67. Content Delivery and Assessment Methods for Engineering CS/IT Courses

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Learners of countryside background, face different types of problems and challenges when they do their higher education in urban areas. Their culture, custom, and the way they had been taught in their schools are entirely different. These differences are the major concern for some students and they usually perform low in their higher education. It results in de-motivation of individual and impacts their overall performance. Only very few students cope-up with the new environment (College) and adapt to it.

The Computing domain is the vast changing field in this internet and mobile era. This field contains different computer hardware and software related courses for the students to complete their graduation in Computing or Information technology domain. All software recruiting companies look for candidates who outperform well in the technical round. All basic or foundation core courses have to be taught to students in such a way that they learn all the concepts and relate them to real time requirements and applications. Traditional classroom teaching method may not suffice this requirement. Also, there won't be enough time to train the students again on these concepts before

their placement. In order to make the students to perform better during their placement, the course faculty has to adopt different teaching styles while delivering the concepts. Students do not learn unless they apply their learnt concept.

Teacher centric curriculum is being slowly changed to learner centric curriculum to overcome these issues. Suitable instructional design models are being used inside and outside the classrooms now-a-days to improve the understanding ability of students. Blended learning practices, collaborative learning, scenario based learning and project based learning help the students to perform better in their assessment and evaluation.

Many Education Technology researchers proposed different methods to improve teaching learning process. Collaborative and interactive learning platform for Uttarkhand schools was proposed for learning mathematics (geometry) and science using open source tools (Pandey, 2012). Blended learning had been adopted (Xiaojing Liu, 2013) to teach Data Structures and Algorithms course. The faculty used this model for teaching methods and experiments through different techniques like visual demonstrations, project- based learning, eLearning, and so on. Pair programming model has been adopted (Phil Maguire, 2014) to teach courses like computer programming, data structures, and so on for the students who have not studied computer science courses in their school days. The use of mobile apps and gadgets inside the classroom was proposed for teaching mathematics and science (Nail, 2017 &Bano 2018).

Blended learning is a mix of traditional classroom

presentation and ICT based content delivery which may have higher learners' engagement. Blended learning helps to achieve active learning participation of all students when it is delivered as eContent during the face-to-face interaction in the classrooms. The learners prefer game-based learning which is increasingly becoming an effective training tool within the education and training community. It has its own advantages like simplicity, cost- effectiveness, and involvement of learners through physical movement. eLearning or mLearning enables the learners to participate in the learning by remote access. This liberty of time and space engages all types of learners and creates interest in the topic of learning with enthusiastic participation.

Blended learning practices enable the learners to access quality content from home or school or college, communicate with a large community of learners and teachers, and work online. It helps all the learners to communicate, collaborate and enhance their learning with new ideas. Blended learning motivates the learners to participate in online discussions and it is more significant than in the classroom discussions. This type of blended learning improves the affective domain of learners and thus improves the professional education of learners.

Collaborative learning makes the students to learn in a more formal way in a team. It increases the student engagement and there exists continuous interaction between the participants. It improves critical thinking and problem-solving capabilities of learners. Courses which require these technical and soft skills can adopt Collaborative Learning strategies. Apart from the

improvement in these skills, it also improves their behaviors in communication, team building skills among the students and so on. It ultimately shows greater improvement in their campus placement, which is the ideal objective of every graduate today.

It is a common practice that the pedagogy practices with quality and set of well-defined measurable learning outcomes have to be clearly identified in prior, before the implementation of blended learning approach. The assessment and evaluation mechanism have to be developed in order to foster the improvements in blended instructions. The blended learning practices provide focus for teachers while designing learning experiences with the use of technology to cater to the needs of all types of learners.

Student engagement is the challenging task for the course handlers. Students have much distractions and diversions and not listen to the class keenly. So, classroom teaching should be blended with traditional and active learning strategies. Collaborative learning tools and techniques make all the students to actively participate in the learning. These activities definitely have positive impact in their knowledge gain and skills acquired.

The participation in different Faculty Development Programmes such as Foundation Program in ICT for Education, Pedagogy for Online and Blended Teaching-Learning Practices, and Mentoring Educators in Education Technology offered by IIT Bombay motivated us to practice new teaching methodologies and ICT tools to our students. We would like to share our experience in this chapter.