

Teaching Learning Process

The teaching learning process followed in the department is described in figure and elaborated as follows.

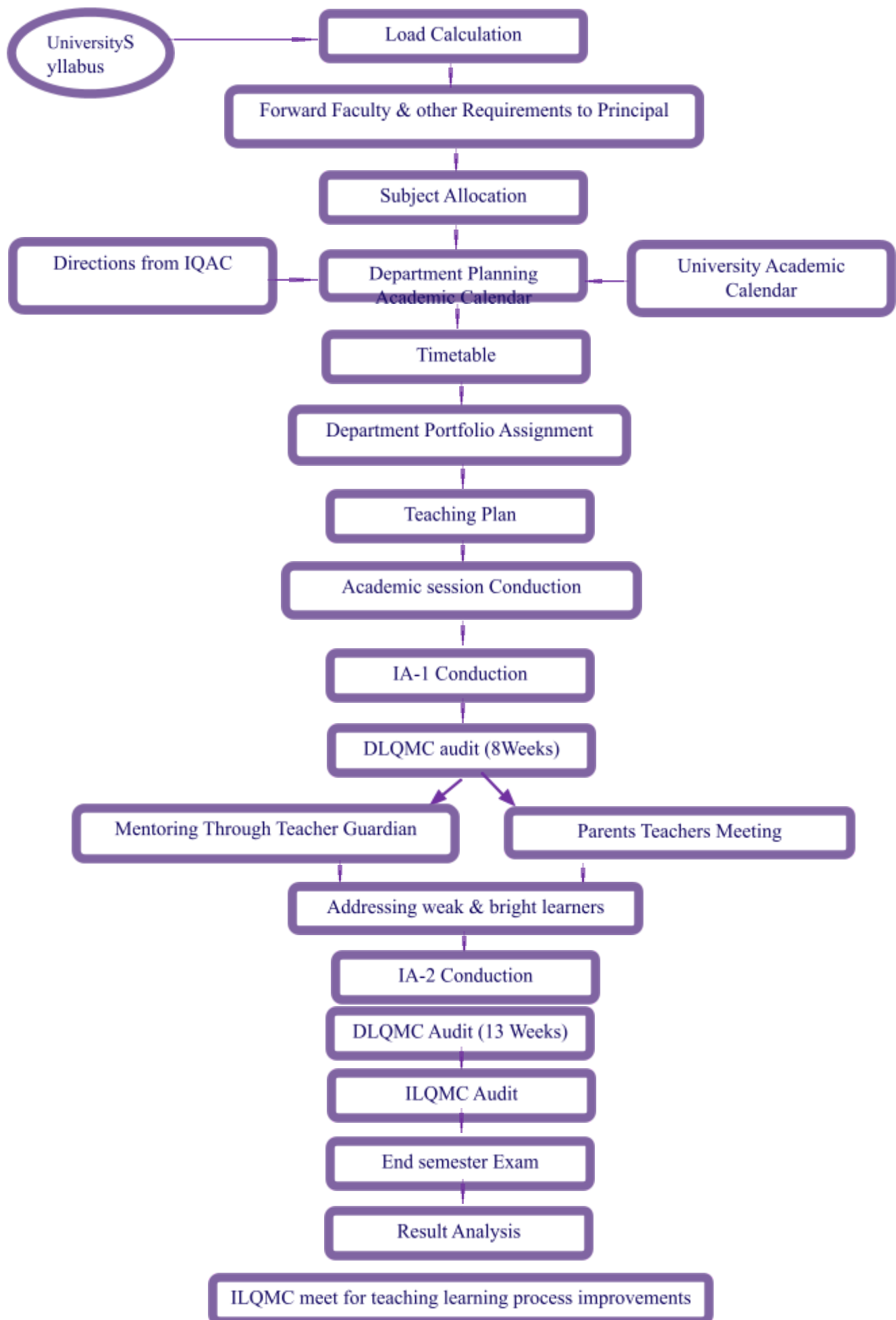
- **Load Calculation**
 - ✓ In the beginning of the semester teaching load calculation is done by the Head of the Department and the time table in charge considering the student to faculty ratio and current availability of staff.

- **Forwarding requirements to principal**
 - ✓ The requirement of faculty needed if any is forwarded to Principal.
 - ✓ Meetings are conducted with the lab in charges and lab attendants to gather the hardware software requirements for smooth conduction of practicals in the lab.
 - ✓ Along with the faculty requirements, these requirements are then forwarded to Principal for approval and necessary action.

