



Department of Computer Science & Engineering

Innovations by the Faculty in Teaching and Learning

The faculty members were engaged in multiple innovative teaching and learning practices to improve the course outcome and program outcome and also for the student welfare.

The following methods are used to the teaching and learning.

Teaching Methods:

The teacher-centered approach vs. the student-centered approach. High-tech vs. low-tech approaches to learning. Flipped classrooms, differentiated instruction, inquiry-based learning, personalized learning and more.

Teacher-Centered Approach to Learning

Faculty serve as instructor/authority figures who deliver knowledge to their students through lectures and direct instruction, and aim to measure the results through testing and assessment. This method is sometimes referred to as “sage on the stage.”

1. Direct Instruction:

Under the direct instruction model sometimes described as the “traditional” approach to teaching. Faculty convey knowledge to their students primarily through lectures and scripted lesson plans, without factoring in student preferences or opportunities for hands-on or other types of learning. This method is also customarily low-tech since it relies on texts and workbooks rather than computers or mobile devices.



2. Flipped Classrooms:

If students did the “classroom” portion of their learning at home and their “homework” in the classroom. That’s an oversimplified description of the flipped classroom approach, in which students watch or read their lessons on computers at home and then complete assignments and do problem-solving exercises in class.

Student-Centered Approach to Learning

Faculty still serve as an authority figure, but may function more as a facilitator or “guide on the side,” as students assume a much more active role in the learning process. In this method, students learn from and are continually assessed on such activities as group projects, student portfolios and class participation.

1. Inquiry-Based Learning:

Rather than function as a sole authority figure, in inquiry-based learning Faculty offer support and guidance as students work on projects that depend on them taking on a more active and participatory role in their own learning. Different students might participate in different projects, developing their own questions and then conducting research often using online resources and then demonstrate the results of their work through self-made videos, web pages or formal presentations.

2. Expeditionary Learning:

Expeditionary learning is based on the idea that there is considerable educational value in getting students out of the classroom and into the real world. Examples include trips, to learn about the workings of government, or out into nature to engage in specific study related to the environment. Technology can be used to augment such expeditions, but the primary focus is on getting out into the community for real-world learning experiences.



3. Personalized Learning:

In personalized learning, Faculty encourage students to follow personalized, self-directed learning plans that are inspired by their specific interests and skills. Since assessment is also tailored to the individual, students can advance at their own pace, moving forward or spending extra time as needed. Faculty offer some traditional instruction as well as online material, while also continually reviewing student progress and meeting with students to make any needed changes to their learning plans.

4. Game-Based Learning:

Students love games, and considerable progress has been made in the field of game-based learning, which requires students to be problem solvers as they work on quests to accomplish a specific goal. For students, this approach blends targeted learning objectives with the fun of earning points or badges, much like they would in a video game.

5. Seminars given by the students

6. Group Discussion

High-Tech Approach to Learning

From devices like laptops and tablets to using the internet to connect students with information and people from around the world, technology plays an ever-greater role in many of today's classrooms. In the high-tech approach to learning, Faculty utilize many different types of technology to aid students in their classroom learning.

Low-Tech Approach to Learning

Technology obviously comes with pros and cons, and faculties believe that a low-tech approach better enables them to tailor the educational experience to different types of learners. Additionally, while computer skills are undeniably necessary today, this must be balanced against potential downsides; for example, some would argue that over-reliance on spell check and autocorrect features can inhibit rather than strengthen student spelling and writing skills.



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Fig: Seminar given by the student



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Fig: PPT Lecture by Faculty



Fig: Group Discussion