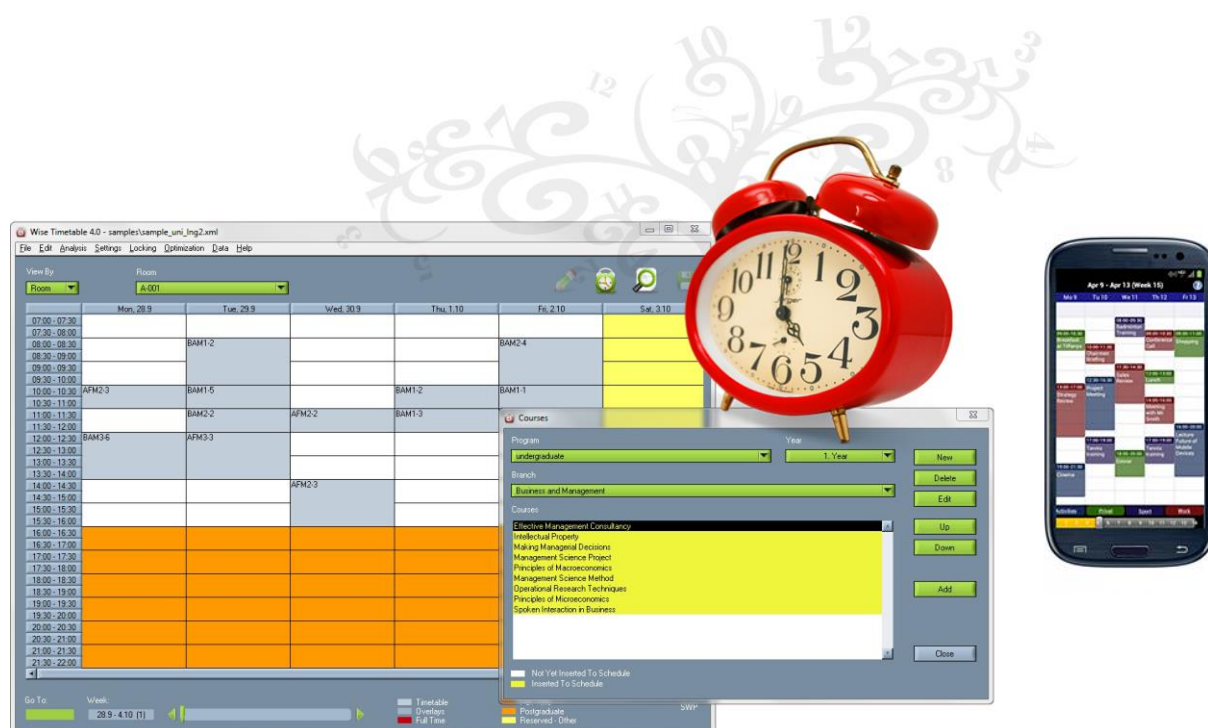# WISE TIMETABLE

Create, publish, maintain: everything you need for universities and colleges

Wise Timetable is the most comprehensive system available for creation, maintenance and distribution of timetables for universities and colleges.

Over 12 calendar years and approximately 50 engineering years were required to develop the numerous functionalities required by end users. In this interactive process, practically each and every request for functionality from customers in over 30 countries was fulfilled!

Main benefits of Wise Timetable:

- Manual and automatic course scheduling in multiple weeks;
- All necessary modules are already included in the system and installation is easy;
- You reach the desired results fast, with simple, intuitive data entry or automatic imports;
- Even the most complex and largest timetables can be easily handled;
- Suitable for every educational institution - primary and secondary schools, tuition schools, colleges, (even largest) universities;
- Web access and publishing is done with one click;
- Everything you do is always verified by the system and supported in a user friendly manner;
- Integration with your existing applications and databases is simple and supported by various interface methodologies.

Wise Timetable features:

- Enables making schedules in multiple weeks, 7 days a week;
- Tailored for use in multiple languages;
- Friendly and intuitive user interface – with local PC and web applications;
- Various data importing options (e.g. directly from database, Excel files, text files, xml, …);
- Unlimited timetable size (rooms, lecturers, programs, subject areas, groups, courses, students) – from small (several rooms) organizations to large enterprise systems;
- Prepared web pages for timetable publishing, easily customizable to fit your needs;
- Publishing schedules and their changes on the Internet with one click;
- When creating timetables users are warned in case of creating a conflict, however, they are allowed to continue their work;
- Joint use of the program among different users;
- Automatic verification of the correctness of schedule input;
- Supports an extremely complex hierarchy (program, subject area, the main group, different subgroups) and arrangement of courses;
- Swap function enables courses in the schedule to be moved easily and without conflict;
- A simple and quick way of sending schedules by emails directly from the system;
- Comprehensive Help, describing in detail the functions and examples of their use;
- Final Exam, Substitution and other modules already in the system.