- **Subject allocation**
 - ✓ Toward the end of the semester all the faculties are requested to submit their three subject choices for the next semester as per their expertise and areas of interest.
 - ✓ The subjects are then allotted well in advance to the faculties so as to give enough time for subject preparation and preparing quality teaching material like notes, handouts etc.
 - ✓ Due consideration is given to faculties area of interest and subject experience.

- **Preparation of academic calendar**
 - ✓ Following the University's academic calendar, IQAC i.e. Institute Quality Assurance Cell finalizes the institute's academic calendar.
ILQMC prepares the draft academic calendar and invites suggestions from all the departments.
 - ✓ Upon confirmation from all the departments ILQMC finalizes the academic calendar. It is then circulated to all the departments.
 - ✓ The academic calendar is implemented strictly as per schedule with respect to commencement of class work, Internal assessment-I and Internal Assessment-II , Last working day, End semester exams (theory) and End semester exams (Practical) in each semester/year, holidays, display of attendance, submission of syllabus completion etc..
 - ✓ In line with the academic calendar the department planning is done for the semester.

- **Timetable preparation**
 - ✓ DLQMC i.e. Department level Quality Management Committee and HOD along with the Time table in charge prepares the timetable, also finalizes the department's list of events. It is then intimated to the stakeholders.
 - ✓ It is made sure to allot extra hours for remedial lectures of the weaker students.



- **Assignment of departmental portfolios**
 - ✓ HOD and DLQMC selects the class in charges and assigns departmental portfolios like IA in charges, project coordinators etc. to varied faculty members for the semester.
 - ✓ Most of the responsibilities are allotted on rotational basis so as to enable the faculties made well aware of the different portfolios and get to learn the functioning of the same.

- **Submission of teaching plan**
 - ✓ Teaching plan is prepared by the faculties considering the number of hours available as per timetable. The number hours allotted to every lesson in the syllabus prescribed by the university.
 - ✓ It also contains the calculation of extra lectures needed to complete the syllabus well in time and effectively.
 - ✓ Preparation of teaching plan enables the smooth conduction of content delivery giving due weightage to lessons in the syllabus considering the number of hours available. The teaching plan is reviewed and approved by the HOD.

- **Academic session conduction**
 - ✓ Academic session including conduction of theory lectures, practicals, mini projects, and final year project work is strictly implemented adhering to the academic calendar.

- **Conduction of Internal assessments**
 - ✓ As prescribed by the University of Mumbai two internal assessments are conducted for 20 marks each within the semester.
 - ✓ IA-1 is conducted on 40% syllabus and IA-2 is conducted on the 80% syllabus in the end of the semester.
 - ✓ Average of both is taken as IA marks in the end semester marks. This enables the continuous evaluation of the student's academic performance.

- **DLQMC audit**
 - ✓ DLQMC audit is conducted after 8 weeks and 13 weeks.
 - ✓ It assesses syllabus covered, learning outcomes covered, value added / enrichment sessions conducted in the semester, Achievements / Recognitions / Awards Received in the Semester, Status and Utilization of Available Resources, result analysis, placement analysis, internships.

- **Mentoring through teacher guardian**
 - ✓ We have implemented a teacher guardian scheme by allotting a batch of 20 students to one teacher
 - ✓ Teacher Guardian mentors the students allotted in terms of attendance, encouraging them for extracurricular and co curricular activities, resolves any issues faced during the semester and getting connected to their parents so as to give them a comfortable learning environment by knowing and paying attention to them individually.

- **Parent- teacher meeting**

- ✓ Parent teacher meetings are conducted after every four weeks to inform the parents about the progress of their wards especially the students with the low attendance,
- ✓ Also to resolve any queries of the parents. This improves the communication between the teacher and the parents and they are made well aware of the happenings in the college.

Weak/bright learners Identification Criteria

	Identification Criteria
Bright students	Above 18 in all the subjects in IA-1
Weaker students	Failing in all the subjects IA-1

- **Remedial lectures for weaker students**

- ✓ Table shows the identification criteria for bright and weaker students.
- ✓ After the result analysis of Internal Assessment-1, weaker students are identified. The ones failing in all the subjects are identified as slow learners.
- ✓ Their difficulties are understood by the teacher guardians and remedial lectures are arranged for them to help them in their problem areas to ensure improvement in their performance.

