

9.4. Self-Learning (5)

The curriculum include compulsory institute core courses for all UG students that are designed for overall development of student to evolve into a complete human being, and all of these components are not strictly restricted to prescribed syllabus but give freedom to student to pursue topics of interest. These include

- Compulsory Co-curricular courses
- Games
- Work-experience courses
- Comparative study of religions
- Cultural Education
- Rural Development
- Agricultural Operations
- Non-departmental Half Courses
- Social Service
- Scientific methodology, General Knowledge and Current Affairs

The students have to pursue following curricular components which require them to expand the boundaries of learning and exercise self-learning. These components include

- Major Project
- Minor Project
- Projects during internship programs during summer terms after I year (30 days), II year (40 days) and III year (180 days)
- Rural Engineering Project
- Design Engineering and Theme Development project
- Product manufacturing project
- Seminars and Group discussion
- Assignments that require knowledge of software tools
- Lab courses that uses software tools for simulation

Further, students are encouraged to participate in student competitions, hackathons, technical paper presentations etc. which provide scope for learning beyond the prescribed syllabus.

The institute provide following facilities for the students for supporting self-learning

VidyaPrasar

Institutes' on-line collaborative learning, live web cast and content management system VidyaPrasar, in its present state of development, provides course web publishing, file storage and sharing facilities through a web based connection to the Internet thus providing with full portability.

VidyaPrasar hosts course websites and material and Wiki for courses in Computer Science and Engineering. Live streaming services, interactive seminars, e-Books, on-line self-examination facilities, and video-on-demand services etc are its main features. Sponsored by the National Mission on Education through Information and Communication Technology (NMEICT) this project is part of a tri-institute collaborative initiative coordinated by the Indian Institute of Technology, Bombay, and with the Amrita University as the third partner.

SWAYAM

SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. Students are taking advantage of Swayam portal regularly.

NPTEL

Students do take the advantage of NPTEL courses beyond class room lectures for enhancing knowledge and strengthening their understanding.

Teaching-Learning in DEI follows a student-centric process employing experiential, participative, problem solving and constructivist methodologies, through (a) Teaching Methodology, (b) Experience-Based Courses, (c) Different Modes of learner-centered teaching (d) a wide range of co-scholastic components and (e) Specialized Centres of Learning.

(a) **Experiential and Participatory Teaching-Learning** methods used include:

1. Seminar cum Group Discussions
2. Individual and Group Projects
3. Self-Study and Dissertations
4. Field work
5. Case Analysis
6. Presentations
7. Term Papers
8. Self-Study Courses
9. Active Learning: Flipped Classroom, Team work, Students as teachers

10. Video viewing cum discussions
11. Research Colloquia

(b) Experience-based/ Practice-oriented courses

Based on the principle of '*Learning by Doing*' a large proportion of courses in each programme have a high practical component to provide hands on learning experience to the students:

1. *Work-Based training*
2. *Co-operative Industrial Internship*
3. *Performing Arts Courses*
4. *Vocational and Skill courses*
5. *ICT courses*
6. *Rural Development Core course with focus on Agricultural Operations*
7. *Scouting and Guiding Programme*
8. *Student Centred Online Teaching-Learning System (SCOTLS) for B.Ed. and M.Ed. Internship at remote locations (incorporating Tablet-based teaching in collaboration with Microsoft, India.)*
9. *Teaching Internship in adopted tribal villages and neighbouring community schools.*
10. *Vocational and Skill courses*

(c) Learner-Centred Modes of Education

Learner-Centred modes of teaching-learning are used that make learning self-paced and self-regulated:

- (i) **Vidyaprasar**(www.vidyaprasar.dei.ac.in), an ***on-line collaborative learning, live web cast and content management system*** with state-of-the-art interactive learning resources. MOOCS developed by DEI and under e-PG-Pathshala and SWAYAM.
- (ii) **e-DEI-de** program of DEI for certification through on-line modular courses for open and distance learners.
- (iii) **Ten Virtual and Remote Triggered Laboratories**
- (iv) **MOOCS**, especially for online vocational courses. DEI has created the first skillpedia in regional languages named, Massive Online Courseware Skilling and Entrepreneurship Network for India (MOOCSKENE-Bharat). The network offers free on-line learning in multiple languages across the country.
- (v) Variety of Elective courses.

(d) Co-Scholastic Learning Components

A wide range of compulsory co-scholastic learning components cater to varied learner interests and potentialities that include co-curricular activities, games and sports, yoga, community outreach, field and industrial visits, creative and problem-solving contests and Field and Industry experience. A Business Advisory Clinic provides free consultancy to Business firms and Industries facing difficulties. Faculty members and students take up real life case studies and offer appropriate guidance. More than 6,000 cases have been taken up and resolved satisfactorily.

(e) Specialized Centres of Learning

The advanced centres of learning include:

1. **Multi-disciplinary Quantum and Nano Systems and the Consciousness Studies Virtual Centers**
2. The Virtual Advanced Lab for Interactive Design, Analyze, and Test in Electronics – eVALIDATE.
3. **The iNFORMATION-cOMMUNICATION-nEURO-cOGNITIVE- Technologies Assisted Language Lab(I-c-n-c-TALL)**
4. **2G to 5G, IOT, AI and Robotics Laboratories**
5. **Quantum Jugaad Centre and Entrepreneurship and Virtual Incubation Centre**

The above teaching learning modalities ensure experiential and participatory learning leading to a holistic development of students within and beyond the classroom.