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Project Title: MicroElectronics Cloud Alliance
Project Number: 562206-EPP-1-2015-1-BG-EPPKA2-KA
REPORT FROM THE PILOT TEST OF mCLOUDS

Introduction

After the need analysis and with the involvement of all stakeholders (non-formal interviews with managers and professionals from the enterprises in the sector, and the university teachers) the necessary skills and underlying knowledge were defined, the competences for job performing were determined and the matrix of learning outcomes was developed. The identified knowledge, skills and competences in the area of nanotechnologies for electronics are presented in other project document: Competence Matrix.

To meet the needs of the labour market identified in through the need analysis the new courses were developed for the defined learning outcomes. 22 courses were designed for the defined learning outcomes. The new contents were developed in collaboration with business partners. Job-specific training modules were jointly developed and another four courses designed by the experts from the enterprises and implemented as e-learning modules for the educational mClouds system. Three courses to train transversal skills were developed, as in the need analysis survey all business representatives considered of highest importance:

- Survival in labour market
- Project management
- Effective communication with groups, presentation techniques.

Implementation

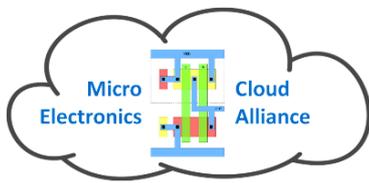
Four months were planned in the project proposal for the pilot tests: for training of teachers and trainers in the use of mClouds system and on the on job-linked education and on the use of mClouds and for the usability and feasibility tests.

Training seminars for teachers, system administrators for the use of mClouds and job-oriented education

Training seminars on the use of different schemes in mClouds, scheduling the tasks for sharing the infrastructures, using the common educational resources and CAD systems were organised for one or two representatives (system officers or developers and teachers) of each institution and then they performed the training at each partner educational institution.

- Training seminar for mClouds system specification, 02-03/06/2016 INSA-Toulouse
- Training seminar for mClouds system developers and training seminar for e-learning course developers, 06-08/10/2016 Politecnico di Torino
- Educational Cloud and course developers training. Technical University Berlin, 16th-17th March 2017
- Training workshop for teachers by the industrials on job-linked education, 30/10/2017, UP Bucharest

For the training objectives, learning outcomes trainers and trainees see the minute of the training events.



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Pilot test of mClouds

After training teachers and trainers in the mCloud system, the pilot test was conducted with small groups of learners – minimum 10 per country. Each of the eight universities tested into practice the courses developed by all partners, the shared IT infrastructure and the realized remote access to the CAD systems.

The pilot test was performed from 2nd January to 30 April.

Purpose

The purpose of the pilot test was to test the usability of the developed in WP4 Cloud-based open educational resources in micro- nanoelectronics in partners' educational contexts and training teachers in their use.

Questions

Was the course content presented in a user-friendly format that is easy to read and understand?

Does the user need the support of a technical person to be able to use the mClouds system?

Were various functions in the mClouds system well integrated?

Sample

The target groups concerned are:

- students in micro- nanoelectronics engineering education;
- university teachers and trainers in HRD departments, universities and colleges;
- representatives of the business;
- e-learning environment developers and administrators.

The samples included students and teachers at the partner institutions, engineers and managers from SMEs :

- Students from the MSc degree, especially in their first year and from the bachelor degrees in electronics, which are potential users of the courses from the next year. These are students at POLITO, TUS, INSA, BMU, UNED, TUB, UKIM;
- professionals and managers from enterprises in micro- nanoelectronics and microsystems, electronics packaging and communication from all participating countries;
- teachers in micro- nanoelectronics from all participating countries;
- system administrators at the universities and enterprises involved.

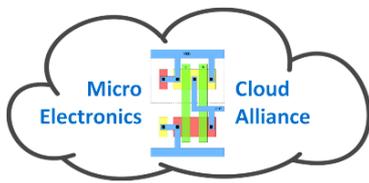
Instrumentation

- On-line questionnaire

Survey results

The questionnaire were published on-line with a link from the mClouds learning environment.

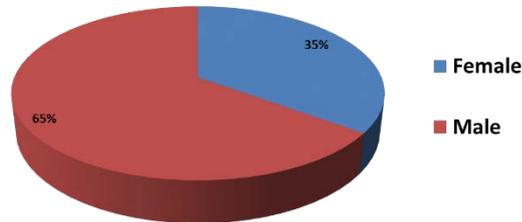
We have collected 302 answers.



