Learning Roadmap Studio – Tutorial

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Abstract

This document describes how users approved with *Student profile* should use this Web application. It explains user permissions, policies and available features in order to promote full use of learning roadmaps, from teacher deployment to user achievement.

Platform philosophy and concepts are explained at first, followed by practical examples of use.

Introduction

The learning roadmap studio (LRS) demonstrator composes an Web application. Learning Roadmap Studio is a tool that creates and manages learning Roadmap with associated learning objects that can be incorporated in eLearning platforms. It meant to be used by the actors who act in the learning process: Course managers, tutors and students.

Learning Roadmaps provide a suitable answer to the research question on this tutorial. A Learning Roadmap (or pathway) consists in a detailed description of the life-cycle of one or various disciplines. It comprehends all contents and associated events and activities that conduce to the goal of a thematic issue. Each thematic issue is indexed with each learning mark.

Learning roadmaps are conceived with different approaches, methodologies and definitions, according with who is creating them and for whom the education is targeted. The available literature is not consensual, and several companies or institutions that produce learning contents use their own methodology plan. To proceed with research, it is important to clarify and specify what the meaning of a Learning Roadmap is.

Having in mind the semantic framing of words and goals of this project, it is proposed the following definition for Learning Roadmap: Detailed description of the life cycle of a discipline. It comprehends all contents and associated events and activities that conduce to the goal of a thematic issue. Each thematic issue is indexed with each learning mark.

Concepts

To prevent a poor use of Learning Roadmap Studio, below, will be explained concepts behind user policies, application features and logic, describing the philosophy used.

Profiles in users universe of LRS

To operate with the LRS, users must ask, when register, what they want or need to be to interact with the system. *Students* are users who tend to view learning roadmaps, analyzing information and knowledge, created or deployed by Tutors. Moreover, *Tutors* depend on the course creation and structure organization made by the *Course Managers*. Finally, *Administrators* are a special group of users with special features for platform management, that don't interfere with the learning process.

User interface

3 groups compose LRS user interface: *Main window*, which includes *menu window* and *action window*. Action window provides the *horizontal bar options*, described later in this document. (Figure 10)

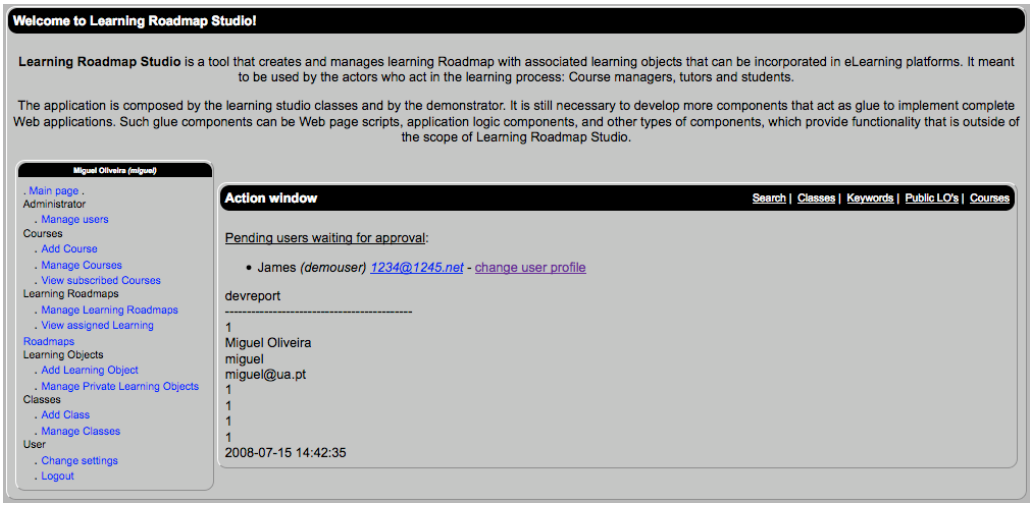

Figure 1 – LRS user interface

Learning Objects

A learning object (LO) is the smaller piece that acts as a significant learning unit. Although its size can vary, a learning object must be mapped for only one unique purpose or concept, independently of the context or any other learning piece, enabling it's reuse, trace and

management. Basically, think in a LO as a supported MIME-Type content, like PPT, PDF, DOC, etc., with associated metadata.

