

# Teacher's Manual for TitoTrainer

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## 1 What is TitoTrainer?

TitoTrainer is a system that allows creation and solving of automatically graded exercises that use TTK-91 programming language. It is designed to be a support tool for teaching the course Tietokoneen Toiminta (Computer Organization I). In TitoTrainer teachers can create new tasks and define how they are graded automatically. Students, both those attending the course and those interested in studying on their own, can attempt to solve the tasks and receive feedback from their answers.

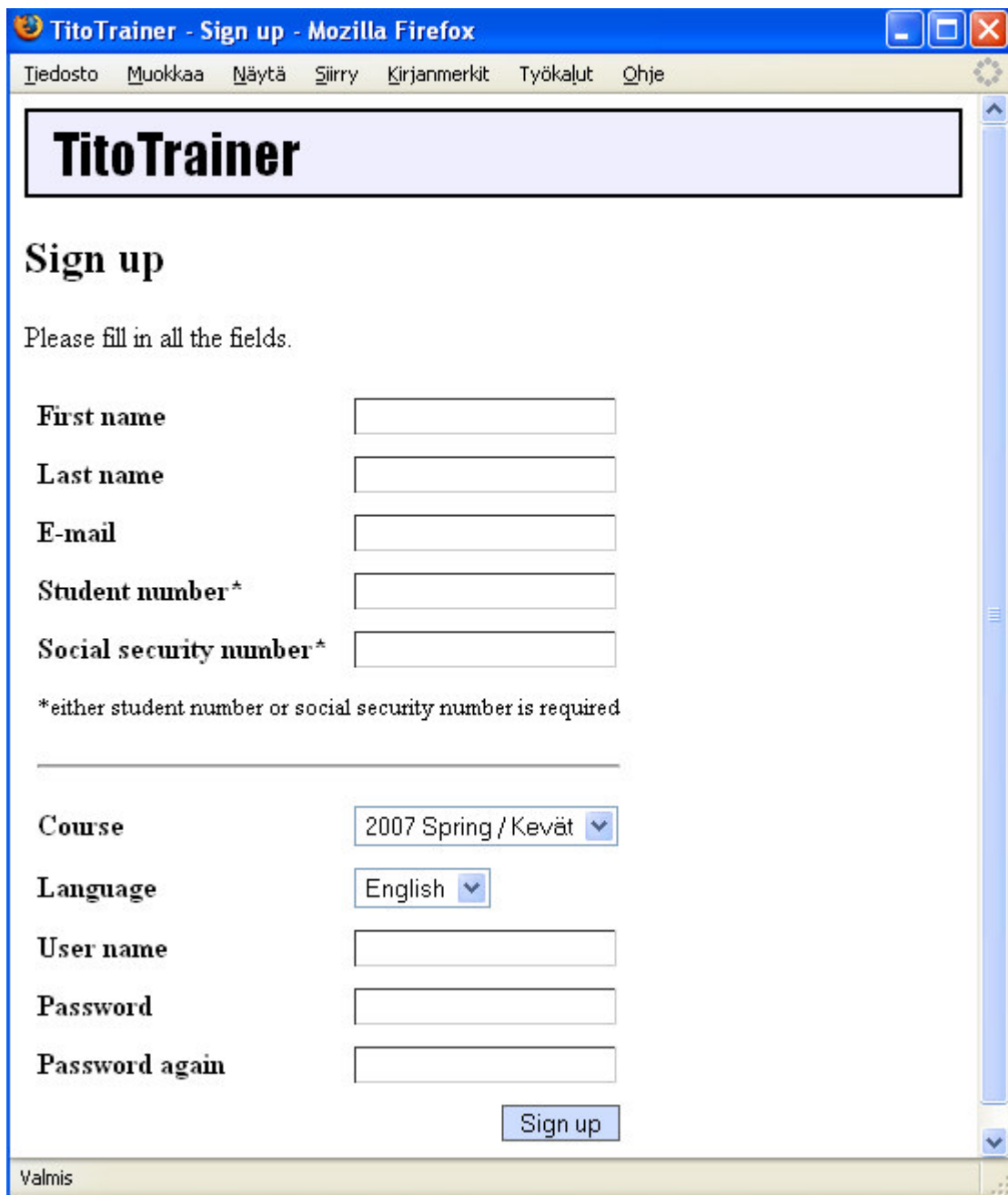
## 2 How to start using TitoTrainer

### 2.1 Signing up

If you don't yet have a username as a teacher, open the page for student sign in at <http://sysdb.cs.helsinki.fi:10025/titotrainer/www/login.jsp> and click on the 'Sign up' link at the bottom of the page. The alternative is inserting your login information directly into the database with SQL, but that is not recommended.

