Methodology for Identifying Curriculum Gaps and Measures for Bridging: A Case Study

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ABSTRACT

Outcome based education (OBE) is the need of the hour. The course designed has a set of course outcome. To fulfill this outcome, the teacher plays the roles of Mentor, Guardian, Instructor, Trainer, Facilitator etc.
In this paper, a methodology for identifying the curriculum gap is presented and various techniques for bridging the gap are identified. This paper present a case study of the course "Web Technology" for third year computer engineering students of Savitribai Phule Pune University. The gaps identified are also validated by stakeholders.

Keywords: Bridging, Web Technology, teaching-learning.

I.   INTRODUCTION

Gap Identification is methodology to identify the gap between the current state and the expected outcome. Outcome based education (OBE) system maps every part and process of teaching-learning to certain goals (Outcome). Varies measures can be taken to bridge the identified gap to attain the outcomes. Every institute has different opportunities and challenges. Flexibility of the teaching methodology to the institution will help them to deal with recognized challenges and diversity among students. [1] Comparison of OBE methodologies practice in different institution is being presented by Tam, Maureen stated in [2] students involvement in classroom is a key part of OBE. Identifies methods to bridge the gap will improve the level of involvement of students in course. [3]

This Paper is divided in 4 sections, the section 1 focuses on the methodology deployed to identify the gaps. Once the gaps are identified stakeholder's approval can be taken and corresponding changes can be made. The Identified gaps are fulfilled by various activities like Industry Visit, Workshop, Certification and Performing assignment based content beyond syllabus. The attainment of various activities is put forth in the results section of the paper. Finally, the conclusion is put forth as last section of the paper.

II.   METHODOLOGY

1. Identifying and Bridging the Curriculum Gap:

Fig.1 shows the methods for identifying curricular gaps. For the case study the course selected is Web Technology and course syllabus compared with NIT-Trichy, VNIT-Nagpur, NASSCOM Certification, GATE syllabus and also NPTEL reference courses. The question asked in the recruitment process of varies industries such as Wipro; IBM etc. are also analyzes and compared with the course syllabus.
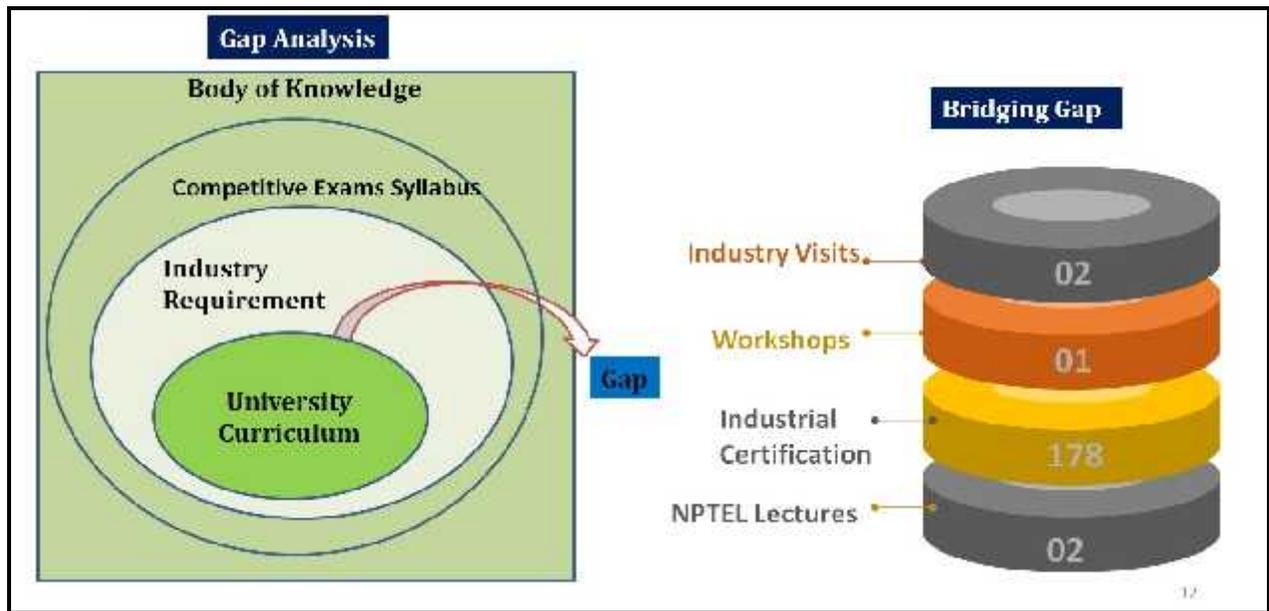
FIG 1: Identifying and Bridging Curriculum Gap