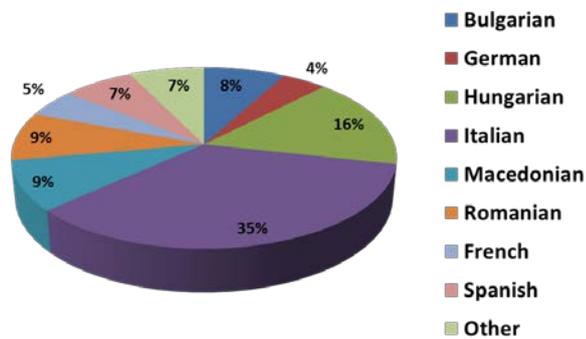
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General questions

Gender

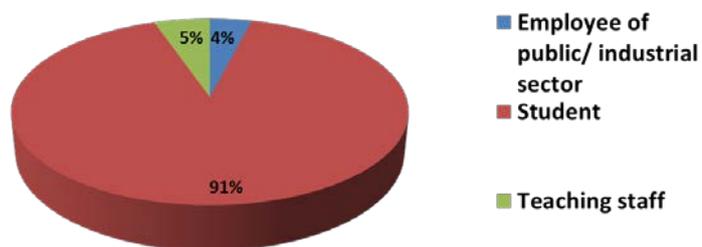


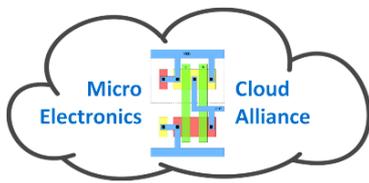
Nationality



Other: Serbian, Montenegrin, Colombian, Albanian, Argentinian, Chinese, Indian, Thais, Iranian, Ecuadorian, American, Venezuelan .

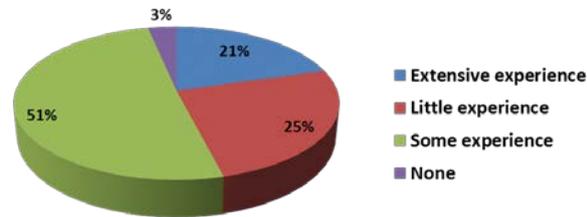
Current position





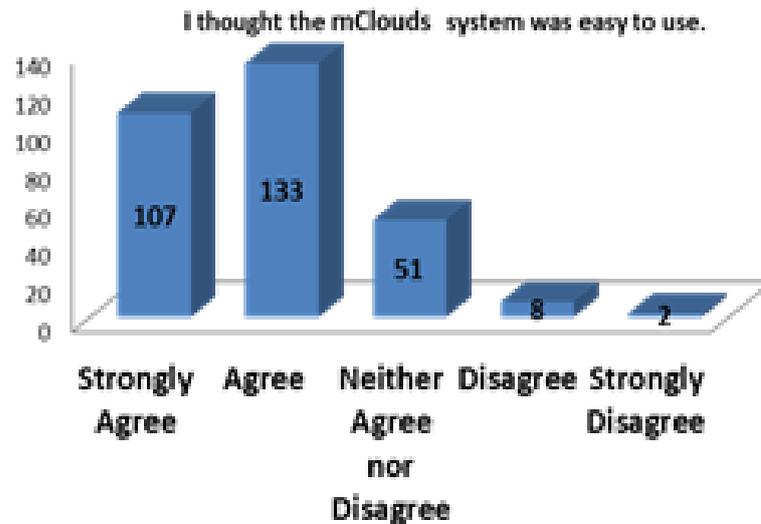
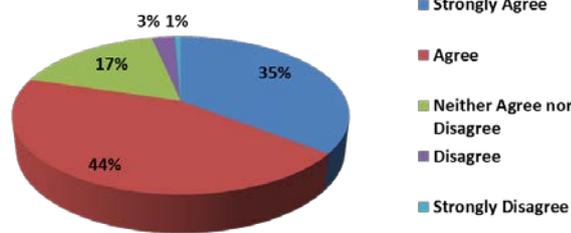
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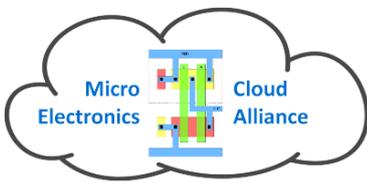
How do you define your experience with e-learning systems?