Excluding Administrators, all user profiles may add LOs to LRS database. Those LOs may then be public, available to be reusable by others, or private, used only by the creator.

When inserting a LO, users must define several data like *Name*, *Description*, *Outcomes*, *Skills*, *URL* (in future, embedded URL will be possible) and *Private/Public* use. (Figure 2)

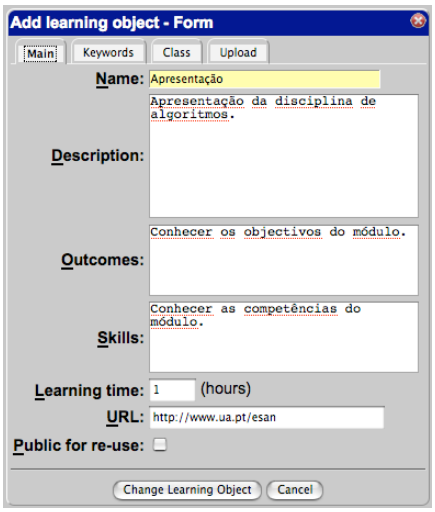

Figure 2 – Adding a LO

Users should also define *Keywords*, for searches, linking and navigation. The LO can also be associated with a *Thematic Class* (or Topic), also to enable better searches and navigation. Public LOs will be available for search and navigation. Finally, you must upload the raw content, which is the file. Later you can update metadata and file.

Courses

A course is an education imparted in a series of lessons, topics or meetings. Logic units or parts, with a clear organization and structure, can divide it. LRS requests as main course metadata the fields: *Name*, *Description*, *Pre-requisites*, *Target Audience*, *Outcomes*, *Skills*, *Estimated Learning Time* and *General Activities*.

Course Managers, the ones who create courses, should also define *Keywords*, for searches, linking and navigation. The course can also be associated with a *Thematic Class* (or Topic), also to enable better searches and navigation. Each course should have a Tutor assigned for.

Each course should have a content structure, defined by Course Managers. The structure is created regarding to the *parent content item*, *order sequence* and a *name*, *description* and *estimated learning time* should be defined. (Figure 3)

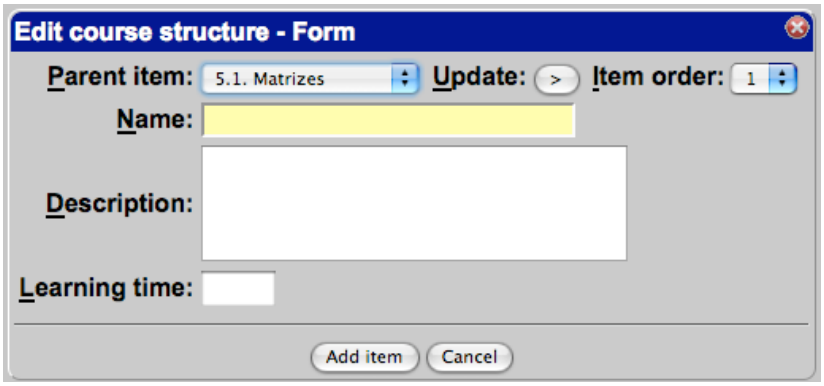

Figure 3 – Content Structure Item

Course structures are not mandatory for course creation but Course Managers are invited to create them because they may be useful for Tutors index learning marks of learning roadmaps, enriching knowledge that should be achieved or targeted for students (Figure 4).