Different approaches for scheduling:

- Automatic generation
- Manual input and changes
- The combination of generation and manual input
- Optimizing existing schedules
- Entries and changes of reservations via the web reservation module

Wise Timetable 4.0 - c:\Program Files\Wise Timetable\samples\sample_uni_lng2.xml

File Edit Analysis Settings Locking Optimization Data Help

View By: Lecturer
Lecturer: COHEN GEORGE

	Mon, 28.9	Tue, 29.9	Wed, 30.9	Thu, 1.10	Fri, 2.10	Sat, 3.10

Select the field which you want to move, click the right mouse button and choose Swap.

New
Edit
Edit This Week
Delete
Delete This Week
Swap
Swap This Week
View By Weeks
Locked
Mark

Green marks the entries in the timetable that can be swapped with the selected field.

White marks the empty fields that cannot be swapped with the selected field.

Grey marks the entries in the timetable that cannot be swapped with the selected field.

Magenta marks the entries in the timetable that are the same as the selected field and can be swapped with the selected field.

Bright turquoise marks the empty fields in the timetable that can be swapped with the selected field.

Go To: Week: 28.9 - 4.10 (1)

Timetable Overlays   Blocked   Preferred   SWP

Automatic generation solves even the most difficult problems:

- Primary (optimal) and ~~the~~ secondary (extended) hours
- Number of seats in the room and the number of students in the group
- Locations (generation takes into consideration the travel time between cities and buildings), holidays
- Blockade / booking lecturers, groups and rooms
- Room equipment
- Actual number of students attending courses
- Manual entry of certain courses and generating the rest
- Setting generated period for each course (beginning or end of the day, …)

Various reviews and reports:

- A quick review of unallocated courses
- List of all conflicts in the schedule
- Simple adjustment of schedule prints in PDF format
- An overview of occupancy of multiple lecturers, groups and rooms
- Reports for personnel records
- Lists of all the lecturers, rooms or courses

WEB modules can customize the functionality of Wise Timetable to your needs (all modules ready to be installed on your server):

- Exams reservation - web module that allows exams booking and at the same time booking of lecturers, groups and rooms by lecturers, administrators, receptionists etc.
- Room reservation – online module for room booking for different activities happening along regular academic processes, such as conferences, seminars, debates etc.
- Groups - web module that allows professors and assistants to reserve their own space and groups by using a comprehensive web interface for searching the suitable terms.
- Mobile browser – application for viewing online schedules with mobile devices (Android and iOS).

Technical overview

The software system consists of the following modules:

- Web applications for viewing the timetables: PHP pages
- Central database which can be one of the following (there are only some triggers defined directly on databases, all the queries are done from applications – in order to keep compatibility):
    - MSSQL
    - MySQL
    - PostgreSQL
    - DB2
    - Oracle
- Standalone Windows application (still compatible even with XP systems and all the newer Windows systems, application is 32-bit – can be compiled to 64-bit if needed). The Windows application is made using C# and C languages with use of some external libraries for PDF creating, sending emails, etc…
- WEB services server with API library for accessing the database data

Integration with other systems

As product, Wise Timetable is highly modular and capable of integration to other systems by using:

- WEB services
- XML data representation – which is native format for data storage locally on Windows – so creation of central database is even not mandatory (in case of small local installation)
- Direct integration to external databases (already done for some external systems as PowerCampus, Moodle …)
- Integration through external CSV files (provided by huge number of already available import and export formats directly from Wise Timetable)
- Ability of incorporating external optimization methods by importing data and constraints directly into application

Optimization techniques

Wise Timetable incorporates automatic timetable generating functionalities which can be combined with manual timetabling (still having various tools for checking correctness of the timetable against input soft/hard constraints).

We believe there are no other product having so many possible constraints as Wise Timetable. This fact in combination with possibility of generating multi-week (whole year actually) timetable, allows the system flexibility enabling integration into any educational organization in the world. Also, you can define any hierarchy of programs, branches, courses, years, groups, subgroups … - enabling exact "mirror" of your system in Wise Timetable.

 Optimization is done using multi-level approach and consists of the following main steps (some of them optional):

- Making of groups out of individual students in order to optimally utilize resources
- Putting the terms defined for each course into timetable (calendar) – so there is no unallocated lectures
- Optimizing of breaks between lectures for groups (according to input parameters)
- Optimizing of breaks between lectures for professors

We used a number of different algorithms (some of them are completely unique and innovated in Wise Technologies) for each step – providing complete and quick (some minutes even for large universities) automatic generation of timetables.

Process of automatic generation and manual timetabling can be combined (e.g. manually fixed lectures can be locked in various ways – and rest of lectures can be generated).

Wise Timetable automatic generating can be customized by defining number of iterations and numerous other constraints like primary and secondary hours available for lectures, soft and hard constraints for every entity involved etc… During the process, thousands (and if set, millions) of possible correct timetables are evaluated against constraints and best timetable is chosen for end result.

Mobile accessibility

Wise Technologies provides cluster of servers, providing fast and reliable web services for mobile applications (both Android and iOS apps by Wise Technologies, available free of charge via respective application stores). These servers are getting timetable data directly from central Windows application when save or export to Database is started – using POST command by curl – transfer is heavily encrypted, completely safe and contains only basic timetabling data for students and professors.