1. In the sign up page you are required to fill in all the fields, except for student number and social security number, of only one is mandatory.
2. E-mail can be any valid e-mail address.
3. Student number and/or social security number must be of University of Helsinki and Finnish format, respectively.
4. Course and Language fields don't matter for teachers. Teachers' user interface is only in English.

5. You can choose any user name and password you like. Please pay attention that you can not change your user name later on. Password must be 6-12 characters long, and neither username nor password may contain white space.



The screenshot shows a web browser window titled "TitoTrainer - Sign up - Mozilla Firefox". The browser's menu bar includes "Tiedosto", "Muokkaa", "Näytä", "Siirry", "Kirjanmerkit", "Työkalut", and "Ohje". The main content area features a large "TitoTrainer" header, followed by a "Sign up" section. Below the header, it says "Please fill in all the fields." and lists several input fields: "First name", "Last name", "E-mail", "Student number\*", and "Social security number\*". A note below these fields states "\*either student number or social security number is required". Below a horizontal line, there are two dropdown menus: "Course" (set to "2007 Spring / Kevät") and "Language" (set to "English"). At the bottom of the form are three more input fields: "User name", "Password", and "Password again". A "Sign up" button is located at the bottom right of the form. The browser's status bar at the bottom left shows "Valmis".

Once you have signed up, ask some teacher who already has a teacher-level username to change your status from student to teacher. At least Teemu Kerola and Harri Laine should have teacher-level usernames.

## 2.2 Signing in

You can find teacher sign in at

<http://sysdb.cs.helsinki.fi:10025/titotrainer/www/login.jsp?role=teacher>

You can sign in by entering the username and password you chose in the 'Sign up' page to the appropriate fields. It doesn't matter whether you use the teacher or student sign in page. If your

status is a teacher, you will be redirected to the teacher pages. If you have forgotten your password, you can request that a new one be e-mailed to you (see 2.3 *Recovering your password*).



The screenshot shows a web browser window titled "TitoTrainer - Sign in - Mozilla Firefox". The browser's menu bar includes "Tiedosto", "Muokkaa", "Näytä", "Siirry", "Kirjanmerkit", "Työkalut", and "Ohje". The main content area features a large header box with the text "TitoTrainer". Below this, the heading "Sign in" is displayed. There are two input fields: "Username" and "Password". A "Sign in" button is positioned below the password field. A blue underlined link labeled "Forgot your password?" is located below the button. The status bar at the bottom of the browser window shows the word "Valmis".

### 2.3 Recovering your password

If you have forgotten your password, you can recover it by clicking on the 'Forgot your password?' link in the 'Sign in' page.



Just type in your username to the 'Username' field and press the 'Send email' button. TitoTrainer will create a new (random) password for you, change your password and e-mail the new one to the e-mail address defined in your profile. For security reasons (even though they shouldn't, people tend to use same passwords in various systems), your original password will never be sent in e-mail.

### 3 Task, course & category listing

The screenshot shows the TitoTrainer web application interface. At the top, there is a navigation bar with the following links: [New task \(English\)](#), [New task \(Finnish\)](#), [Task list](#), [Search users](#), [Modify own account](#), [Olli Opettaja \(teacher\)](#), and [Logout](#). The main content area is divided into three sections:

**Courses**

Name ↕	
2007 Spring / Kevät	<a href="#">Statistics</a> <a href="#">Delete</a>
2006 Fall / Syksy	<a href="#">Statistics</a> <a href="#">Delete</a>
2006 Spring / Kevät	<a href="#">Statistics</a> <a href="#">Delete</a>
Course name <input type="text"/>	<a href="#">Create new course</a>

**Task categories**

Category	
Exercise 1 <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
Exercise 2 <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
Exercise 3 <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
Exercise 4 <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
Exercise 5 <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
Exercise 6 <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
Testit <input type="text"/>	<a href="#">Update</a> <a href="#">Delete</a>
New category <input type="text"/>	<a href="#">Create new category</a>

