**UniTime**

**List of Analyze:**

1. **Cost of system**

The software is distributed free under an open source license in hopes that other colleges and universities can benefit their students through better scheduling or wish to contribute to ongoing research in this area. The UniTime project has become a sponsored project of the [Apereo Foundation](http://www.apereo.org) in March 2015.

1. **Algorithms they use**

We use a hybrid algorithm combining constraints programming and local-search in UniTime.

Using state-of-the-art optimization algorithms

1. **OpenSourse?**

Yes it is open source product

1. **Installation**

To install you need:

Java

MySQL / Oracle database

Tomcat

**UniTime Setup**

**Installation**

**•Hardware Requirement**

**•Any system capable of running Java and MySQL/Oracle**

**•Linux is recommended, should have enough memory, could be a VM**

**•E.g.: 8 cores, 12 GB RAM, 100 GB drive**

**•Oracle database is recommended for production environments**

**•Prerequisites**

**•Java, MySQL or Oracle Database, Apache Tomcat**

**•For larger institutions (and especially when students can access)•Cluster containing web servers and remove solver serves**

1. **Web/Desktop**

All distributions are platform independent

It is Web based application

1. **Configure your own Rules**

Yes

1. **Limitation for scheduling(Rooms, classes, teachers)**

No limits only limits in harware of your system

1. Time spend to schedule

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1. **Integration with other systems(API) - DATA EXCHANGE**

•A lot of the data can be imported via XML

•Departments, subject areas, rooms, staff, …

•Beware: rooms and staff do not get imported directly

•Rooms: use Update Data on the Buildings page

•Staff: use Manage Instructor List on the Instructors page

•Course Offerings XML can be used to import just courses, the whole structure, or anything in betweenAPIs

•Mostly to get data out of UniTime in real time

•Can be extended as needed

•Can be also used to import/export XMLs programmatically

1. **Interface:**

Distributed data entry and timetabling in multi-user environments

1. **Model they use(Constraint based or what)**

Assign class times and locations such that

•All hard constraints and other requirements are met

•Desirable objectives are satisfied as much as possible

•Minimize student conflicts

•Accommodate time and room preferences

•Allow preferred class time distributions

•Fairness, minimize travel times

1. **Functional abilities:**

Four components: course timetabling, examination timetabling, student scheduling and event management. Enables system to create timetable for entire university:

•Ability to model all types of course structure and needs

•Intuitive data entry and display of classes and their requirements

•Helps to define how students can enroll into the course

•Additional relationships can be derived from the structure

Multi-user environment

•Allows for distributed timetabling with sharing of resources

•Rooms, instructors, and students

•Typical use: distributed data entry + centralized timetabling

•Data are entered by schedule deputies at each academic unit

•Course timetable is produced at a central timetabling office

Customization

•Many configuration properties, custom CSS, etc.

•Localization

•User roles & permissions

•Authentication (CAS, LDAP, Spring Security)

•Custom reports

•JavaScript / Python scripts

•Automation

Data Exchange

•XML imports and exports

•RESTful APIs (JSON)

•CSV/PDF/iCal exports

## links

## <https://www.unitime.org/index.php?tab=0>

[**https://www.unitime.org/present/patat18-slides.pdf**](https://www.unitime.org/present/patat18-slides.pdf)

[**https://www.unitime.org/papers/itc2019-patat2018.pdf**](https://www.unitime.org/papers/itc2019-patat2018.pdf)

[**https://www.unitime.org/present/patat2016.pdf**](https://www.unitime.org/present/patat2016.pdf)

[**http://help.unitime.org/Timetabling\_Installation**](http://help.unitime.org/Timetabling_Installation)

[**https://www.researchgate.net/figure/Example-of-a-curriculum-prepared-in-UniTime-timetabling-system\_fig1\_264623269**](https://www.researchgate.net/figure/Example-of-a-curriculum-prepared-in-UniTime-timetabling-system_fig1_264623269)

[**http://www.unitime.org/index.php?tab=1**](http://www.unitime.org/index.php?tab=1)

[**https://www.unitime.org/present/woebegon.pdf**](https://www.unitime.org/present/woebegon.pdf)

[**https://www.unitime.org/present/apereo19-intro.pdf**](https://www.unitime.org/present/apereo19-intro.pdf) **----- can be used for research work**

[**https://www.unitime.org/present/apereo17-workshop.pdf**](https://www.unitime.org/present/apereo17-workshop.pdf) **--- can be used for research work(32 slide)**

[**https://docs.google.com/document/d/1fbY1RMVz5kup7e-ulGUhd1J\_X6Ql9yYn0nr9xxSKb-w/edit**](https://docs.google.com/document/d/1fbY1RMVz5kup7e-ulGUhd1J_X6Ql9yYn0nr9xxSKb-w/edit)