ERASMUS+ Project

"Implementation of Software Engineering Competence Remote Evaluation for Master Program Graduates"

Intellectual Output O2. Software Engineering Competence Evaluation Internet Portal (SECEIP)

How to use SECEIP’s Moodle Environment

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FOREWORD

Developed in the framework of the project "iSECRET - Implementation of Software Engineering Competence Remote Evaluation for Master Program Graduates" that is financed by the ERASMUS+ Programme of the European Commission, the Software Engineering Competence Evaluation Internet Portal (SECEIP) constitutes a modern, multifunctional web portal addressed to the European educational community.

In fact, SECEIP is the result of the joint and wider effort of six academic institutes coming from six different European countries to develop a Syllabus Template for Joint Master Program on Software Engineering, to propose an advanced Rubrics system and to develop a self-evaluation tool that could be used by every European master student, in order to evaluate the competences acquired by the proposed model master program.

Following an authentication procedure, SECEIP allows its users (students, professors, assessors etc.) to access the SECEIP Environment which includes several functionalities designed and developed in order to permit the evaluation and certification of the competences obtained in the framework of a Software Engineering & Software Technology Master Program, aiming to the improvement of the existing curricula so as to meet the current needs and requirements of the labour market.

The competences defined by the iSECRET partnership and available for evaluation are divided into two categories: professional and academic. For the definition of the professional competences per course (Study Subject), the partners of the project iSECRET were based on the decomposition of the European e-Competence Framework, a common European framework for ICT Professionals in all industry sectors that is currently widespread adopted by companies and organisations throughout Europe. As far as the academic competences are concerned, these were defined on the basis of the iSECRET partners’ experience in handling Master programs on Software Engineering & Software Technology.

The SECEIP supports the following group of users:

1. Students or Authenticated Users that can use SECEIP in order to be self-evaluated in a specific academic or professional competence (registration is required);
2. Professors interested in benefiting from SECEIP as a freely available tool in order to: a. define the learning outcome and general information for their study subject(s); b. insert the appropriate for their study subject(s) professional and academic competences; c. create rubrics for the competence evaluation, and, finally, create quizzes thus providing the possibility of competence evaluation through their study subject(s) (registration is required);
3. Guest users who can view all the content of the Software Engineering & Software Technology Master Program and the provided knowledge, skills, attitudes and learning outcomes (no registration is required).

To help SECEIP users with the use of the Moodle environment, a HELP menu on the http://moodle.kic.teiep.gr contains three useful tools: the present SECEIP’s User Manual addressed to Professors and Students, one Training Course (only for registered users), and one Video on the use of SECEIP.
PART 1. Registration and Access Guidelines for Professors & Students
SECEIP constitutes a common research-based online tool (Open Educational Resource) which supports the open exchange of information on learning outcomes, referring to a graduate’s knowledge, skills and competence upon completion of a Software Engineering & Software Technology Master Program.

In order to benefit from this online service, Students, authenticated users and Professors who want to acquire full access to SECEIP’s competence evaluation procedures must be registered.  

*Let’s see step by step what you should do to get registered.*

1. **How to register to SECEIP**

   Either a Professor or a Student, in order to become an authenticated user and get access to the SECEIP’s Moodle Environment, you must contact the SECEIP administrator ([iSECRET@kic.teiep.gr](mailto:iSECRET@kic.teiep.gr)) or follow the self-registration procedure available, so as to get a username and a password.

   **More specifically, if you are not a registered user**, you can follow one of the two available registration options to get your username and password:

   - **MANUAL REGISTRATION**
     
     The SECEIP Administrator could give you a login name and password in order to access SECEIP. Ask your Institution to contact the SECEIP Administrator in order to ensure access to SECEIP for you.

     *Keep in mind that* when entering **SECEIP for the first time**, **it is important to change your password**. Details on this procedure will be given in section 2. **How to change your password**.

   - **E-MAIL BASED REGISTRATION**
     
     SECEIP offers self-registration to SECEIP to an outside user via email. To register via email:

     **Step 1.** Open your browser and navigate to [http://moodle.kic.teiep.gr](http://moodle.kic.teiep.gr). Go to the Log in link on the right upper corner of the introductory (home) page of the Portal (**Figure 1**)

     **Step 2.** In the page that opens, click on the button “CREATE NEW ACCOUNT” (**Figure 2**);

     **Step 3.** Fill out the form that opens (**Figure 3**) and click on the “CREATE MY NEW ACCOUNT” button;

     **Step 4.** Verify your account via the email you will receive automatically.

     *Keep in mind that* in order to log in after the self-registration procedure, you will use the username and password chosen during the self-registration procedure, so no change of the password is required in that case.
Figure 1 The “Log in” link

Figure 2 The Self-registration Area
Some important notes:

**Professors (Teachers)** can add, modify and edit data in the study subject that they are responsible for. SECEIP includes several study subjects and their description and Professors can insert and edit the data referring to their Study Subject(s). **Moreover, Professors (Teachers)** can enrol a student in their study subject(s), following the procedure described in **Part 2 - 5. How to enrol a user in your Study Subject**.

**Students** can view all the relevant information about the study subject in which they are enrolled and participate in a competence evaluation procedure. As abovementioned, in order for students to be enrolled in a study subject, they must acquire an enrolment key (different enrolment key per study subject is required). So, if you are a student, in order to get your enrolment key(s), you can contact the SECEIP Administrator ([isecret@kic.teiep.gr](mailto:isecret@kic.teiep.gr)) or the Professor (Teacher) of each study subject you are interested in.
Congratulations! You have your credentials, so let’s see step by step how you can access the SECEIP’s Moodle Environment.
2. How to Access SECEIP

Step 1. Open your browser and navigate to http://moodle.kic.teiep.gr. The introductory page of the Portal appears. This Home page is accessible to everyone and contains an overview of the basic project information (Figure 4).

Notice that for as long as you are visiting the portal without having logged in, the message “You are currently using guest access” appears on the upper right corner of the visited page.

From the Home page you can get access to the Log in Area (see Step 2 below).