1.1 Suggestion from Stake Holders:

In this case we had explained the process of identifying the curriculum gap to stakeholders. Their approval and remarks will definitely help us improve toward bridging the gap. Program Educational Objectives: we had provided 5 PEOs and take a rate from them accordingly if they feel the PEOs to be relevant. Process for defining the Program Educational Objectives: Probably after their inputs in consultation of advisory board members we had inculcate minor changes in the process as well. [4]

Sr. No.	List of Curriculum Gap Identified	Suggestions form Stake holders
01	Python for Web development : Classes, objects, decorators, context managers, Iterators, generators, Modules and packages for web development	Online Courses , Workshop can help Student to fulfill this gap.
02	Cookies: Cookie Syntax, Create a Cookie, Storing data in Cookies, How to Retrieve a Cookie Value, How to Delete a Cookie	Students can learn by observing and analyzing the current trends and practices used by industry.
03	E-Commerce: Create E-Commerce Web Site using PHP	Do it Yourself (DIY) assignment

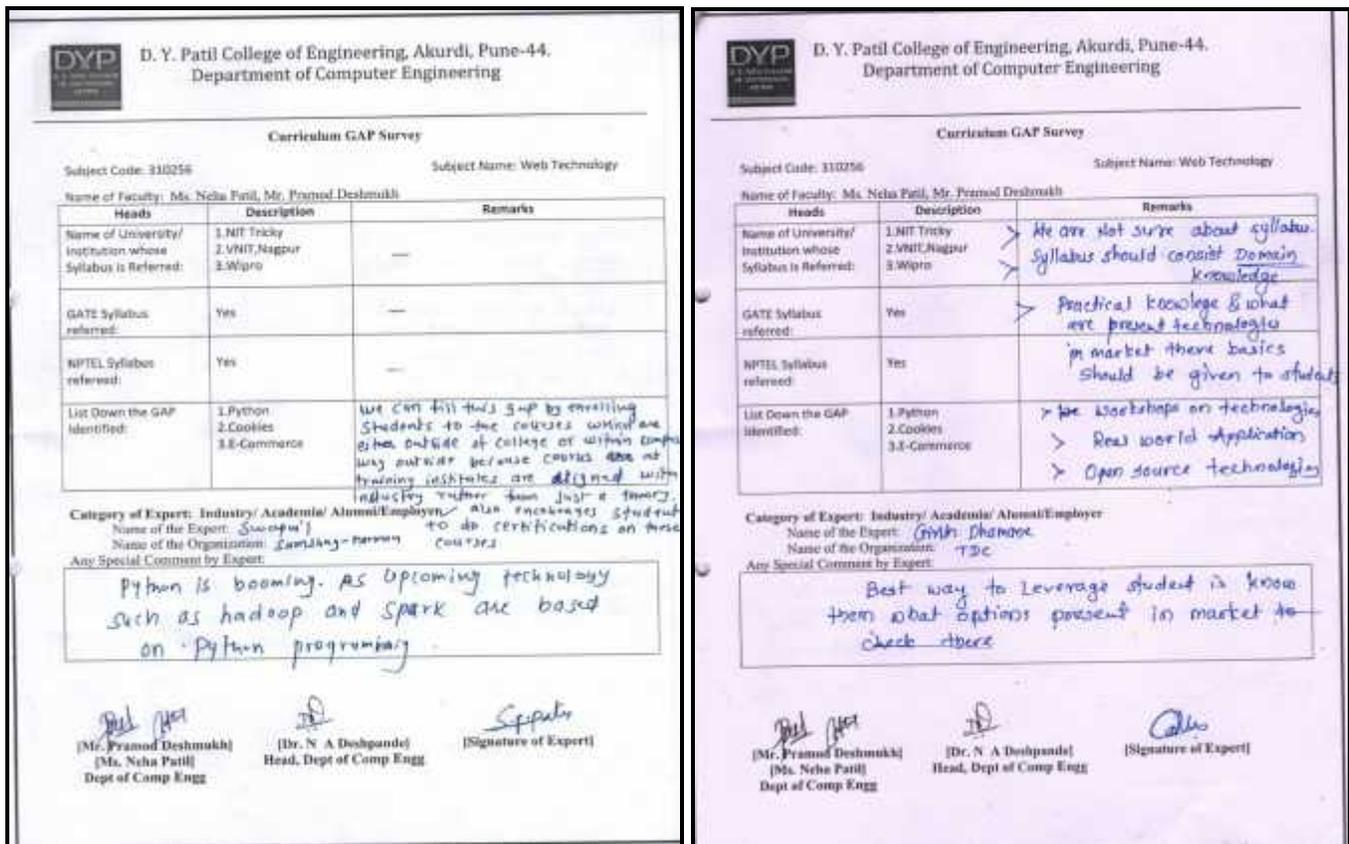TABLE 1: Identified Curriculum Gap with Stake Holders Suggestion

