Teaching sustainable solutions in engineering - DTU Orbit (03/04/2019)

Teaching sustainable solutions in engineering

The increasing societal and industrial emphasis on sustainability requests that the next generation engineers needs to be trained in the context of sustainability. One of the means to address students at DTU is the establishment of a course aimed at bachelor students from all of the university's study lines. The objectives of the course 'Sustainability in engineering solutions', is for the participants to understand the basic concept of sustainability and its three dimensions (people, profit, planet), as well as to analyse problems and synthesise solutions that are sustainable throughout their life cycle. The course runs over a full time 3-week period and employs project-based learning with several sub-projects/problems. This paper takes an in-depth discussion of the considerations concerning how to teach such a complicated subject to students of widely differing backgrounds, and reflects both the teachers' and the students' experiences with the course.

General information
State: Published
Organisations: Department of Management Engineering, Quantitative Sustainability Assessment, Production and Service Management, Centre for Facilities Management, Systems Analysis, DTU Climate Centre, Energy Systems Analysis, Department of Mechanical Engineering, Engineering Design and Product Development, Technical University of Denmark
Contributors: Olsen, S. I., Nielsen, S. B., Ejlertsen, M., McAloone, T. C.
Pages: 157-167
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: International Journal of Innovation and Sustainable Development
Volume: 9
Issue number: 2
ISSN (Print): 1740-8822
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 0.71 SJR 0.271 SNIP 0.368
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.51 SJR 0.228 SNIP 0.236
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.6 SJR 0.228 SNIP 0.378
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.56 SJR 0.265 SNIP 0.525
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.6 SJR 0.24 SNIP 0.428
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.6 SJR 0.234 SNIP 0.445
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 0.6 SJR 0.261 SNIP 0.328
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.258 SNIP 0.52
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.358 SNIP 0.507
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.289 SNIP 0.403
Scopus rating (2007): SJR 0.255 SNIP 0.231
Scopus rating (2006): SJR 0.159 SNIP 0.094
Original language: English
Keywords: Engineering education, Curriculum design, Sustainability integration, Project-based learning, Core elements, Learning objectives, Pedagogical principles, Higher education, Student diversity, Real-life challenges, Undergraduate
students, Sustainable development

Electronic versions:
Olsen_et_al_2015_IJSD_postprint_version.pdf

DOIs:
10.1504/IJISD.2015.068788
Source: PublicationPreSubmission
Source-ID: 108206289

Research output: Research - peer-review › Journal article – Annual report year: 2015