

Design an Industry Based Curriculum for Education and Research

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Abstract

In this paper, the curriculum are more responsible to industry needs and provide the students with skills for employment and positive work values needed to meet the demands of the changing industry and global environment. The existing methodology is based on basics and current trends of the domain these curriculums developed only theoretical knowledge they won't get any industrial based exposure to overcome this issue, the proposed methodology is based on education and innovative in the industry, current trends in the job market are also considered while developing the syllabus. The paper submits recommendation on further enhanced strategies that will help in the development of education in line with modern trends in curriculum issues.

Keywords: CDC, BOS, Academic Council, Curriculum Development, Curriculum Process

Introduction

The curriculum for individual course has been designed by a perfect blend of inputs from renowned academicians and industry experts for each university. To make every graduating student academically excellent and professionally groomed to assume leadership roles in every sector of the industry and economy. The component of curriculum design is shown in figure 1.

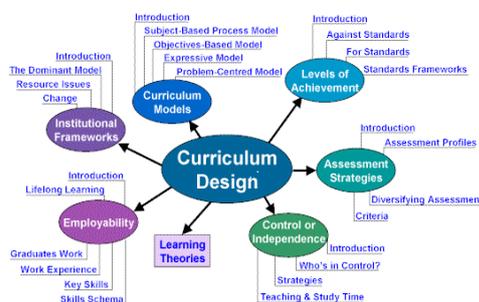


Fig.1. The components of curriculum design

Along these lines determination and association of educational programs content, educational programs proposition and assessment, the advancement, circulation and utilization of showing materials, and the pertinence of the educational programs is what is required today [1]. Interviews with industry mentors at the time of writing are still being undertaken and their perspectives will be reported in future publications [2]. To determine new and evolving concepts and trends, it should be considered that the perceptions between industry and academia might be different [3]. These are the four primary stake holders: students, educational institutions, the industries and the last but not the least the Government. In the incorporation of industry, instruction, research and development cooperating as key drivers of the learning economy in conveying reasonable development.

Employability

The curriculum is designed to suit the needs of the various stake holders. The

focus of the curriculum is on employability in Central and State Governments, public sector, private sector, corporate sector, major agro-based industries and its related agencies in the national sphere. Employment at international level is also a key focus area. Syllabus are revised based on recent advances in technology and are included in curriculum. The obsolete topics are updated with latest topics which include recent techniques developed through research and adopted by the industry. The following three case studies describe ways of developing an approach to enhancing employability within specific courses and discipline areas. Burt and Mason's case study, though categorised here under curriculum design, also has key elements of working in partnership and work-related learning (See Figure 2).



Fig. 2. The components of work – related learning

Add-on programmes are conducted by the University in order to equip the students with skills required by industries. Practical training for skill acquisition and sound theoretical knowledge serves to equip the students to face real-time situations and societal needs. Certain

teaching strategies lend themselves to the development of particular employability skills, as illustrated in the table 1 below:

Employability skill	Teaching Strategies
Communication	Writing and presenting written and verbal reports Role plays Demonstrations Working in groups
Teamwork	Team or group projects Learning sets Group discussion Syndicates Communities of practice
Problem solving	Case studies Simulations Investigative projects and research Using various problem solving tools and techniques Developing or designing models Problem solving in teams and networks Decision making activities
Initiative and enterprise	Brainstorming activities Designing innovative and creative practices and solutions Initiating change / designing change processes Simulation activities, such as improving productivity
	Research and data collection Developing action plans Planning and organising events Time management

Planning and organising	activities Goal setting activities and scheduling tasks Collecting and analysing information
Self-management	Development of portfolios Work plans Using log books to record time management skills and monitor own performance Career planning exercises
Learning	Reflective journals log books, diaries Mentoring and coaching activities Self-evaluation tools
Technology	Using the Internet, Intranets Using ICT skills to complete activities Industry relevant software, technology and equipment

Table 1: Teaching strategies suited to development of employability skills

The curriculum should be developed according to the requirement of the industry. The Curriculum emphasizes exposure in Communication Skill, Personality development, Soft Skill development, hands-on training in several laboratory modules which aids them in getting placed. The courses are so designed to inculcate leadership qualities, organizational capabilities and team spirit among its students. University also focuses on multi skill development among the students. The majority of graduates/post graduates are entering industry, government, public sector and its related agencies in national and international level as engineers, executives, scientists,

technical officers, consultants, system administrators, developers etc.