- **Encouraging bright students**

- ✓ Bright students are also identified after the result analysis of the Internal assessment-1. The students scoring above 18 in all the subjects are recognized as fast learners.
- ✓ These bright students are encouraged and assigned various projects like development of alumni portal, ERP module of the college to further explore their skills and recognize their efforts. Also are encouraged to participate in HACKATHONS and MOOC courses to enhance their skill set.

- **Conduction of End semester exam**

- ✓ End semester exams are conducted as per schedule given by the university calendar.
- ✓ Students are prepared for the same by taking revisions and doubt solving sessions.

- **Result analysis**

- ✓ Result analysis is carried out by the result analysis team to assess the performance of the students and the faculty in the respective subject.
- ✓ It is used as an input for further improvement in the teaching learning process.

- **ILQMC audit**

- ✓ ILQMC audit is carried out in the end of the semester to assess the academic system, academic innovations, review of available resources, and their utilization and student feedback.

- **ILQMC meet for teaching learning process improvements**

- ✓ ILQMC meet is conducted after the audit of all the departments to analyze the issues and establish the common observations.
- ✓ The findings of the ILQMC meet are used to suggest the remarks for teaching learning process improvements.

a) Methods to improve teaching learning process

• Various instructional methods

- ✓ In the teaching-learning process, various instructional methods like lectures, presentations, case studies, videos, group discussions, use of charts, games and puzzles are used. Thereby improving student's overall learning experience.

• Quality of experiments and Continuous assessment in labs

- ✓ To ensure the quality of conduct of practicals in laboratory in the Department, Lab in charges along with the lab attendants reviews the readiness of laboratory before the beginning of the academic session.
- ✓ Subject in charges provide Lab manual to the students to follow in the semester. Quality of student's laboratory experiments and practice of outcome-based education.
- ✓ Continuous evaluation of each laboratory experiment is done based on the rubrics designed for correction.
- ✓ A faculty member must give marks to each student for the performance for each experiment and maintain records.
- ✓ The rubrics contain parameters like Timely submission, neatness, knowledge, innovative solution etc. This evaluation rubrics is designed as per requirement of the subject.

Sample evaluation rubrics for experiment grading

1. Timely Submission		
3: If submitted on-time	2-Delayed by not more than 3 days	1-Delayed by more than 3 days (consider medical reason if any accordingly)
2. Neatness		
3: Very neat	2: Just Neat enough	1: Untidy
3. Knowledge		
3: Answered all questions satisfactorily	2: Majority of questions answered satisfactorily	1: Answered few questions satisfactorily.

• Case Studies and Presentations

- ✓ Case studies are one of the methods adopted to make the students aware about current trends in the technology and research.
- ✓ Case studies based on papers published by well known publishers like IEEE/Springer/ ACM are carried out to understand the current scenario of research in the given subject.
- ✓ Students are also encouraged to give case study presentations on the latest tools and technologies used in the market.
- ✓ This Presentation delivery also improves, student's communication skills, boosts confidence for public speaking.

• Audio visual aids

- ✓ Department is well equipped with audio visual aids like projectors, smart boards.
- ✓ Apart from the chalk and board method of instruction, powerpoint presentations are also encouraged to make the content visually attractive and interesting for the students.

• Video lectures

- ✓ Faculties have created videos for their respective subject content and made it available on platforms like Youtube and Moodle.
- ✓ This helps the students to revise the content taught in class any time.
- ✓ This is also helpful if students miss any of the classes and to revise any concept during exams.
- **Self learning courses**
 - ✓ Our college is a local chapter for NPTEL and is participating in an initiative called ‘Coursera for Campus’, an AICTE initiative.
 - ✓ Students and faculties are encouraged to learn from NPTEL and Couresra courses. Faculties are using these resources for effective teaching and students develop a habit of self learning and life-long learning skills.
 - ✓ Faculties and students are also motivated to register and appear for these exams.
- **Method to support weaker students**
 - ✓ The weaker students are identified based on their overall performance and their orientation towards academics based on result of the internal assessments conducted.
 - ✓ Remedial classes SE TE and BE conducted and course material is provided to them.
 - ✓ The mentor gives more attention on weaker students during meeting and boost them for regularity in lectures/practical and participation in curricular/ extracurricular activities and department association activities.
 - ✓ Counsel about importance of aptitude, technical, communication skill for placements.
 - ✓ Remedial classes are also conducted for lateral entry students in Mathematics, as they are found to be weak in Mathematics.