![The Portal’s Home page](image-url)
Step 2. In order to log in, press the Log in option on the upper right corner of the web page. Alternatively, the Log in page opens if you click on the menu MASTER PROGRAM and select one of the major or specialization subjects offered in the corresponding submenus or by clicking on the option Courses of the Navigation panel on the right side of the Home page.

The Log in page opens (Figure 5).

![Figure 5 The Log in Area](image)

Step 3. Now that you are inserted in the Log in Area, fill in your username and password and press the button LOG IN.

Step 4. Congratulations! You have entered SECEIP for the first time! If you had registered manually (cf. 1. How to register to SECEIP), remember to change your password (cf. 3. How to change your password).
3. How to change your password

**Step 1.** You are already logged in. If logged out for any reason, log in again.

**Step 2.** Go to your Profile button and click on the Preferences option (FIGURE 6)

![Figure 6 The user’s profile options](image)

**Step 3.** The Preferences page opens and you click on the Change password option (FIGURE 7)

![Figure 7 The interface of the page Preferences and the Change password option](image)
Step 4. A new page opens. Fill in your current password and then the new password following the password specifications provided. Retype the new password and click on the SAVE CHANGES button (Figure 8). Now your account is safe! Notice that you are allowed to change password as often as you like.

![Image of Change password interface](image)

Figure 8 The interface of the page Change password

Your registration and access to SECEIP’s Moodle Environment are settled, so let’s see step by step how you can use this platform!
PART 2. Guidelines on How to use SECEIP’s Moodle Environment Addressed to Professors (Teachers)
1. **Getting started**

After logging in, a list of all your study subjects appears at the central part of the Professors User Interface (“Course overview”). Simultaneously, the main menu (top menu) of the portal (MASTER PROGRAM, E-CF DECOMPOSITION, FORUM) remain visible. Moreover, the Professor is given the possibility to customise the page by clicking on the “Customise this page” button (FIGURE 9).

![Figure 9 SECEIP’s Home Page](image)

As far as the FORUM menu is concerned, it includes two discussions created by SECEIP administrator in order to support and provide guidance to Professors (teachers): Integration & Feedback and Support (FIGURE 10).

![Figure 10 The FORUM menu](image)
2. How to select your study subject

In order to navigate to a Study Subject, you have two options:

Option 1. You can choose the study subject of preference from the Course overview (Figure 11).

![Figure 11 List of Study subjects in the Course overview section-window](image)

Or

Option 2. You can choose the study subject of preference using the top menu (Figure 12).

![Figure 12 Top selection menu for Study Subjects](image)
3. Professor’s Study Subject Interface

After the selection of a Study Subject, a Professor could access three main navigation areas:

a) The study subject’s main menu (FIGURE 13);
b) The Navigation panel (FIGURE 17);
c) The Administration panel (block) (FIGURE 18).

More analytically, after the selection of a Study Subject, the study subject’s main page appears and includes:

a) The Study subject’s main menu (FIGURE 13) for selecting the following study subject fields:
   i. Description Section (FIGURE 14) where a professor could add, modify and view information of the study subject his is responsible for. Description page presents the following sections: Subject description, access requirements, subject contents, Assessment, Observations/recommendations, Reading list and Additional information sections.
   ii. Announcements for including study subject’s announcements
   iii. Learning Outcome section (FIGURE 15) for adding, modifying and viewing the list of knowledge, skills, attitudes and competences for his/her study subject.
   iv. Rubrics section (FIGURE 16) for adding the requirements and grading scale in order to create a rubric table for the competence evaluation.
   v. Academic and Professional Competence Evaluation area for creating the evaluation quizzes for one academic and one professional competence for each study subject.
   vi. E-CF Decomposition section for: a) adding a professional competence defined by the European e-Competence Framework (e-CF) (http://profiletool.ecompetences.eu) through the e-CF Decomposition table, or b) adding an academic competence through the Competence-Table.
   vii. Help section

Figure 13 The Study Subject’s Main menu
Figure 14 Study subject's interface

Figure 15 Learning Outcomes' interface
b) **The Navigation panel** for accessing the above study subject’s sections (**FIGURE 17**)

c) **The Administration section** to administrate the study subject (**FIGURE 18**).
Figure 18 The Administration panel (block)
4. How to insert and edit data to your Study Subject

To edit or insert data to your study subject, you have to select a study subject field from the study subject’s main menu.

When you want to edit or fill in a table in a study subject, you have to:

**Step 1.** Go to the “Description” tab and then choose the table you want to edit. For example, you click on “The Subject” (**FIGURE 19**)  

![Figure 19 Selecting a table](image)

**Step 2.** You go to the Administration block and choose the “Edit settings” option, as in **FIGURE 20**
Step 3. The editing page for the Subject opens and you can fill in and edit the provided fields, or change the appearance settings etc. (FIGURE 21-Figure 22):

Figure 20 Accessing the Edit settings through the Administration panel

Figure 21 Editing or filling in a description table
Figure 22 Filling in the Page content

**Step 4.** The changes made are saved after pressing one of the “SAVE” buttons (FIGURE 23).

Figure 23 Setting options and SAVE – CANCEL buttons
5. How to enrol a user in your Study Subject

As a Professor (teacher) of any Study Subject, you can follow one of the two available enrolment options in order to enrol a student in your study subject.

- **1st OPTION: THE MANUAL ENROLMENT**

A Professor (teacher) can manually add a Student to the list of enrolled users by following the next steps:

**Step 1. You use the Administration panel to select the option Users from the drop down list of your current study subject in which you are logged in, as in **FIGURE 24**.

![Figure 24 The first step in order to manually enrol a Student in your Study Subject](image)

**Step 2. Select the “Enrolled users” link, as in **FIGURE 25**
Figure 25 The Enrolled users page

Step 3. On the Enrolled users page, click the ENROL USERS button, as in Figure 26

Figure 26 The ENROL USERS button
Step 4. In the pop-up window (box) that opens, the list of users will show.

Use the “Assign roles” drop down list, if you wish to assign a different role than the preselected one, as in Figure 27.

