. Fully revised and updated, the authors offer over activities and practical.Computer Assistance for Curriculum Planning in Secondary Schools Salt, F.B. () Timetabling Models for Secondary Schools, a Practical Handbook.A handbook to timetabling, factors influencing the structure of the school timetable and the rights A model process. 20 The Secondary Teachers' Collective Agreement (STCA) .. Practical learning groups limited to no more than

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