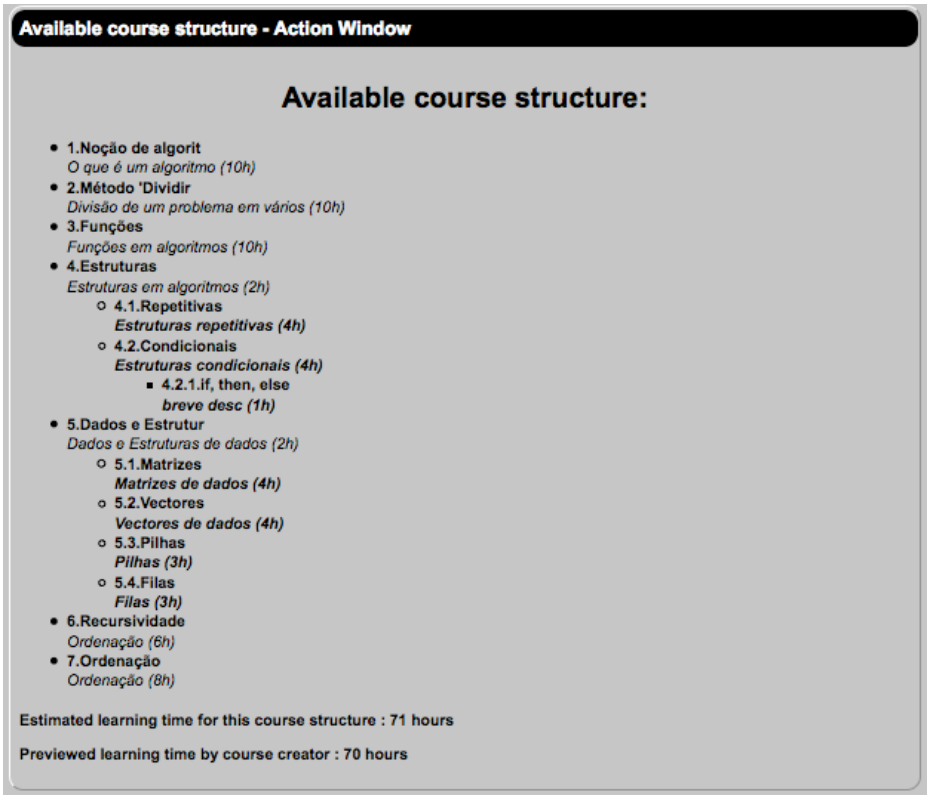

Figure 4 – Example of a course structure

Learning Roadmaps

As described before in *Introduction* a Learning Roadmap is a detailed description of the life cycle of a discipline, comprehending contents, LOs and associated events or activities that conduce to the goal of a thematic issue. To trace the life cycle of a discipline, each thematic issue is indexed with each learning mark that can be *Tasks*, *Exercises*, *Activities*, *Exams* or *Tests*. LRS learning mark can also be updated with other types of actions, if needed.

Only Tutors can create Learning Roadmaps, after being assigned as Tutors by the Course Manager. This means that a Course may have only one Learning Roadmap and that Learning Roadmap cannot be associated with other course.

A Learning Roadmap is fed by learning marks, which for its part, needs to be created using several components *like sequence and order of a learning mark*, *action type*, *associated LO* (private or public), *course structure component*, *estimated learning time* and *URL* (like LOs, (embedded URL will be possible in future). You can add more learning marks, as much as you need. (Figure 5)