Research

Research demonstrates that curriculum modules execution will be emphatically influenced by including teacher, to fluctuating degrees, in framing curricular things and learning circumstances in their own particular classrooms. Empower the accentuation is on exploratory and speculative duties regarding develop instructor's master headway and to improve the association of theory and practice in direction, and focus on the suitable use of these encounters in drawing in educators by making reasonable framework conditions in which they can agreeably design curricular things and learning circumstances for their own particular classrooms. These are few factors that effect instructive modules design viz: 1) political components, 2) social factors, 3) budgetary components, 4) creative parts, 5) characteristic Factors, 6) understudy cerebrum inquire about. Care must be taken that any instructive modules ought to be created in the light of the affiliation or setting in which it will be passed on. A key issue which ought to be considered is whether the course diagram, transport and organization is united or decentralized. This is every now and again out of the hands of individuals related with course change however has influence on all parts of instructive modules progression. Centralization can be seen at both national and progressive levels. Concentrated educational module have a tendency to be more organized and deliberate and it is less demanding to guarantee consistency and a standard way to deal with instructing and learning. Likewise as educational programs organizers, independently need to encourage this procedure for understudies and guarantee that understudies are prepared to move onto the following phase

of learning. It is constantly astute to use an understudy focused approach. These ability items into different groups and found that the abilities could be roughly divided into seven categories were comprehensive abilities, theory-based abilities, digital technology-related abilities, practical abilities, property rights knowledge, interior design abilities, and marketing and management abilities [4].

Strategic research enables designers to understand the process of change and create the future by analysing the emerging patterns and understanding future trends [5]. Students learn how to generate and refine ideas through creative methods; ask strategic research questions, set research goals and objectives; develop research frameworks; understand research ethics, credibility and validity; conduct research in order to understand users and their contexts through ethnographic research, questionnaires development, surveys and competitive analysis; analyse and synthesize their findings and finally how to document and communicate their findings using effective presentations methods. The ultimate goal of strategic research in design is to translate research findings into design solutions. In this approach, students learn how to create the flow from research to design within the bigger context of the design process. All things considered research says that the presumption that is cooperatively outlined by educators, prompt shutting the hole amongst hypothesis and practice. The curriculum should be developed according to the requirement of the industry.

Innovation

Educational modules is has a composite entire, student, teacher, instructing and the learning procedures, foreseen and unexpected encounters, yields the results conceivable inside a learning foundation [2]. The essential preface is that educator's

expert advancement is best through their dynamic association in educational modules outline groups. Here educators are not inactively getting proof from explore and are asked to just do showing undertakings, yet they effectively apply both research and functional confirmation in code marking curricular items and learning situations for their own particular classrooms. These three elements were integrated with the institutional learning identified by JISC above to create a whole of university approach to curriculum transformation that is engaging program teams with relevant students and industry, building staff capacity and creating a common language and tools to support the process [6]. The three parts of educational programs development can be spoken to in triangle configuration approach, educator proposition, joint effort with industry administration in groups are the three edges (See Figure 3).

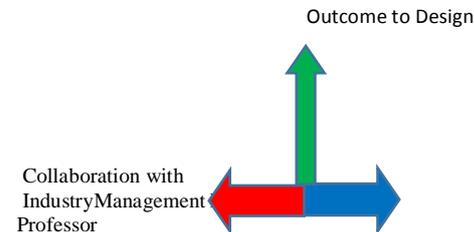


Fig. 3. The three components of curriculum innovation

Curriculum Innovation in chart proposal professor, collaboration with industry management and outcome to design (See Figure 4)