Select enrolment options as appropriate, as in Figure 27.

Click on the ENROL button next to the name of the user to add the user.

When a user is added, the user will indent in and the ENROL button will disappear, as in Figure 28.

When done, click on the FINISH ENROLLING USERS button, as in Figure 28.

Figure 27 Assigning roles and enrolling users in a study subject

Figure 28 Enrolling users in a study subject
Step 5. Once done, the users should appear on the “Enrolled users” page, as in Figure 29.

Figure 29 The list of Enrolled users in a study subject

- 2nd OPTION: THE ONLINE (SELF-) ENROLMENT

SECEIP offers online enrolment for the self-registered users via email (see PART 1 – 1. How to register to SECEIP). Students can sign up to courses themselves. The Professor can restrict enrolment to those who have been given an Enrolment key and, if needed, SECEIP administrator manages the enrolment keys.

More specifically, as a Professor, you are allowed to add an enrolment key for your study subject if you wish only a certain group of users to self-enrol (and not anyone). To do that, you can set an enrolment key which you then tell them to use when they access the self-enrolment screen by following the steps below:

Step 1. Navigate to Administration > Course Administration > Users, as in Figure 30
Figure 30 The first step to enrol a Student in your Study Subject using the online enrolment

**Step 2. Click Users > Enrolment methods, as in Figure 31**

Figure 31 Selecting the Enrolment methods

**Step 3. In the “Enrolment methods” page that opens, the self-enrolment must be (has its eye open) enabled and you click on the edit icon on the right, as in Figure 32**
Step 4. Add your enrolment key in the box provided, as in Figure 33. Click Unmask, if you want to see what you are typing, as in Figure 34.
Step 5. You can see the enrolment key after checking the Unmask option, as in Figure 35.

Step 6. Click on the “Save changes” button in order to save the new enrolment key for your study subject that you are responsible for.

Now the enrolment key can be used in order for a student to be self-enrolled in your study subject. You (or the SECEIP’s administrator) could supply the enrolment key to authorized people. This distribution is private email, snail mail, on the phone or even verbally in a face-to-face meeting, such as a class or counselor’s office.
6. **How to insert e-CF professional competences**

If you want to insert a professional e-CF competence to your study subject, you should select a study subject (see Section 2. [How to select your study subject](#)).

**To insert a professional competence in a study subject, you have to access the e-CF Decomposition table.**

**A few words about the e-CF Decomposition table**

The e-CF Decomposition table includes the description of a set of professional competences as applied at the Information and Communication Technology (ICT) workplace, using a common language for competences, skills, knowledge and proficiency levels that are defined by the European e-Competence Framework (e-CF) ([http://profiletool.ecompetences.eu](http://profiletool.ecompetences.eu)).

![European e-Competence Framework 3.0 overview](source: www.ecompetences.eu/e-cf-overview)

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<td>B.4. Solution Deployment</td>
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<td></td>
<td>E.9. IS Governance</td>
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</table>

Figure 36 Overview of the European e-Competence Framework (source: [www.ecompetences.eu/e-cf-overview](http://www.ecompetences.eu/e-cf-overview))
The table in Figure 36 includes three columns. The first column contains five e-Competence areas derived from the Information and Communication Technology (ICT) business processes, enumerated from A to E, i.e. A. Plan, B. Build, C. Run, D. Enable, E. Manage. The second column describes the e-Competences by providing for each competence area the description of skills, knowledge and proficiency levels. The third column gives the e-Competence proficiency levels.

To insert a professional competence in your study subject, you have to:

**Step 1. Go to the “e-CF Decomposition” tab and click on the e-CF Decomposition link (Figure 37)**

![Figure 37 The contents of the e-CF Decomposition tab: the E-CF Decomposition and Competence-Table links. Selecting the E-CF Decomposition](image-url)

**Step 2. Select the competences you want to insert from the table (Figure 38)**

![Figure 38 Selecting an e-CF competence](image-url)
Step 3. Click on INSERT, as in FIGURE 39

Figure 39 Inserting an e-CF competence

The list of the inserted professional competences is created and can be viewed in the Competence-Table page (as in FIGURE 40), in a common list together with the Academic Competences (as shown in FIGURE 42 below). The first column indicates the competence identifier and the first 7 digits represent the competence number. For instance, in our example (FIGURE 40) the competence number is Sp07.1Pr and is given automatically by the system. The second part of the competence identifier is given also automatically based on the user’s selection of professional competence by the e-CF Decomposition table.

Figure 40 Overview of the professional competences in a completed competence-table
7. How to insert an academic competence

To insert an academic competence to your study subject, you have to select a study subject (see Section 2. How to select your study subject).

To insert an academic competence in a study subject, you have to:

**Step 1. Go to the e-CF Decomposition tab and click on the Competence-Table link (Figure 41)**

![Figure 41 Accessing the Competence-Table](image)

**Step 2. Click on Insert New Academic Competency, as in Figure 42**

![Figure 42 Inserting an academic competence](image)
Step 3. Fill in the fields required, i.e. Knowledge-Skill Attitude Number, Competency Title, and Competency Weight, and click on Insert New Academic Competency, as in Figure 43.

In the field “Knowledge-Skill Attitude Number” you have to add two or more digits (e.g. XX) for defining the skill, knowledge or attitude number of the inserted academic competency. More specifically:

- If you want to insert a skill you have to insert the letter “S” followed by the skill number S#. For example, if you want to insert the third skill for an academic competence you have to type S3
- If you want to insert a knowledge you must insert the letter “K” followed by the knowledge number K#. For example, if you want to insert the eleventh knowledge for an academic competence you have to type K11
- If you want to insert an attitude you have to insert the letter “P” followed by the attitude number P#. For example, if you want to insert the third attitude for an academic competence you have to type P3
- If you want insert a general academic competence, you have to insert only the number of academic competence. For example, if you want to insert the third academic competence, you have to type 03

After having added all your academic competences, the list of the inserted academic competences is created and can be viewed in the Competence-Table page, in a common list together with the Professional Competences, as in Figure 44 below.