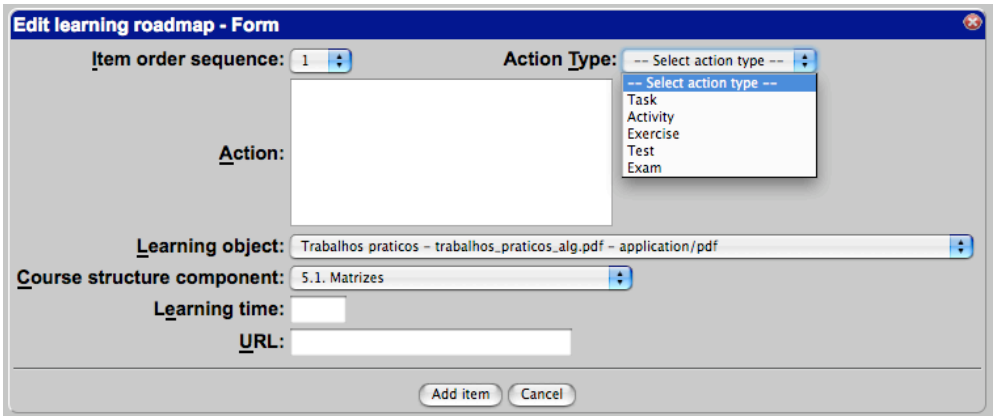

Figure 5 – Learning Roadmap edition

In the end, the complete Learning Roadmap will be available for students subscribed and approved for the course where the Learning Roadmap was created. (Figure 6) Thus, Students may use it for achieve knowledge and information, and the learning process tends to be more easier, organized and successful.

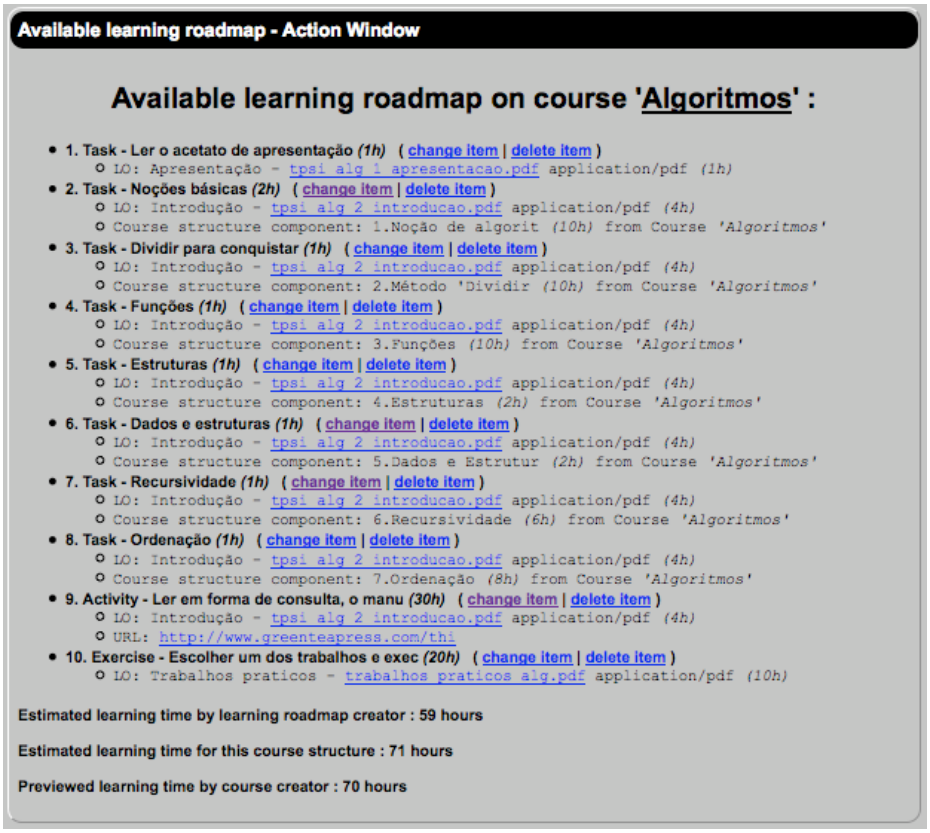

Figure 6 – Learning Roadmap. Tutor's view that differs from student by the edit options

Course subscriptions

Students with their registration approved may subscribe courses available in the LRS. They can find courses by simple navigation, searches or invitation. (Figure 7) Like their registration, course subscription is pendant until Course Manager approval. When approved, the Studen will have full access to all course data, including the Learning Roadmap.