Usability

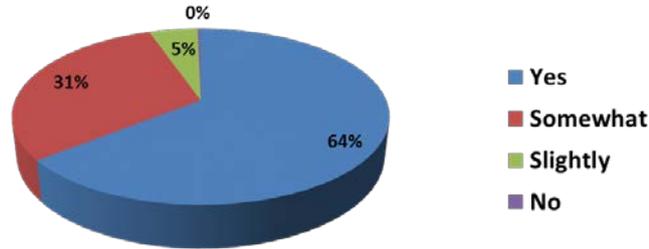
I thought the mClouds system was easy to use



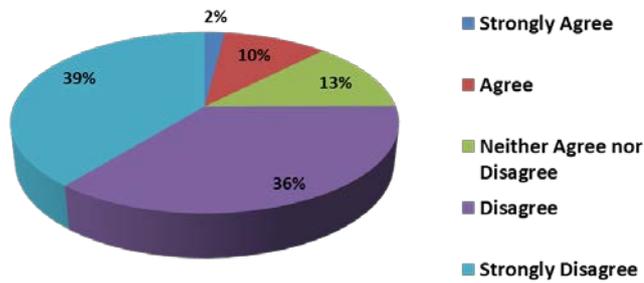


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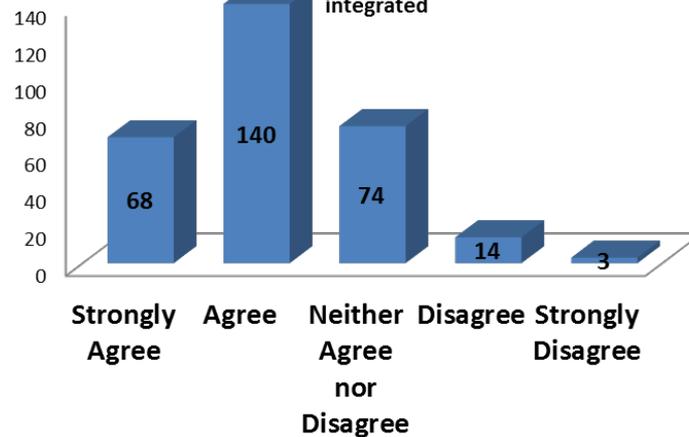
Was the course content presented in a user-friendly format that is easy to read and understand?

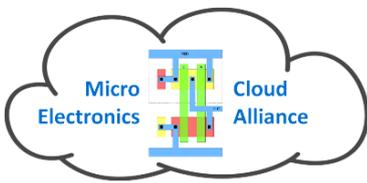


I found the mClouds system unnecessarily complex



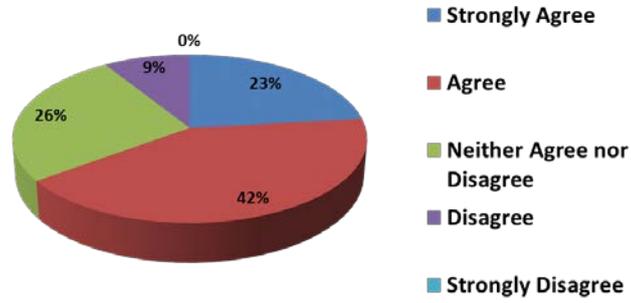
I found the various functions in the mClouds system were well integrated



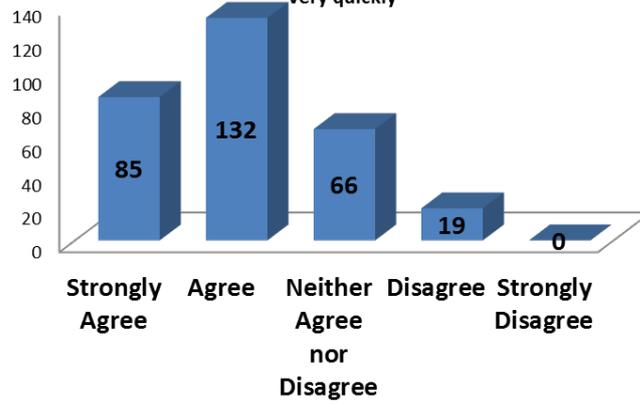


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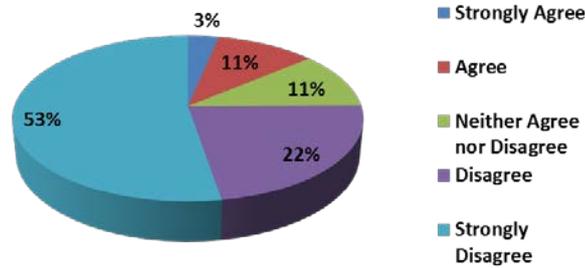
I think that I would like to use the mClouds system frequently