The first column related to the Academic Competences indicates the competence identifier that consists of 8 digits, i.e. the 6 digits that represent the competence number, plus the 2-3 digits
that indicate the Knowledge-Skill Attitude Number. For instance, in our example (FIGURE 44) the competence identifier is Mj08.1A.K1.
8. How to view and make changes in the list of the e-CF and academic competences for each study subject

To view the list the competences inserted in your study subject, you have to select a study subject (see Section 2. How to select your study subject).

To view the inserted competences, you have to:

**Step 1.** Go to the “e-CF Decomposition” tab and click on the Competence-Table link, as in **Figure 45**

![Figure 45 Accessing the Competence-Table](image)

**Step 2.** A page including the list of both professional and academic competences together with buttons that allow to change value and delete competence appears, as in **Figure 46**

![Figure 46 Parts of a competence-table including both professional and academic competence of the selected study subject, the change value and delete competence options](image)
9. How to create/edit a rubric table

In order to provide a competence evaluation at your study subject, you must create specific rubrics with evaluation requirements and grading scale.

For each competence (academic or professional) included in the Competence-Table (cf. Section 6 and 7), a separate rubric table (like the one presented in Figure 47) must be created. The rows of this table correspond to the items in the competence definition. The columns of this table correspond to the levels of scoring. Four levels of scoring are defined, i.e. Beginning – 1, Developing – 2, Accomplished – 3, Exemplary – 4.

Each competence rubric is labeled using the competence number given in the corresponding professional or academic competence, i.e. the 7-digit or the 6-digit part of the competence identifier included in the first column of the Competence-Table, respectively (see Figure 47 and Figure 50).

Each competence rubric contains three parts: knowledge, skills and attitude/proficiency that are described and included in the Competence-Table (cf. Section 6 and 7).

![Figure 47 Example of a completed Rubric template](image-url)

To create (or edit) a rubric table, follow the following steps:

*Step 1. From the Administration block on the left, you open the drop down list “Page module administration” and you click on the “Edit settings” as in Figure 48.*
Step 2. In the window that opens, you start adding your content in the field “Page content”, as in Figure 49.

Step 3. In the column “Level/Score” you should insert the same competence identifier as the one in the 1st column of the corresponding Competence-Table (Figure 50 and Figure 51).
Step 4. Then you complete all the information necessary in the rest of the fields, such as the Competence Description and the weight number, as in Figure 51. For each item in the competence definition, a separate weight is inserted in rubric tables. Total competence score calculation is performed using weights from 0 to 1.

Step 5. After completing all the fields required, you click on one of the SAVE buttons, as in Figure 52.
10. How to insert a quiz

You have already selected your Study Subject (see Section 2. How to select your study subject), you have created a template to describe the set of competences for your subject as a collection of knowledge, skills and attitude/proficiency level, and you have also created the rubric table for the competence you want to be evaluated.

So, now you can create quizzes for knowledge, skills and attitude/proficiency level to provide competence evaluation.

In order to provide an evaluation for a professional or academic competence included in the corresponding Competence-Table, you have to create three quizzes.

For each quiz, the following restrictions should be considered:

1. Each quiz must be named after the competence number, as also inserted in the corresponding rubric table (see FIGURE 47 above).
2. Each quiz must consist of at least 10 questions.
3. Each question of a quiz is a multiple choice question with four possible answers.
4. At least one question is prepared for each line of the rubric table. All the questions should be closely related to the contents of the rubric table.

Let’s see now the steps to follow in order to upload a quiz:

**Step 1.** You click on the “Academic and Professional Competence Evaluation” tab and you click on the “Turn editing on” button, as in FIGURE 53, to activate the editing options.

![Figure 53 Turning editing on](image)

**Step 2.** You click on the “Academic and Professional Competence Evaluation” tab and you select the option Add an activity or resource, as in FIGURE 54
Step 3. A pop-up menu appears. You click on the Quiz option and you press the ADD button, as in **Figure 55**

![Figure 55 Adding a quiz](image)

Step 4. It is compulsory to give your Quiz a name, and optionally, a description (**Figure 56**). As already mentioned, a quiz must be named after the competence number, as also inserted in the corresponding rubric table (see **Figure 47** above)
Step 5. To save, you click on one of the two save options SAVE AND RETURN TO COURSE or SAVE AND DISPLAY, as in Figure 57.

NOTICE THAT:
By clicking on the SAVE AND RETURN TO COURSE button, you are transferred to Step 6.
By clicking on the SAVE AND DISPLAY button, you skip Step 6 and you go directly to Step 7.
Step 6. The quiz has been created and now you have to edit it in order to add the questions. You click on the name of the quiz, as in Figure 58

![Figure 58 Starting editing your quiz](image)

Step 7. In the page that appears, you click on the EDIT QUIZ button (Figure 59)

![Figure 59 The EDIT QUIZ button](image)

Step 8. You click on the Add option, as in Figure 60

![Figure 60 Adding questions](image)
Figure 60 The Add option

**Step 9.** From the list that appears, you select the + a new question option, as in **Figure 61**

Figure 61 The + a new question option

**Step 10.** A pop-up menu appears. You choose the question type you want to add (in our case, you always select the multiple choice) and you click on the ADD button (**Figure 62**)
Figure 62 Choosing a question type to add

Step 11. In the new window that opens, you complete:

A. the mandatory fields for a multiple choice quiz question with four answers, i.e. the:
   Question name, that must be the same as the competence identifier to which the question is referred and closely linked
   Question text and
   Default mark

B. those of the optional fields that are necessary to add a multiple choice question to your quiz and you click on the SAVE CHANGES button,

as in **Figure 63, Figure 64, and Figure 65**.

*Remember that for iSECRET Competence Evaluation, *four possible answers* must be introduced for every question.*
Figure 63 Adding a Multiple choice question (editing the General information section)
Figure 64 Adding a Multiple choice question (editing the Answers section)
Step 12. The first question is ready and you repeat the procedure from Step 7 to Step 10 as many times as necessary till the completion of the quiz (Figure 66).
Figure 66 Editing your quiz: Overview and editing options for already inserted questions and Add option for the creation of new question(s)
11. How to create badges

A few words about the Moodle Badges:

Badges are a good way of celebrating achievement and showing progress thus motivating users. They are an electronic way to demonstrate that you have mastered a specific skill. Moodle badges may be awarded based on a variety of criteria chosen by the teacher. You can upload your own images as badges or get them from a site.