FIG 3: Suggestion from Stake Holders

1.2 Industrial Visit:

We have organized Industrial visit to Persistent Systems which a service based company that uses python for web development on various projects of their clients from government and private industries clients.

Industrial Visit to Tata Consultancy Service (TCS), Pune was also planned that helped students to understand the industries practices in Python Web Development. [5]

FIG 4: Industrial Visit at Persistent System, Pune.

1.3 Free Online Courses with Certificates:

We have identified free Online Courses to bridge identified gaps. Students were encouraged to enroll for course. Teachers were mentoring the students during span of course to attain course certification.

FIG 5: Guideline: Python for Web development

Free Online Certificate courses include an abundance of subjects, such as web development technologies, media studies, business studies, computer programming and networking, and much more. [6]

FIG 6: Students done Free Online Courses Certifications

III.   RESULTS AND DISCUSSION

We summarize, bridging the curriculum gap with different methodology and the outcome of innovative teaching-learning efforts with students progressive graphs and as per FIG 7 is showing highly desirable.

Improvisation in percentage improvement of students is highly appreciated in the TE Class.

FIG 7: Students Involvement

IV. CONCLUSIONS

In this paper, methodology to identify the gap and possible measure to bridge these gaps is discussed. We have identified the curricular gaps by comparing the course syllabus with the syllabus of various immanent institute we have also considered the content and for the case study the course selected is Web Technology and course syllabus compared with NIT-Trichy, VNIT-Nagpur, NASSCOM Certification, GATE syllabus and also NPTEL reference courses The Identified gaps are fulfilled by various activities like Industry Visit, Workshop, Certification etc. In this paper we have presented case study of course "Web Technology".

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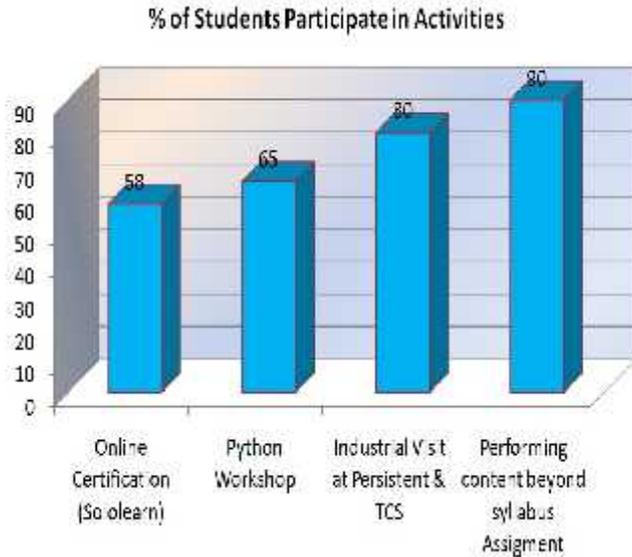[6] Solo learn activity for TE(Computer Engineering) student using www.sololearn.com