Action taken for weaker/brighter students

Identification	Action Taken
Bright Students	<ul style="list-style-type: none"> ● Project development, ● Encouraged to participate in HACKATHONS, MOOC Courses ● Encouraged to participate in competitive examinations ● Appreciation by HOD
Weaker Students	<ul style="list-style-type: none"> ● Counseling by teacher guardians ● Remedial lectures ● boosting for regularity in lectures/practical and participation in curricular/ extracurricular activities ● boosting for regularity in lectures/practical and participation in curricular/ extracurricular activities

- **Encouragement to bright students**
 - ✓ Encouragement for participation in competitive examinations: GATE, TOFEL etc.
 - ✓ Encouragement for participation in innovative projects in project exhibitions/state level/ national level competitions.
 - ✓ Students are appreciated/felicitated by HOD for their achievements/ securing prizes in outside state level events/ national level events like HACKATHON, NPTEL certifications etc.
 - ✓ Fast learners are also involved in the development of ERP project, Alumni portal of the college.

✓ This enhances their confidence, updates their skills and gives them a practical experience.

- **Different pedagogical methods**

- ✓ The faculty are now oriented towards Outcome based Education (OBE) and are actively utilizing the OBE to cater the learning need of students by innovative methods.
- ✓ They adopt various innovative Teaching & Learning methodologies to create the best learning environment for students.



Different pedagogical methods used

- ✓ These methodologies include traditional black board teaching, presentations, video lecturing, collaborative learning methods etc. as mentioned.
- ✓ Gaming pedagogies, Quizzes, puzzles are implemented by the faculties to create interest in learning the subject matter.
- ✓ Real life examples and systems are also shown with help of the attractive PPTs and case studies.

- **Use of LMS**

- ✓ Moodle and Google classroom is used by the faculty as a learning Management system. Faculties upload notes, PPTs and any other learning material.
- ✓ To create forums, conduct MCQs, To display assignments the platforms are very useful as they help the students to get the access to the content anytime.

- **Guest Lectures**

- ✓ Experts from industry are invited to deliver lectures on the latest trends and thrust areas in Computer Engineering.

- ✓ So that students are kept updated about the current scenario in the industry regarding whatever they are learning in class.
- ✓ Also it provides industry exposure to the students beyond the class room learning and curriculum.

- **Collaborative learning**

- ✓ Students having certifications in different technologies share knowledge or discuss topics in series of seminars for the other peers in the department.
- ✓ Students are kept updated about the advances in technologies through these technical seminars.
- ✓ This adds to their knowledge and motivates them to acquire new skillsets.
- ✓ This activity enhances their confidence, builds attitude and communication skills.

- **Techfest**

- ✓ Every year an annual technical festival is conducted. It enhances student's not only technical skills but also the interpersonal skills.
- ✓ Students get a platform to showcase their technical knowledge, skills and creativity.
- ✓ It has various technical and fun events like technical quiz, debugging, project exhibitions, Ideathons, coding competitions, GDs, debates and many more such events.
- ✓ Again it is conducted by the students and for the students under the guidance of faculty members.

- **Student Feedback On Teaching Learning Process**

Feedback on Teaching Learning Process

Type of feedback	Time at which it is taken	Taken By
Verbal feedback	After one month from the commencement of the semester	HOD
Verbal Feedback	During semester	Teacher Guardian
Online feedback	End of the semester	Principal office

- ✓ Feedback is taken from students on the effectiveness of teaching and subject learning at different points of time during the semester. Initially, feedback is taken from representative students from each class informally by class in charges after 1-2 weeks of commencement of classes.
- ✓ Feedback is also taken during students counseling by all teacher guardians and class incharges during the same period and communicated to the HoD. If students are facing difficulty in any subject, the concerned faculty member is informed of the same. Necessary guidance and support is given by HoD and another senior subject faculty member.
- ✓ Besides the above, on-line students Feedback is taken anonymously twice every semester. The feedback is summarized and communicated to all faculty members with necessary remarks by the Principal. Any major findings from the feedback are immediately worked upon by the department.