There are two categories of badges:
- Site badges - available to users site-wide and related to the site wide activities, like finishing a set of courses. As far as SECEIP is concerned, teachers in a course cannot by default access site badges
- Course badges - available to users enrolled in the course and related to the activities that happen inside the course. In the example that follows, we will show how to create and manage badges related to the completion of a quiz.

Badges may be awarded based on a variety of chosen criteria. For the course badges we are interested in, the criteria are (see Figure 74 below):
- Manual issue by role
- Course completion
- Activity completion.

NOTICE THAT:
- When selecting the criterion “Manual completion by role”, you can choose the role you wish to award the badge, so for example a teacher could allow a non-editing teacher to award badges in the course.
- For badges to be awarded for “course completion” or “activity completion”, such as the completion of a quiz in the example that follows, Completion tracking must be enabled in the site and the course (see Figure 68 below).

Once the course is built with whatever activities that are to be completed and the completion tracking for the course has all been set up and defined, then the teacher can add a badge. First you add the badge name, description and image, then you configure the criteria to be used, and finally you enable the badge.

A teacher is then able to look at the badges in a course and the recipient list of who earned the badge and when they received it.

Let’s see, now, how to create and handle course badges in the SECEIP Moodle Environment.

Step 1. You select the Study Subject (see Section 2. How to select your study subject) that includes the activity to which you are interested in adding a badge. From the Administration
panel on the left, you go to the Course administration > Edit settings (Figure 67) and then you enable the Completion tracking, as shown in Figure 68.
**Step 2.** You move to the activity where you want to add the badge (in the present example, the activity is a quiz), you click on the Edit link on the right, and you select the Edit settings option, as shown in [Figure 69].

![Figure 69: How to access the Edit settings of a selected activity-quiz](image)

**Step 3.** You set the requirements that should be met so as to consider an activity completed ([Figure 70]).

![Figure 70: Setting requirements for an activity](image)
Step 4. Now you can add your badge by clicking on Administration > Course administration > Badges > Add a new badge (Figure 71) > Badge details. Add a name and description and upload your badge, as shown in Figure 72, and then fill in the fields Issuer details and the Badge expiry, as shown in Figure 73. When you add your name in the field Issuer details, the name will appear when the badge is displayed. An email address is optional. In the Badge expiry field, set a date here if the badge will cease to be valid after a certain date. Leave it to never if you want the badge to be permanently displayed.
Figure 71 The Add a new badge option

Figure 72 Adding the badge details
Step 5. When the settings are saved, you are then taken to the Manage badges screen where you can decide the criteria for awarding the badge. In our example, the criterion set is Activity completion, as shown in Figure 74.
Step 6. Finally, you select the activity for which you want to award the badge (FIGURE 75)

Figure 75 The final step for adding a new badge

Notice that before a badge has been issued to at least one user, all its details and settings can be edited.

Clicking on the name of a badge takes you to the screen where you can manage details of that particular badge. The following options (tabs) are available:

**Overview:** This screen provides an overview of the badge details

**Edit details:** If you wish to change the details of a badge once you have set it up, you must first click to "disable access". Once you have edited the details, you must then click to "enable access" again.

**Criteria:** Here you can see the criteria set and any descriptions added when adding the badge

**Message:** This setting allows you to edit the message which goes to a badge earner. Among additional options here are "Attach badge to message" which allows adding an image file to an email and "Notify badge creator" selector which allows setting frequency of notifications sent to badge creator when this badge is issued to users.

Badge notification messages may be sent via email and/or instant messaging. The badge notification email has the issuer name and contact set as From address. The badge notification instant message appears to be sent from the primary teacher for course badges.
12. How to create an Announcement

The section “Announcements” is a special forum for general announcements automatically created for each course.

As a professor you can add a new topic in a course following the steps below:

Step 1. Click on the Announcements link, as in Figure 76

![Figure 76 The first step to add a new topic](image)

Step 2. In the new page that opens, click on the ADD A NEW TOPIC button as in Figure 77

![Figure 77 The ADD A NEW TOPIC button](image)

Step 3. Complete the required fields marked with “*” and any of the optional fields you want, and, finally, click on the POST TO FORUM button, as in Figure 78

![Figure 78](image)
Figure 78 Adding content in your announcement
**Step 4. Your announcement was successfully added.**
You have 30 mins to edit it, if you want to make any changes, by clicking on the link provided in the Discussion column (**FIGURE 79-FIGURE 80**). From the same page, you can also Delete the announcement (topic), without time limitations, whenever you want.
After concluding with the changes desired, you click on the SAVE CHANGES button, as in **FIGURE 81**

![Image of announcement page with successful addition message]

*Figure 79* The message of the successful creation of a new topic and the list of available announcements (discussions)

![Image of announcement page with new quiz]

*Figure 80* Editing an Announcement
Figure 81 Saving changes in an Announcement
13. How to access training course

To help SECEIP users with the use of the Moodle environment, a training course addressed to all authorized users, including Professors, has been created.

*Follow the following simple steps below in order to access the training course environment.*

**Step 1. Click on the HELP menu (Figure 82)**

![Figure 82 The HELP menu](image)

**Step 2. In the drop down menu that opens, click on the Training Course (Figure 83)**

![Figure 83 Selecting the submenu Training Course from the drop down menu](image)
PART 3. Guidelines on How to use SECEIP’s Moodle Environment Addressed to Students
1. Introducing SECEIP

The Software Engineering Competence Evaluation Internet Portal (SECEIP) presents to the students predefined sets of Learning Outcomes and Competences (both Professional and Academic) for each course (Study Subject) in the frame of an exemplary Software Engineering & Software Technology Master Program. The aim is to attest that the Program provides its students with specific knowledge, skills and attitudes that are necessary in order for software engineers to meet the current needs and requirements of the labour market. For this reason, Competences and Learning Outcomes are clearly defined, measurable, and related to the knowledge, skills and attitudes identified.

