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| **ENGINEERING EDUCATION DESIGN IN RESEARCH UNIVERSITIES** |
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| **ABSTRACT:** |
| International standards are becoming more and more important these days due to a progress of global economy and to increasing needs for a sustainable development. However, lack of human resources for developing standards is a big problem in many countries. To solve this problem, education in universities needs to be strengthened. What kind of education contents about standardization and how to teach are necessary to be made clear. In this paper, engineering education in universities is considered and is made clear. That is, perspectives of the education, courses contents, learning outcomes and education systems are considered and made clear. |
| ***Keywords:*** |  |
| Standardization education, Perspective, Education contents, Education system  | **Copyright © 2021 ASWARA - All rights reserved** |

**1. Introduction**

After the effectuation of the Agreement on Technical Barriers to Trade in 1995, the signatories of W.T.O are obliged to import products with conformance to international standards. Hence, international standards play more important roles not only in ensuring performance, compatibility and quality of products and services, but also in making business size bigger. For this, global standardization activities are necessary to be strengthened. However, it has been pointed out that standardization activities and human resources for standardization have been insufficient. This is because the standardization takes long time to establish standards and the expected economical income is thought to be not enough compared to the cost for standardization in many cases.

Education about standardization has been discussed by many organizations and academic institutes such as ITU, ISO, ICES and so on. For example, the director’s ad’hoc group of ITU-T every year holds workshop for education about standardization and now tries to survey the current situation of the education about standardization worldwide and to establish the strategy for the education.

However, education about international universities is so few Major reason for this comes from almost zero courses about standardization and very low interests of lecturers in standard education in universities. This research aims to clarify the program design about standardization in universities to disseminate the education about standardization in universities

**2. Methodology / Concept**

The education about standardization should be offered not only to university students but also to the staff of companies. Figure 1 shows a proposed education system in universities.

Figure 2 shows preferable education contents consisting of the basic knowledge about standards, Intellectual properties, strategies, social acceptance of new technologies, negotiation and training for new standard planning and proposals.





 **Fig. 1.** Proposed education system

 **Fig. 2.** Proposed education contents

**3. Discussion and Conclusion**

In this paper, engineering education about standardization was studied from the view points and objectives of the education, education system and education contents. Major results are as follows.

(1) View points and objectives of education about standards and their standardization are to make students to cultivate knowledge and skills necessary to engage in standardization for their carriers after the graduation of universities.

(2) Education system about standardization should be positioned as that for the cultivation of broader perspectives and knowledge and skills for the preparation of students’ future jobs.

(3) Preferable education contents are proposed consisting of 7 items such as the basic knowledge about standards, Intellectual properties, strategies, social acceptance of new technologies, negotiation and training for new standard planning and proposals. These contents are being offered at Osaka university.

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