**Tasks**

Name ↕	Type ↕	Category ↕	Lang ↕	Author ↕	Modified ↕	
<a href="#">Simple math</a>	programming	Exercise 1	EN	Testi Tiina	2006-12-05	<a href="#">Modify</a> <a href="#">Modify as new</a> <a href="#">Delete</a>
<a href="#">Register math</a>	programming	Exercise 1	EN	Kerola Teemu	2006-12-07	<a href="#">Modify</a> <a href="#">Modify as new</a> <a href="#">Delete</a>
<a href="#">Yhteenlasku</a>	fill-in	Exercise 1	FI	Kerola Teemu	2006-12-07	<a href="#">Modify</a> <a href="#">Modify as new</a> <a href="#">Delete</a>

This is the main page for teachers. It displays all tasks, courses and categories defined in TitoTrainer. You can sort course and task listings in ascending or descending order with the little arrows in the title bars.

#### 3.1 Courses

Course listing displays all courses entered into the system. Not all courses necessarily have any participation records. Tasks are not tied to any specific course. You can perform the following actions to courses:

1. Add a new course by typing its name into the 'Course name' field and pressing 'Create new course' button.
2. Delete a course by pressing its corresponding 'Delete' button. TitoTrainer will ask for confirmation, as this is an irreversible action. All course statistics (participation records) are lost. This action doesn't affect categories or tasks.
3. View the course statistics by pressing the corresponding 'Statistics' button (see *5 Course statistics*).

#### 3.2 Categories

Categories are groupings of tasks. They are completely up to the teachers to define, and are not tied to any specific course. You can perform the following actions to categories:

1. Create a new category by typing its name into the 'New category' field and pressing the 'Create new category' button.

2. Delete a category by pressing its corresponding 'Delete' button. TitoTrainer will ask for confirmation, as this is an irreversible action. Categories that still contain tasks can not be deleted before the included tasks are either deleted or moved to another category.
3. Rename a category by replacing its old name with a new one and pressing the 'Update' button. All tasks in the old category will be transferred to the newly named category.

### 3.3 Tasks

Tasks are the definitions and criteria of the TTK-91 problems students will try to solve. All tasks defined in TitoTrainer are shown in the listing. You can perform the following actions to tasks:

1. Create a new task, either with Finnish or English template (note that this affects only the task feedback – it doesn't force either language on the student user interface) by clicking on the links on the top of the window. For details, see *4 Adding/modifying a task*.
2. Modify a task by pressing the corresponding button in the same row with the task name. Again, for details, see *4 Adding/modifying a task*.
3. Take an old task as a template for a new task by pressing the corresponding 'Modify as new' button.
4. Delete a task by pressing its corresponding 'Delete' button. TitoTrainer will ask for confirmation, as this is an irreversible action. This action also deletes all information of who might have solved the said task.
5. Try out the task in the student view by clicking on the name of the task. You will be taken to the answer page.

### 3.4 Task templates

In TitoTrainer default feedbacks for task criteria are stored in task templates. Templates can be edited just like any other tasks. You can access them from the links on the bottom of the listings page.

## 4 Editing your profile

You can edit your personal information by clicking on the 'Modify own account' link on the top of any page while you are logged in. The page is very similar to 'Sign up' page and same rules concerning input apply. All changes are saved only when you press the 'Save' button.

TitoTrainer - Edit Your Profile - Mozilla Firefox

Tiedosto Muokkaa Näytä Siirry Kirjanmerkit Työkälut Ohje

**TitoTrainer** [New task \(English\)](#) [New task \(Finnish\)](#) [Task list](#) [Search users](#) [Modify own account](#) Olli Opettaja (teacher) [Logout](#)

### Edit Your Profile

User name **olliope**

First name

Last name

E-mail

Student number\*

Social security number\*

\* either student number or social security number is required

---

*Change password*

New password

New password again

Valmis



## 5 Adding/modifying a task

The same page is used for adding and modifying tasks. While modifying, the previous values are pre-filled into their respective fields. The task is only saved when you press the 'Save' button on the bottom of the page, so if you leave the page without pressing it, the task will not be saved or all changes will be lost.

The page has in-built checking procedures that prevent you from entering invalid input. However, it can not check whether your task actually works as it should – this is up to you.

If you are familiar with Titokone or TTK-91 language, you should have no problems using this page. Below are outlined some points to help you out if you are having trouble.