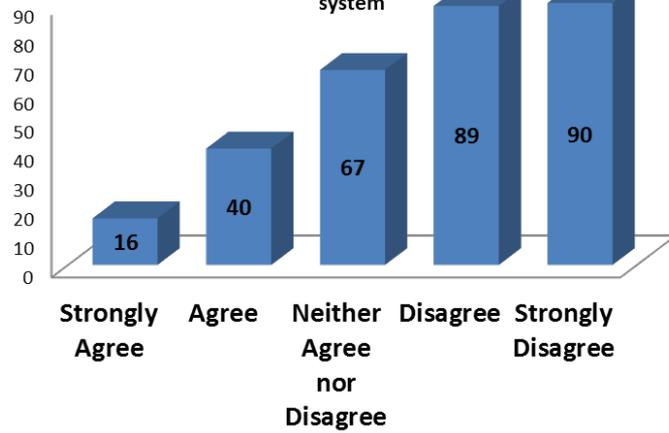
I would imagine that most people would learn to use the mClouds system very quickly



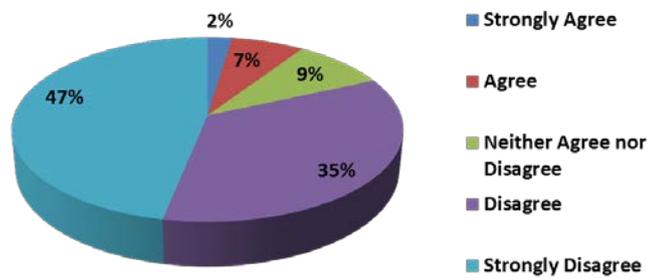
I think that I would need the support of a technical person to be able to use the mClouds system

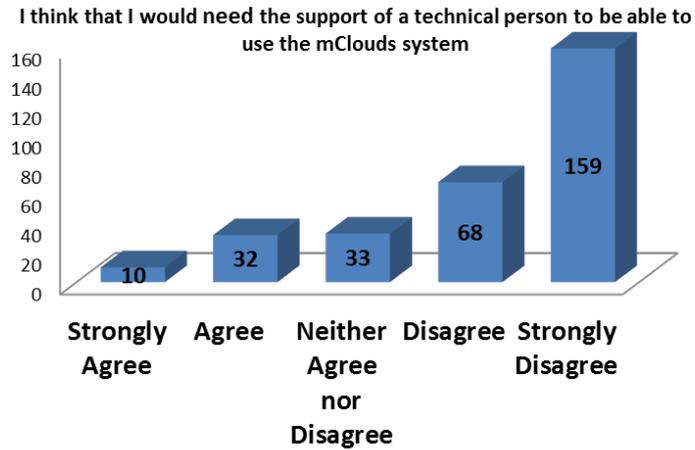


I needed to learn a lot of things before I could get going with the mClouds system

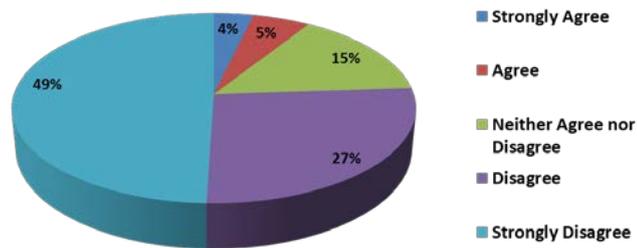


I thought there was too much inconsistency in the mClouds system

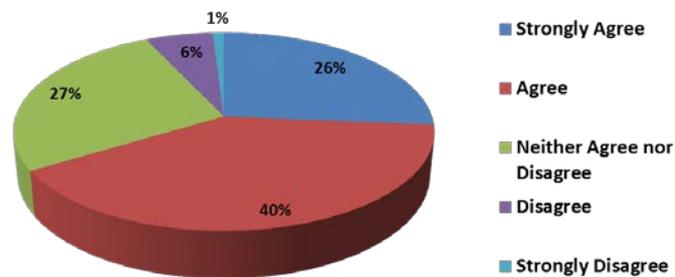


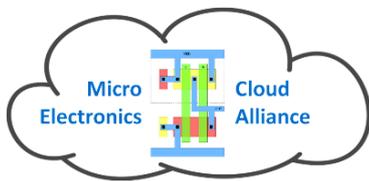


I found the mClouds system very cumbersome to use



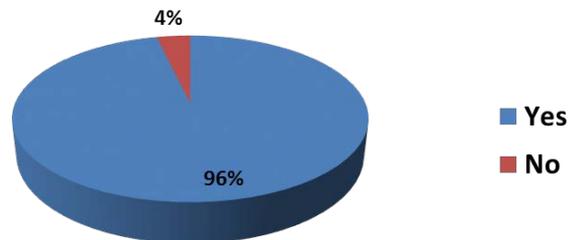
I felt very confident using the mClouds system





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Would you recommend the mCloud system?