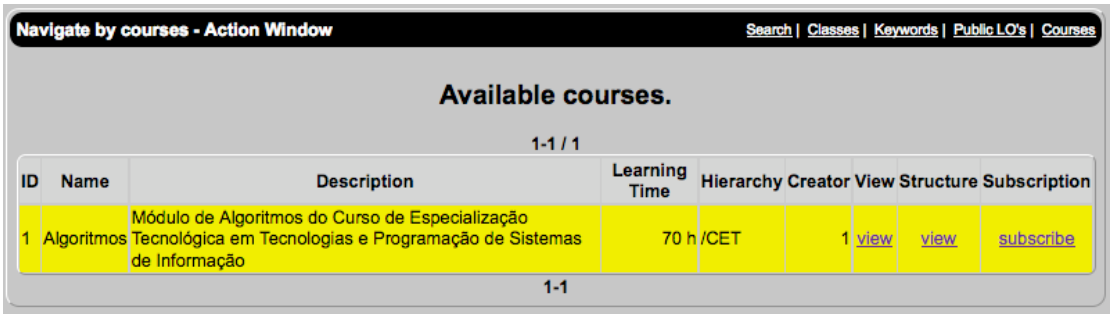

Figure 7 – Course navigation. View and subscribe options

Horizontal bar options

Every approved user disposes in action window an horizontal bar with several options. The first one is for simple and complex searches. Classes, Keywords, Public LO's and Courses

allow users to navigate through theses components, with options for viewing data and also for course subscription. (Figure 8)

Figure 8 – Options on the horizontal bar.

Searches

Approved users may do simple and complex searches in the LRS. Complex search allow users to choose what data should be queried: *Courses*, *LOs*, *Classes*, *Keywords* and *Users*. If succeeded, the search returns results by the same type of data. (Figure 9)

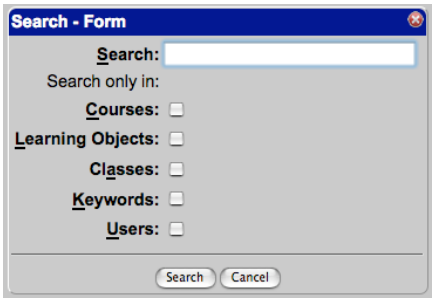

Figure 9 – Searches in LRS

What are the Classes?

Classes are not 'Classes in the classroom'. Classes are meant to be *thematic classes*, derived from *Classification*. You can also think in Classes as *Topics*. Classes enable course creators and LOs creators to classify by *theme* and *hierarchy* those components. It is useful to create *tiered themes* or *topics* for several reasons like, searches (by theme, topic, etc.) and class navigation, using the *hierarchic tree*.

Course managers and Tutors may create a class, under other parent class or a new main class. Also, a description is required. (Figure 10)

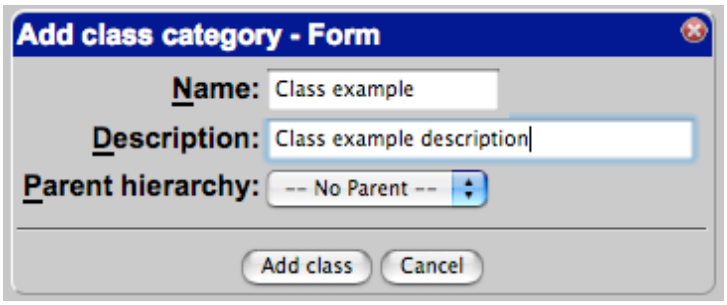

Figure 10 – Example of a class creation

Credits & Contact

Learning Roadmap Studio was conceived and developed by Miguel Oliveira, under R&D work for his PhD in Computer Science in the University of Aveiro, supervised by Artur Serrano and Arnaldo Santos.

Please, feel free to contact me for any suggestions, improvements or ideas you may have in mind. Feel free to register to Learning Roadmap Studio at http://learningroadmap.sourceforge.net . Explain why and how you want to register, to approve your registration.

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