Moreover, in order to achieve as much as possible accuracy in the evaluated competences of the participants, SECEIP portal clearly defines each competence and clearly links it to the quizzes provided through the Competence Evaluation module developed.

The Competence Evaluation module constitutes the main component of SECEIP. It is a web-based application that implements the evaluation of the study procedure in the framework of the Software Engineering & Software Technology Master Program. So, when the phase of obtaining competences is finished (i.e. the teaching/study period), then the master student is able to be self-evaluated in any chosen academic or professional competence.

The procedure is simple: To perform the self-evaluation, a master student could select a study subject and run the competence evaluation application. Through the Learning Outcome link, he/she will see the list of the expected learning outcomes (knowledge/skill/attitudes) for the chosen Study Subject. Whenever a student wants to evaluate a competence, he/she can access SECEIP through his/her computer and complete the quizzes. After completing the evaluation, the student is informed about the evaluation result and his/her learning portfolio will be updated automatically.

The sections that follow will guide you step by step on how to use and take full advantage of the Software Engineering Competence Evaluation Internet Portal, putting a special emphasis on the evaluation procedure.

We wish that SECEIP will become a valuable tool and a useful companion to your efforts to acquire the competences required by the labour market.
2. How to be enrolled in a study subject and edit your profile

Students can be enrolled in a study subject manually or by using their enrolment keys.

- **1st OPTION: THE MANUAL ENROLMENT**

A Professor or the SECEIP Administrator can enrol a student in his study subject by manually adding the student to the list of the enrolment users. After this procedure, you will be able to log in as Student in a specific study subject without any further procedures required.

- **2nd OPTION: THE MANUAL ENROLMENT**

Moreover, SECEIP offers online enrolment to its users by using an enrolment key for the selected study subject.

If you are not manually enrolled in a study subject by your professor or administrator, you may be enrolled via the following online enrolment procedure.

So, if you are a student, in order to get your enrolment key(s), you must contact the SECEIP Administrator (isecret@kic.teiep.gr) or the Professor (Teacher) of each study subject you are interested in.

The enrolment key could be given to you by email, orally in a face-to-face meeting, snail mail, etc.

You got the enrolment key for a specific Study Subject and you can proceed with your self-enrolment following the steps below:

**Step 1. You select the Study Subject to be enrolled in (see 3. How to select a study subject)**

**Step 2. You insert the enrolment key in the corresponding field and then click on the ENROL ME button, as in FIGURE 84**

![FIGURE 84 The self-enrolment procedure for a student](image-url)
**Step 3.** After completing the procedure, an email will be sent to your email account, as in **Figure 85**

![Image](image1.png)

If you have not done so already, you should edit your profile page so that we can learn more about you:

`http://moodle.kic.teip.gr/user/view.php?id=________`

**Figure 85** Part of the email received after completing the self-enrolment

**Step 4.** By using the link sent, you transferred to a page that gives access to all your profile information and the possibility to Edit/update your profile (**Figure 86**, **Figure 87**, **Figure 88**)

![Image](image2.png)

**Figure 86** The student’s profile page

![Image](image3.png)

**Figure 87** The short list of the Edit profile options
### General

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<tr>
<td>Surname</td>
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</tr>
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<td>Email address</td>
<td>Please enter your email address</td>
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<td>Enter the email display format</td>
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<td>City/town</td>
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<tr>
<td>Select a country</td>
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<td>Select your timezone</td>
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<tr>
<td>Description</td>
<td>Enter your description</td>
</tr>
</tbody>
</table>

### User picture

- Current picture:  
- New picture:  
- Picture description:  

### Additional names

- First name - phonetic:  
- Surname - phonetic:  
- Middle name:  
- Alternate name:  

### Interests

- List of interests:  

Enter your information for each field.
Figure 88 The available Edit profile fields
3. How to select a study subject

As a student, you can select a Study Subject in which you are already enrolled in order to view its information, such as the subject Description, the Learning Outcomes, the set of Competences and the available quizzes for the performance of the self-evaluation procedure.

If you wish to perform a self-evaluation to a competence, you have to select a study subject that contains this competence in its e-CF Decomposition Competence-Table (see Section 7. E-CF Decomposition) and then to follow the competence evaluation application (see Section 8. Academic and Professional Competence Evaluation). Through the Learning Outcome tab (cf. FIGURE 93), you will see the list of the expected learning outcomes (knowledge/skill/attitudes) for the chosen Study Subject.

It must be reminded that as a student you are given full access to all information, but you cannot edit.

In order to navigate to a Study Subject, you have two options:

Option 1. **You can choose the study subject of preference from the Course overview (FIGURE 89)**

![Figure 89 List of Study subjects in the Course overview window](image)

Or

Option 2. **You can choose the study subject of preference using the top menu (FIGURE 90).**
Figure 90 The top selection menu for Study Subjects
4. **Study Subject Student’s Interface**

After the selection of a Study Subject, as a student you could access three main navigation areas:

a) The study subject’s main menu;
b) The Navigation panel;
c) The Administration panel.

The study subject’s main page appears and includes:

a) **The Study subject’s main menu** *(Figure 91)* for selecting the following study subject fields:
   i. Description Section *(Figure 92)* where a student could view information about the study subject in which he/she is enrolled. Description page presents the following sections: Subject description, access requirements, subject contents, Assessment, Observations / recommendations, Reading list and Additional information sections
   
   ii. Announcements
   
   iii. Learning Outcomes section *(Figure 93)* for viewing the list of knowledge, skills, attitudes and competences for the selected study subject
   
   iv. Rubrics section *(Figure 94)* for viewing the grading scale of the competences
   
   v. Academic and Professional Competence Evaluation area *(Figure 95)* for accessing the evaluation quizzes for one academic and one professional competence for each study subject
   
   vi. E-CF Decomposition section *(Figure 96)* for viewing the set of professional competence defined by the European e-Competence Framework (e-CF) *(http://profiletool.ecompetences.eu)* through decomposition table or viewing the set of academic competence through competence-table
   
   vii. Help section, where you can find and download the Manual with guidelines useful to any SECEIP user *(Figure 97)*.