Users' opinions and suggestions:

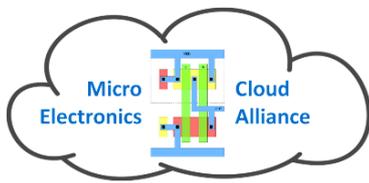
- Most courses I reviewed and used hold valuable and useful information and knowledge;
- As a student, I think these courses are well done and easily understandable;
- The external links and multimedia sources are helping a lot to understand some of the concepts;
- It would be useful introducing the possibility of downloading the courses;
- At the end of each chapter I would add some questions to check if you really understood the concepts explained earlier;
- I suggest to add an option (if possible) for playing videos at various speeds. That way it will be less time consuming for those who learn faster, and easier to learn for those who are slow learners;
- A review section of the basic electronics concepts could be useful in order to cover the gaps inherent to the various topics;
- My suggestion would be just to insert an attachment to be consulted only if you need it so as not to bore those who have certain knowledge and not weigh too much the presentation but help those who have a background different from electronics;
- I would personally introduce a way to find what you are looking for in an easier way, like a search button;
- More text and description would be better sometimes;
- Most courseware has well-thought-out sections and material. Sadly, only a few courses point to resources for further reading outside the course in the form of references. In my opinion, this should be mandatory for every course. The multimedia materials often capture students' attention and are preferable when the material is available online;
- An option to read/view different documents at same time will be useful.

Conclusions

302 respondents participated, 220 more than the 80 planned.

More than 90% of the respondents declared that the course content was presented in a user-friendly format that is easy to read and understand.

75% of the users considered that they do not need a support of a technical person to be able to use the mClouds system.



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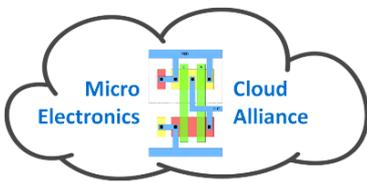
More than 65% found the presentation of educational resources in mClouds consistent and the various functions in the mClouds system well integrated.

The conclusion of pilot test is that the educational mCloud implemented in Moodle is feasible and that it is the right choice for the realization of our project.

The suggestions of the users should be respected and self-evaluation tests added, additional literature sources, downloadable materials for off-line study as well.

Disclaimer

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



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Annex 1

Questionnaire for MECA Pilot Testing

This questionnaire aims to receive feedback on the pilot test, that has taken place in the framework of the MECA project and to analyze and evaluate the results afterwards to improve the system. We are not in any way evaluating you or your performance with the MECA cloud system. Your participation is strictly voluntary. You may refuse to participate at any time. You may take a break at any time. You may ask questions at any time. Your answers are kept confidential. Thank you very much for helping the MECA project.

General questions

Gender:

- Female
- Male

Nationality:

Current position:

- Teaching staff
- Student
- Employee of public/ industrial sector
- Other

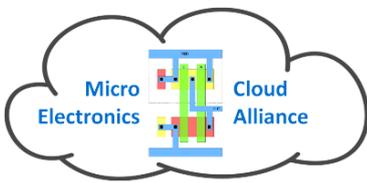
Home Institution:

How do you define your experience with elearning systems?

- Extensive experience
- Some experience
- Little experience
- None

Was the course content presented in a user-friendly format that is easy to read and understand?

- Yes



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- Somewhat
 - Slightly
 - No
-

Usability

On a scale of 1-to-5 please indicate the extent to which you disagree/agree with the statements below that refer to the perceived usability of the MECA system (1 = strongly disagree; 5 = strongly agree)

- I think that I would like to use the mClouds system frequently.
- I found the mClouds system unnecessarily complex.
- I thought the mClouds system was easy to use.
- I think that I would need the support of a technical person to be able to use the mClouds system.
- I found the various functions in the mClouds system were well integrated.
- I thought there was too much inconsistency in the mClouds system.
- I would imagine that most people would learn to use the mClouds system very quickly.
- I found the mClouds system very cumbersome to use.
- I felt very confident using the mClouds system.
- I needed to learn a lot of things before I could get going with the mClouds system.

Would you recommend the mCloud system?

- Yes
- No

Do you have any suggestions for improvement?

Other comments:
