



# i-engineer

Report of the 1st edition  
12 May 2012

# index

i-engineer	2
the event	3
outcomes	4
feedback	7
next steps	8
acknowledgments	9



# i-engineer

**i**-engineer is a pilot initiative by BEST Lisbon aiming at creating a platform for students, professors and experts to gather and discuss important issues in order to improve engineering education at local Higher Education Institutions. The project aims to become a reference in the field of educational matters, targeting mostly students as its main stakeholder.

The work sessions organised within the i-engineer framework are meant to be positive and outcome-oriented. A follow-up report, such as the present one, will be elaborated after each event and disseminated through relevant channels.

With this project, BEST Lisbon strives to become the driver of change and improvement in engineering education at a local scale, while involving students in educational matters.

BEST, Board of European Students of Technology, is an organisation composed of 93 Universities in more than 30 European countries. Driven by the vision of **Empowered Diversity**, BEST strives to develop students of technology by providing them services such as career events, engineering competitions and short intensive international courses. Additionally, BEST aims to, through its Local BEST Groups, strengthen the ties between companies, students and Universities.

The i-engineer project is inspired by the Event on Education framework coordinated by the Educational Committee of BEST.

# the event

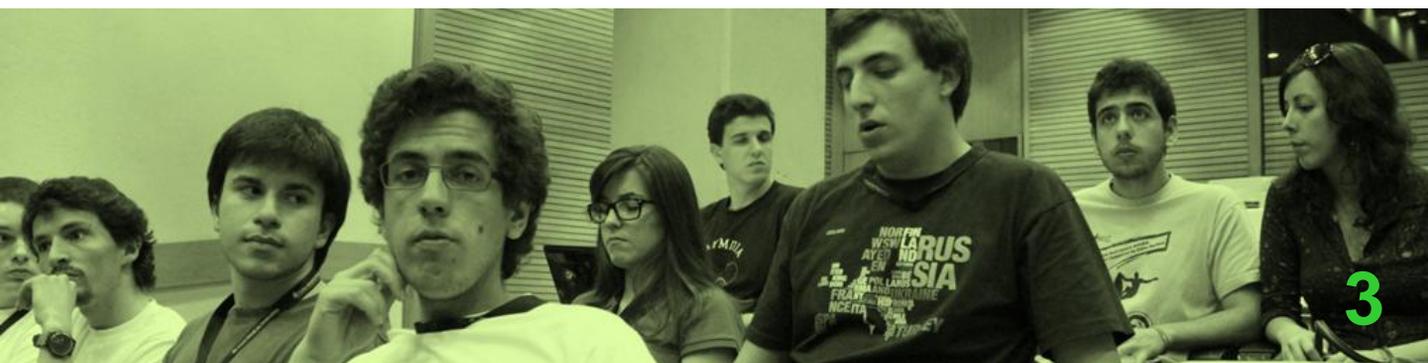
The official launch of the i-engineer project took place on the 12th of May, 2012, in the Alameda campus of IST-UTL. It gathered students, professors and experts on education to discuss important matters regarding engineering education, such as student retention, and hot topics within IST-UTL such as student involvement in extra-curricular activities.

The event began at 10:00 AM with a presentation by international guest Brooks Patrick, representative of the ATTRACT project ([www.attractproject.org](http://www.attractproject.org)), followed by a discussion on some of the topics covered. The main objective of the first work session was to give the students the opportunity to provide input on the results of the project, thus contributing to the final report which will be presented to the European Commission by October 2012.

The second part of the event consisted on an open discussion among participants aiming to identify the pros and cons of being active in a student organisation, and what measures should be implemented in order to enhance this activity.

Minutes were taken during the sessions and a summary of the outcomes is presented in this report.

The event's initial schedule suffered slight changes due to the lack of participants in the afternoon work sessions. The open discussions were reduced to the morning period, and during the afternoon NEMAT ran a work session oriented towards improving education in Materials Engineering at IST.



# outcomes

## Attractiveness in Engineering

- ✓ From the age of 14, young students are obliged to choose their academic track in secondary school which influences greatly the course they choose to take in University. The tracks provided in secondary school constrict at a very early stage the course choices;
- ✓ There is a societal tendency to demotivate females to pursue studies in science and engineering by exposing them less to this field (e.g. at an early age, girls are given Barbies to play with and boys are given legos and cars);
- ✓ The approach in teaching science and math subjects and the environment in which learning is stimulated is crucial to develop an interest in young students to pursue engineering studies (e.g. pilot project by IST-Siemens in secondary schools);
- ✓ Engineering courses are perceived as very difficult and demanding, and in general students are fed the idea that engineering students must sacrifice their social life to succeed academically;
- ✓ Summer schools for secondary education students are seen as a good initiative for students to become familiar with Science, Engineering and life at university (e.g. Verão na Técnica, UTL). This concept should be further developed.



# outcomes



## Student Retention

- ✓ Bad results derive mostly from false expectations;
- ✓ Time management courses and similar trainings are essential to help the transition from secondary to engineering school (e.g. GATu time management workshops);
- ✓ It is considered a positive aspect to include soft-skill training in the curricular plan of the student in the first year of studies;
- ✓ The increase of student retention is dependent on the adherence of students to workshops on Time Management, Project Management, etc. A change in behaviour must be nurtured and students, from the first year, should be made aware of the need to attend said workshops;
- ✓ Students' awareness regarding expectations after graduation have increased significantly. In order to help manage students' expectations and motivation, seminars given by professional engineers are considered useful. Incorporating this in the course curriculum has proven to be successful (e.g. Mechanical Engineering, IST);
- ✓ There is a tendency in some courses at IST to encourage students to pursue careers in Research without making them aware of other possibilities;
- ✓ Human support, mostly at a peer-to-peer level and potentially at a professor-to-student level has gained a relevant importance to students due to the massification in higher education.
- ✓ E-learning is a concept with potential and should be further explored. Professors should be approached individually and motivated to conceive a plan to implement online lectures.

# outcomes

## Extra-curricular involvement

- ✓ Participating actively in student associations is an effective way of nurturing time management skills and increasing motivation for studies;
- ✓ The opportunities within student organisations and the work developed by its members is unclear to students, which leads to false perceptions and, consequently, a lack of student involvement. Goals and aims of the organisations, as well as the work expected from members, should be communicated more clearly;
- ✓ Students don't have easy access to information about all opportunities in the school besides classes. Access to this information must be made more visible. A suggestion was made to include a hot link on the main IST webpage regarding student organisations at IST;
- ✓ A lot of information is given to students during their first days in the University, and this disables them to retain some of the important information, like the opportunities to get involved in extra-curricular activities. The student-mentor program and the student-tutor program are considered better communication channels for this information flow.
- ✓ There is not enough recognition regarding the work of student clubs and the active involvement of students in the community. It was suggested to mount an award-system, similar to the awards given to students with high academic performance. This is a common practice in secondary schools.
- ✓ A higher involvement in students activities also helps raise the awareness towards educational matters and motivates them to be more active.



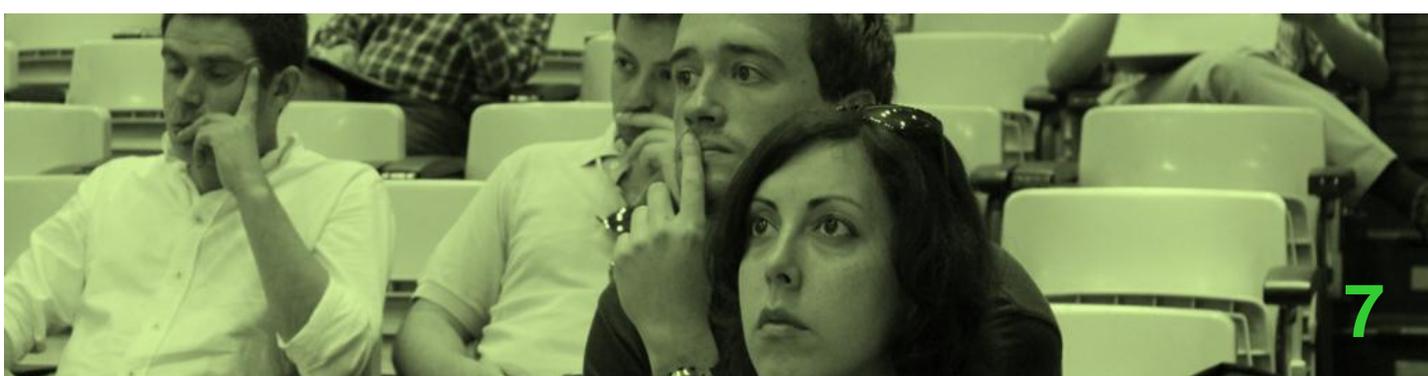
# feedback

**O**verall, the feedback regarding this initiative was very positive and the overall suggestion was made to organise more thematic workshops.

The organisation resented the low number of students and professors that applied to the event, but have drawn lessons from both the planning and the marketing of the event in order to increase the number of applications throughout the next events.

The timing of the event was considered the only negative factor by many students due to the overload of academic work during this time of the year.

Company representatives were invited to the event but were not able to attend despite high level of interest. Earlier invitations were recommended.



# next steps

Being a long-term project, the success of i-engineer relies on the importance of a good follow-up of the workshops organised within the framework. Likewise, more thematic workshops are already being prepared. Additionally, it is the ambition of the i-engineer team to expand the educational involvement network to a national and international level, providing more and more students with the opportunity to be actively involved in improving their education.

The actions proposed to be undertaken within the following months are:

- ✓ Update the project website with results of the pilot event;
- ✓ Contribute to the final report to be delivered to the EACEA with the results of the ATTRACT project, financed by the European Commission under the Lifelong Learning Programme;
- ✓ Develop a more detailed framework for the i-engineer project and define a long-term strategy;
- ✓ Disseminate the project and its results via website and BEST channels;
- ✓ Present project and first results to relevant bodies within the University and governmental institutions (ex:DGES), ambitioning future partnerships which will allow to implement pilot projects;
- ✓ Prepare a presentation to be delivered at the BEST General Assembly 2013 in Valladolid;
- ✓ Develop a structured partnership with IFEES, Ordem dos Engenheiros and companies.



# acknowledgments

## Official Sponsor

Technical University of Lisbon (UTL)

## Special guests

Brooks Patrick (ATTRACT, KTH)

Dr.<sup>a</sup> Isabel Gonçalves (GATu, IST)

## Supporters

Instituto Superior Técnico (IST)

Gabinete de Tutorado (GATu)

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# Contacts

[best.ist.utl.pt/i-engineer/](https://best.ist.utl.pt/i-engineer/)  
[i-engineer@best.ist.utl.pt](mailto:i-engineer@best.ist.utl.pt)