### 5.1 Task properties

1. Task name is the only mandatory field. This is the name displayed to the students, so choose a descriptive one.
2. Instructions are the instructions displayed to the students on what kind of program they are supposed to make.
3. Public input is the input shown to the student. Secret input isn't revealed but can be used to define another set of criteria values – this prevents cheating to some degree. Both inputs have to be integers separated by commas, and are given to Titokone as if they were input from keyboard.
4. Feedback on success / feedback on failure are the feedbacks displayed if the task succeeds / fails.
5. Task types Programming / Fill-in correspond to a whole program / sub-routine a student is expected to write. With 'fill-in' you can enter the code that goes before and/or after the student's answer.
6. The correctness of a student's answer can be determined with predefined values or values resulting in running the program you input with Titokone. Switching between these two views maintains your input in both until you save the task, so feel free to experiment.

### 5.2 Criteria

1. If you don't input any value to a certain value field, that check isn't made when checking the student's program. That extends also to public and secret input values – you can fill in only one if you like. All values must be integers. Quality criteria values must be positive integers.
2. Each criteria has separate pass/fail feedback.
3. You can require or forbid the students to use certain TTK-91 instructions in the program. Solutions that don't meet these criteria fail. Note that students are never told what those instructions are, so if you want them to know, you need to specify them in the instructions or feedback.
4. Outputs must also be integers separated by commas.
5. 'Maximum number of executed instructions' must be greater than zero. It prevents TTK-91 program from entering an endless loop.

### 5.3 Printable view

In case you want to print out your task, TitoTrainer provides a print-friendly view of task creation. Just press 'Show printable view' button on the bottom of the page to switch the print-friendly view on, and 'Hide printable view' button to switch it off.

## 6 Course statistics

Course Autumn 2006 tasks done - Mozilla Firefox

Tiedosto Muokkaa Näytä Siirry Kirjanmerkit Työkajut Ohje

**TitoTrainer** [New task \(English\)](#) [New task \(Finnish\)](#) [Task list](#) [Search users](#) [Modify own account](#) Olli Opettaja (teacher) [Logout](#)

### Course 2006 Fall / Syksy tasks

Student	Student or Social Security Number	1	2	3	4	5	6	7	8	Total
<a href="#">Kivilä, Markus</a>	012602593	×	✓	×	×		✓			2
<a href="#">Palma, Tuomas</a>	1234567825				×	✓	✓	✓	×	3

✓ accepted  
 × unfinished

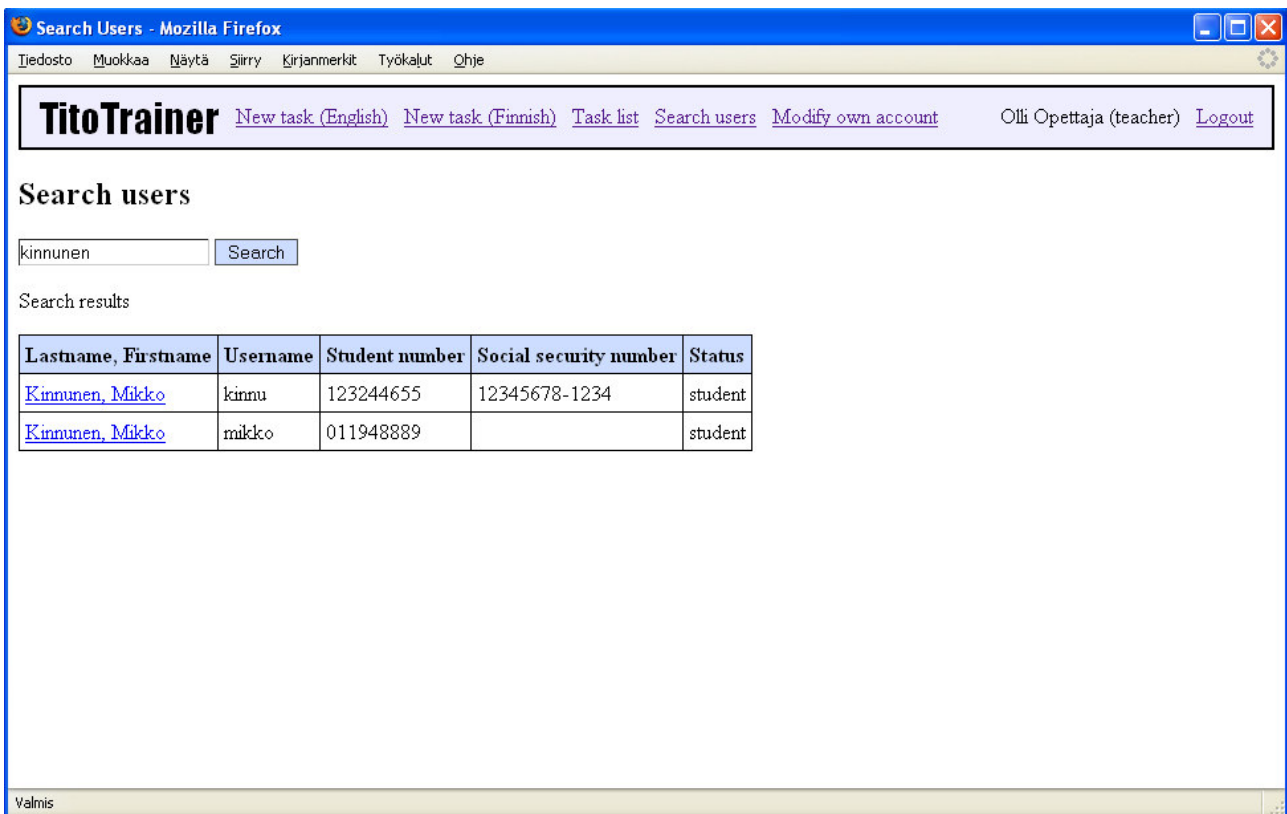
1 = Bitwise operations  
 2 = Input and outputs  
 3 = Simple math  
 4 = Testcase 1 (arvotarkistus : rekisteri)  
 5 = Testcase 2 (arvotarkistus : symboli)  
 6 = Testcase 3 (mallitarkistus : symboli)  
 7 = Testcase 4 (arvotarkistus: suoritus)  
 8 = Testcase 5 (virhe mallitarkistuksessa)