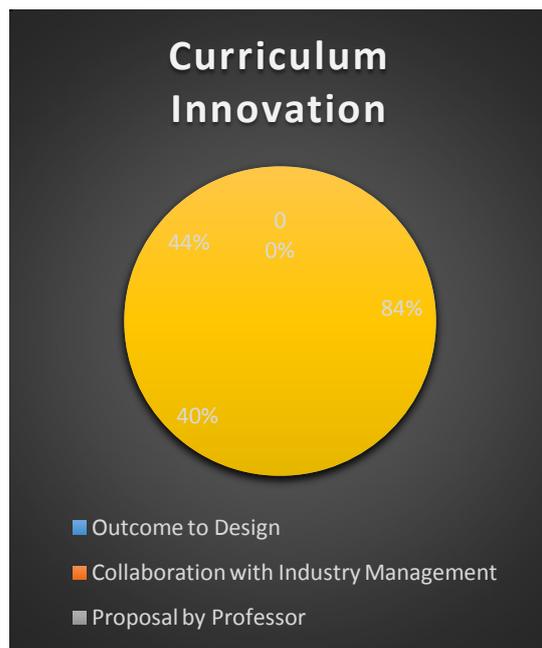


Fig. 4. Comparison of curriculum innovation

In research, cooperation while outlining the educational programs, plan bunches is drawn closer from two perspectives. The initial one is the individual teacher point of view and the fundamental inquiry is whether joint effort among educators as outline group individuals, prompts more powerful educator advancement. Teacher's expert improvement can be described as the pick up in academic substance information. Four subjects are exceedingly significant in this regard: (1) the way toward outlining curricular items by educators; (2) impacts of cooperation in groups and of joint effort among teachers; (3) curricular items as the primary results of the plan procedure; and (4) giving PC based help by outside information bolster and by information delivered and conveyed by educators and students in the plan procedure. The second point of view is the group's viewpoint and the principle question is whether comes about because of educational programs learning research are correctly executed plan venture of

educators partake. The focal research topic is interest and outlining by teachers in educational modules plan groups and the viability of these components on educator's expert improvement and educational programs advancement in science instruction.

Conclusion

The curriculum development process is reviewed and monitored by curriculum development committee for the whole university. Every department has a curriculum development cell (CDC), in which Professors, Associate Professors and Assistant Professors (SG) are members. New syllabus are formed by respective subject professors and discussed in CDC. The design and development of curriculum and syllabus are done through CDC. Every department has its own Board of Studies (BoS) which is a statutory body. There are external members in every BoS - the first member is from Industry, the second member is a reputed academician and the third member is an ALUMNI. The Proposed design is to improve the employability.

References

- [1] Ashish Kumar Parashar, Rinku Parashar "Innovations and Curriculum Development for Engineering Education and Research in India", International Conference on Teaching and Learning in Higher Education (ICTLHE 2012) in conjunction with RCEE & RHED 2012.
- [2] Dale Holt, David Mackay and Ross Smith "Developing Professional Expertise in the Knowledge Economy: Integrating Industry-Based Learning with the Academic Curriculum in the Field of Information Technology", Asia – Pacific Journal of Cooperative Education, March 2004.

[3] Namhun Lee, Robert Ponton, A. W. “Jeff” Jeffreys, Ron Cohn “Analysis of Industry Trends for Improving Undergraduate Curriculum in Construction Management Education”, ASC Annual International Conference, 2011.

[4] Mei – Ting Lin, Hsiwen Fan, Po – Hsiwen Lin, Rungtai Lin “ Investigating the Advantages and Disadvantages of Taiwan’s Cultural Creative Design Education from Department Evaluation Data”, US – China Education Review, June 2016.

[5] Bahar Mousavi Hejazi “Moving Towards an Outcomes-Based Curriculum Model in Design Education: an Action Research Study at OCAD University”, Dublin institute of technology, higher education in transformation conference, Dublin, 2015.

[6] Nicolettou.A, Soulis.S, Seitzinger.J, Chester.A “Innovation by Design: A Strengths-Based, Data-Informed and Design-LED Approach to Curriculum transformation”, International Conference, November 2016.