![Figure 91 The Study Subject’s Main menu](#)
Figure 92 The Description section

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Subject contents:
- Uninformed Search, Constraint satisfaction
- Constraint satisfaction SMT
- Constraint satisfaction SMT
- Linear Programming
- Advanced Informed Search, Integer Programming
- Probabilistic Graph Models
- Probabilistic Inference
- Markov Decision Processes
- Reinforcement Learning
- Continuous Optimization
- Machine Learning
- Deep Learning
- Deep Reinforcement Learning
- Deep Learning Applications
- Game solving
- Future Directions of AI and CSA

Assessment:

<table>
<thead>
<tr>
<th>Evaluation criterion</th>
<th>Instruments</th>
<th>Evaluation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Class attendance</td>
<td>Active participation will be assessed based on the contribution of the individuals to class discussion</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>1.2. Practises</td>
<td>The achievement of the exercises imposed in practice labs will be assessed</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>1.3. Theory exam</td>
<td>Knowledge acquired by the student will be assessed</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>71%</td>
<td></td>
</tr>
</tbody>
</table>

Observations/Recommendations:
In order to be able to attend the final exam, the student must have passed both the practical exams and the average grade of the practical exams must be above 6.0.

Reading list
Figure 93 The Learning Outcomes section

Figure 94 The Rubric section
Figure 95 The Academic and Professional Competence Evaluation area

Figure 96 The e-CF Decomposition section

Figure 97 The Help section
b) *The Navigation panel* for accessing the above study subject’s sections *(FIGURE 98)*

![Figure 98 Overview of the students’ Navigation panel](image)

Figure 98 Overview of the students’ Navigation panel

c) *The Administration panel* with links related to the enrolment and unenrolment procedure (only in case of self-enrolment), to Grades, and Course Competencies *(FIGURE 99)*.

![Figure 99 View of the students’ Administration panel](image)

Figure 99 View of the students’ Administration panel
5. How to visit specific information about a selected study subject

In the examples that follow, the authenticated user “student teiep” is enrolled in the study subject “Advanced Computer Engineering” provided by the Technological Educational Institute of Epirus, Greece (TEIEP).

After logging in, several tabs allow the student to access information, such as the subject Description, the Learning Outcome, the Rubrics.

What you must do is to click on the relevant tab and check the available information, as in the examples that follow in FIGURE 100 - FIGURE 104.

More specifically,

- In section Description, in order to access the information included in page “The Subject”, you click on “The Subject”, as in FIGURE 100. Then, you can see the Subject information provided by the Professor(s), as in FIGURE 101.

![Figure 100 Overview of the selected Study Subject](image-url)
In section Learning Outcome, you can see the list of the expected learning outcomes (knowledge/skill/attitudes) for the chosen Study Subject as identified by the Professor(s), as in Figure 102.
Figure 102 An example of the expected Learning Outcome linked to the selected Study Subject (1)
- In section Rubrics (Figure 103), you can access the levels of scoring, as defined for every competence (academic or professional). Each competence rubric (Figure 104) contains three parts: knowledge, skills and attitude/proficiency that are described and included in the Competence-Table (see Figure 113 and Figure 114). The columns of a rubric table correspond to the levels of scoring. Four levels of scoring are defined, i.e. Beginning – 1, Developing – 2, Accomplished – 3, Exemplary – 4.
6. Announcements

Any announcement published by the teacher(s) of a specific study subject can be accessed by clicking on the tab Announcements, as in Figure 105.

![Figure 105 Accessing Announcements linked to the selected Study Subject](image)

From the page that opens, you click on the link Announcements, as in Figure 106.

![Figure 106 The page Announcements](image)

From the list with the published announcements you select the one you want, as in Figure 107.

![Figure 107 Selecting a specific Announcement linked to the selected Study Subject](image)
The details and content of the specific announcement show, as in **Figure 108**

**Figure 108** The content and details of an announcement
7. E-CF Decomposition

A. A few words about the definition of competences for SECEIP

The competences defined by the iSECRET partnership and available for evaluation are divided into two categories: professional and academic.

For the definition of the professional competences per course (Study Subject), professors are based on the decomposition of the European e-Competence Framework, a common European framework for ICT Professionals in all industry sectors that is currently widespread adopted by companies and organisations throughout Europe. More specifically, the European e-Competence Framework (e-CF) (www.ecompetences.eu) provides a reference of 40 competences as applied at the Information and Communication Technology (ICT) workplace, using a common language for competences, skills, knowledge and proficiency levels that can be understood across Europe. The e-CF gives clear definitions and sound orientation to support decision-making in relation to the selection and recruitment of candidates, as well as the qualification, training, curricula and assessment of ICT professionals. It enables the identification of skills and competences that may be required to successfully perform duties and fulfill responsibilities related to the ICT workplace. The widespread adoption of the e-CF by companies and organisations throughout Europe has started to increase the transparency, mobility and efficiency of ICT sector related human resources.

As far as the academic competences are concerned, these are defined by the professor(s) responsible for each study subject.

Here below, you will find the basic steps on how to see the competences of a selected Study Subject.

B. How to see the professional and academic competences and their description in Computer Science field

In order to see the competences defined for a selected Study Subject, follow the steps below:

*Step 1. Click on the e-CF Decomposition tab, as in Figure 109*

![Figure 109 Selecting the e-CF Decomposition tab](image)

*Step 2. Click on the Competence-Table link, as in Figure 110*

![Figure 110 Selecting the Competence-Table link](image)
Step 3. Now you can see the table with the list of available competences, as in Figure 111. The list includes both the Professional and Academic competences.
The table consists of three columns. The first column includes the competence identifier. The existence of the “Pr.” indicates a Professional Competence, while the existence of “A.” indicates an Academic Competence.

More specifically:

**The structure of a Professional Competence identifier is the following:**

####.(#)#Pr.##(#)#(#) (let’s take for example the number Mj08.15Pr.A6S7):

- ####:. The first 4 digits refer to the number of the specific Study Subject (in our example, the number of study subject is Mj08)
- (##)###: The next 3-4 digits give information about the competence number and the type of competence (in our example, we are talking about the fifteenth professional competence since the four digits “15Pr” include the number “15” and the initials “Pr” that stand for a professional competence)
- ##(#): The next 4-6 digits are related to the competence number and type from the list of competences as they are defined by the European e-Competence Framework. The initial two-three digits indicate the competence number of the professional competence as included in the European e-CF, and the next two-three indicate the competence type. (in our example, we see the competence that is included in European e-CF with the number A6 and which is referred to the seventh Skill characteristic S7)
  - The existence of “K” indicates a knowledge
  - The existence of “S” indicates a skill
  - The existence of “P” indicates a proficiency level

**The structure of an Academic Competence identifier is the following:**

####.(#)#A.##(#) (let’s take for example the number Mj08.1A.P1)

- ####:. The first 4 digits refer to the number of the specific Study Subject (in our example, the number of study subject is Mj08)
- (##): The next 2-3 digits give information about the competence number and the type of competence (in our example, we are talking about the first academic competence since the four digits “1A” include the number “1” and the initial “A” that stands for an academic competence)
- ##(#): The next 2-3 digits indicate the Knowledge, Skill or Attitude Number of the specific academic competence (in our example, we are talking about the first attitude of the specific academic competence). As valid also in the professional competences,
  - The existence of “K” indicates a knowledge
  - The existence of “S” indicates a skill
  - The existence of “P” indicates a proficiency level
  but here we have also a fourth option: the existence of general academic competences, indicated by the existence of “0” instead of the letters.
C. How to see the detailed description of the professional competences

If you want to see the detailed description of the professional competences that is included in the Competence-Table with a specific identifier, you must follow the next steps:

**Step 1. Click on the e-CF Decomposition tab, as in Figure 109**

**Step 2. Click on the e-CF Decomposition link, as in Figure 112**

Figure 112 Accessing the e-CF Decomposition

**Step 3. You access the e-CF Decomposition table (Figure 113) that gives a reference of the selected competences as applied at the Information and Communication Technology (ICT) workplace, using a common language for competences, skills, knowledge and proficiency levels that can be understood across Europe. The second column indicates the number of competence number of the professional competence as included in European e-CF (www.ecompetences.eu) (F.ex. in Figure 113 the first row of the second column includes the professional competence A1).**

Figure 113 Part of the e-CF Decomposition table
**Step 4.** To see the details of each competence, click on it. The general description of the specific competence will appear together with an expandable list related to Proficiency Levels, Knowledge Examples and Skills Examples, as in **FIGURE 114**.

![Image of competencies](image.png)

**Figure 114** Clicking on a competence to view its details

**Step 5.** To see all the competence details, click on:

- **Proficiency Levels** to see the detailed description of the Proficiency Levels as defined in the European e-CF. If the competence identifier in the Competence-Table (as shown in **FIGURE 111**) has the initial “P”, you have to access this section. Then you have to select the Proficiency Level that has the same number with the last digit of the competence identifier.

- **Knowledge Examples** to see the detailed description of the Knowledges defined in the European e-CF. If the competence identifier in the Competence-Table (as shown in **FIGURE 111**) has the initial “K”, you have to access this section. Then you have to select the specific Knowledge that has the same number with the last digit of the competence identifier.

- **Skills Examples** to see the detailed description of the Skills defined in the European e-CF. If the competence identifier in the Competence-Table (as shown in **FIGURE 111**) has
the initial “S”, you have to access this section. Then you have to select the specific Skill that has the same number with the last digit of the competence identifier.

So, for any Proficiency Level or Knowledge or Skill that you have selected you can see the corresponding details, as in Figure 115, where, in the blue box, appears the detailed description of the competence with competence identifier Mj08.15Pr.A6S7 that has in the last part of its identifier the number A6 and refers to the seventh skill characteristic S7.

Figure 115 Overview of all details of a competence
8. Academic and Professional Competence Evaluation

The tab Academic and Professional Competence Evaluation (Figure 116) gives access to quizzes.

To attempt one or more quizzes linked to a selected Study Subject, you need to follow the procedure described here below:

**Step 1.** You click on the tab Academic and Professional Competence Evaluation, as in Figure 116

**Step 2.** A window with two lists opens: one for the Academic Competence Evaluation and for the Professional Competence Evaluation. You click on the competence you want to self-evaluate, as in Figure 117

Figure 116 The Academic and Professional Competence Evaluation tab

Figure 117 Selecting a Competence (linked to the selected Study Subject) for evaluation
Step 3. In the new page that opens, you click on the “ATTEMPT QUIZ NOW” button, as in Figure 118.

Figure 118 Starting a quiz

Step 4. Question 1 appears, as in Figure 119

Figure 119 An example of question
Step 5. After clicking on the selected answer, you click on the button NEXT PAGE to proceed to the next question, as in Figure 120

Figure 120 After replying the first question

Step 6. You repeat the same procedure till the last question of the specific quiz (most of the quizzes consist of 10 questions or more).

Step 7. After answering the last question of the quiz, the window “Summary of attempt” appears and you click on the SUBMIT ALL AND FINISH button to conclude, as in Figure 121

Figure 121 Submitting your completed quiz
Step 8. A confirmation window pops up and you click on once again on the SUBMIT ALL AND FINISH button, as in Figure 122. After this step, no cancellation/change is permitted.

Figure 122 The final submission of the completed quiz

Step 9. After the definitive submission, your grade appears together with the correct answers, as in Figure 123

Figure 123 Review of the correct answers
Step 10. After checking your performance as far as all questions are concerned, you click on the FINISH REVIEW button, as in Figure 124.

Step 11. A summary of all your attempts appears, together with your grades, as in Figure 125.

You are ready to profit from SECEIP! We wish you a pleasant and fruitful self-evaluation experience!