Valmis

Course statistics display the students who have at least tried to solve the tasks while logged in as students of that certain course, and what tasks they have solved. The tasks are numbered, and you can view the corresponding names either on the bottom of the page or by holding the mouse cursor over the task number.

You can access the information about each student by clicking on his/her name.

## 7 Information about users



**TitoTrainer** [New task \(English\)](#) [New task \(Finnish\)](#) [Task list](#) [Search users](#) [Modify own account](#) Olli Opettaja (teacher) [Logout](#)

### Search users

Search results

Lastname, Firstname	Username	Student number	Social security number	Status
<a href="#">Kinnunen, Mikko</a>	kinnu	123244655	12345678-1234	student
<a href="#">Kinnunen, Mikko</a>	mikko	011948889		student

Valmis

You may search for the record of a specific user by choosing “Search users” from the menu on the top of the page. Input the search criteria into search field and press the ‘Search’ button. The criteria will be checked against all usernames, first names, last names, student numbers and social security numbers. Wildcards (\*, ?) can not be used.

The results will contain both teachers and students enrolled in the system. Proceed to the information about an individual student/teacher by clicking on their name.

**User information**

- First name: Mikko
- Last name: Kinnunen
- Email: mkinnunen@cs.helsinki.fi
- Social security number:
- Student number: 011948889
- Status: student

(Will remove user account and all user information)

(Will upgrade user's status to teacher)

New password:   (Will update user's password)

**Tasks**

Task	Number of tries	Last date	Course name
✓ Yhteenlasku	2	2006-12-07	2007 Spring / Kevät
✓ Register math 2	3	2006-12-07	2007 Spring / Kevät
✓ Register math	3	2006-12-07	2007 Spring / Kevät

**Overall:**  
 ✓ 3 accepted  
 ✗ 0 unfinished

Valmis

In the user information page you can

1. Remove the user by pressing the 'Remove' button. Note that this operation can not be reversed and all the information about the tasks student has solved will be lost.
2. Change a student to a teacher or a teacher to a student by pressing 'Upgrade status'/'Downgrade status' button. This is useful for giving course assistants a chance to create new tasks for the duration of the course, for example.
3. Change a student's password. If for some reason students can't receive their password retrieval e-mails, they may request you to change their passwords. Teachers' passwords can't be changed.

You will also be displayed the information about the user and, in the case of students, the list of tasks they have solved or tried to solve. Note that these tasks include all the courses. If you are interested in how the student is doing in a certain course, please use the 'Course statistics' page (see *5 Course statistics*).

## 8 Logging out

You can log out from TitoTrainer by clicking on the 'Logout' link in the top-right corner. You will be redirected to the 'Sign in' page.