1. SOP to Quality Enhancement Strategies for improving Teaching & Learning

The following steps are adopted to improve the quality of the teaching-learning process.

A. Adherence to Academic Calendar

Departmental Academic Calendar has been prepared and aligned with Institutional Calendar & University Academic Calendar. In addition to events proposed by the university in the academic calendar, the Institute and department has introduced many other events which are useful in overall development of the students.

Along with the Class Room Teaching following Methods have been used in Teaching Learning Process.

- Technical Talks
- Certification Programmes
- Workshops/SDPs
- Technical Fests/Hackathons
- Internships/Industrial Visits
- Pre-placment Training
- Aptitude / GATE Training
- Seminars
- Collaborative Learning-Group Assignments

B. Use of various Instructional methods and Pedagogical initiatives:

- Faculty prepares **Lesson plans** for each course allotted including teaching aids, reference materials necessary, content beyond the syllabus and innovative methods to deliver the course (Figure 2.6).
- **Impartus Lecture Capture Video** helps the students to review the course contents after the class.
- **METTL and AMCAT** tool usage to assess the students programming and aptitude ability.
- **NPTEL** (National Program for Technology Enhanced Learning) Videos and Courses of Core Domains.
- **Certification Courses** related to recent industrial scenarios such as Mobile Application Development using Android/iOS, Machine Learning/Deep Learning, Data Analytics etc were need to be conducted by utilizing resources of MoU/Academic Collaboration institution.

- **Company Specific Training** will be given one or 2 days prior to the placement drive.
- **Aptitude/GATE Tarining** was scheduled in academic time table as continuous study.
- **Assignments/Group assignments** are followed to achieve peer learning process

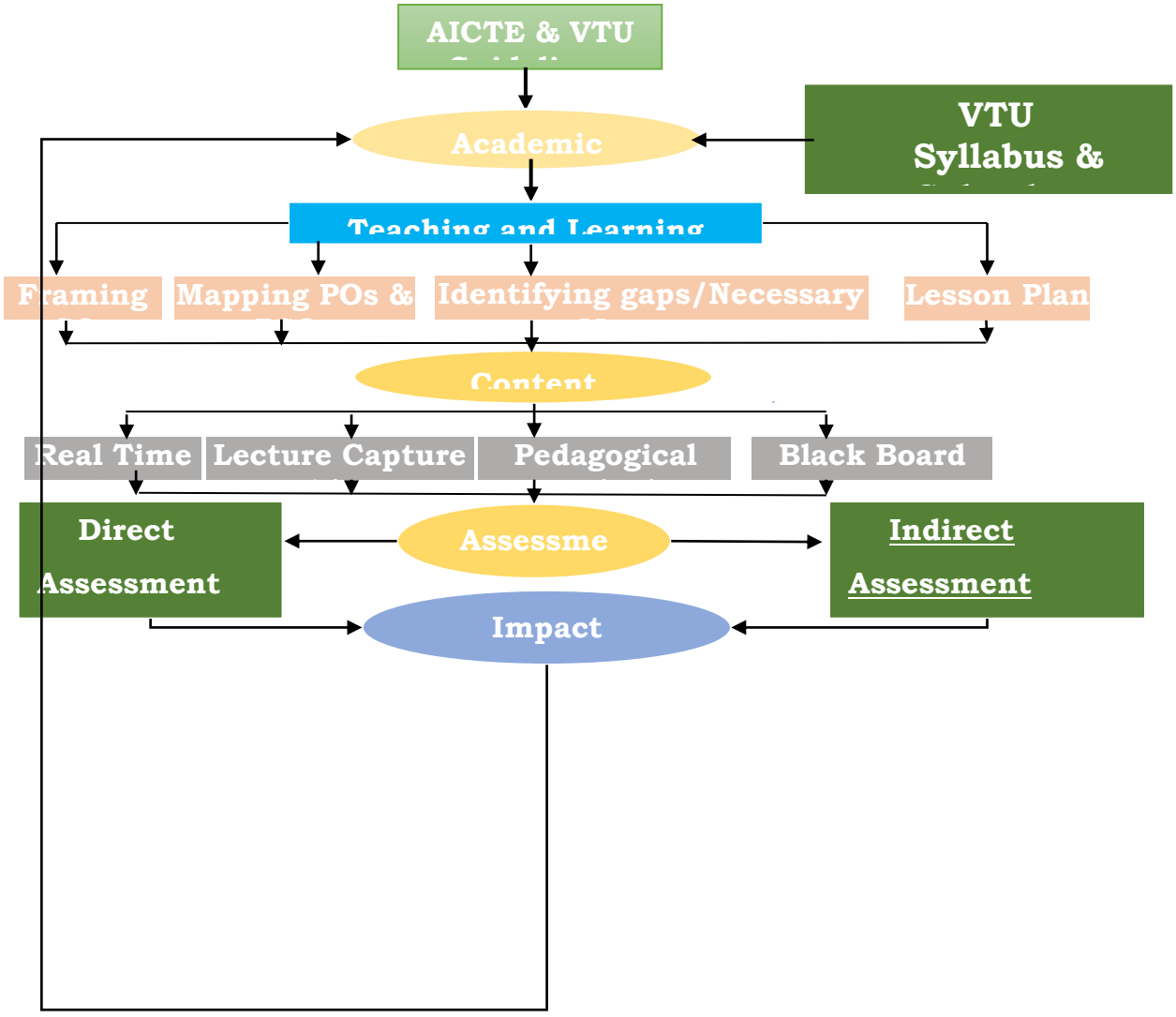

Figure 2.6: Process followed in Teaching Learning

2. SOP to identify the curricular gaps and Action Plans

Generally, VTU Curriculum maintains the balance in the composition of basic science, humanities, professional courses and their distribution in core and elective offerings. If some components, to attain CO's/ PO's, are not included in the curriculum provided by the affiliated university then the Institution makes additional efforts to impart such knowledge by covering aspects through "**Contents Beyond the Syllabus**".

Identify the curricular gaps at Course Level and Program Level

- Course teacher formulates Course Outcomes by considering the Syllabus prescribed from the University (Visvesvaraya Technological University) using Bloom's Taxonomy Levels.
- The program outcomes (POs) have been defined by National Board of Accreditation(NBA) that is common for all programs of Engineering.
- Program Specific Outcomes (PSOs) of the program were formulated in the department level.

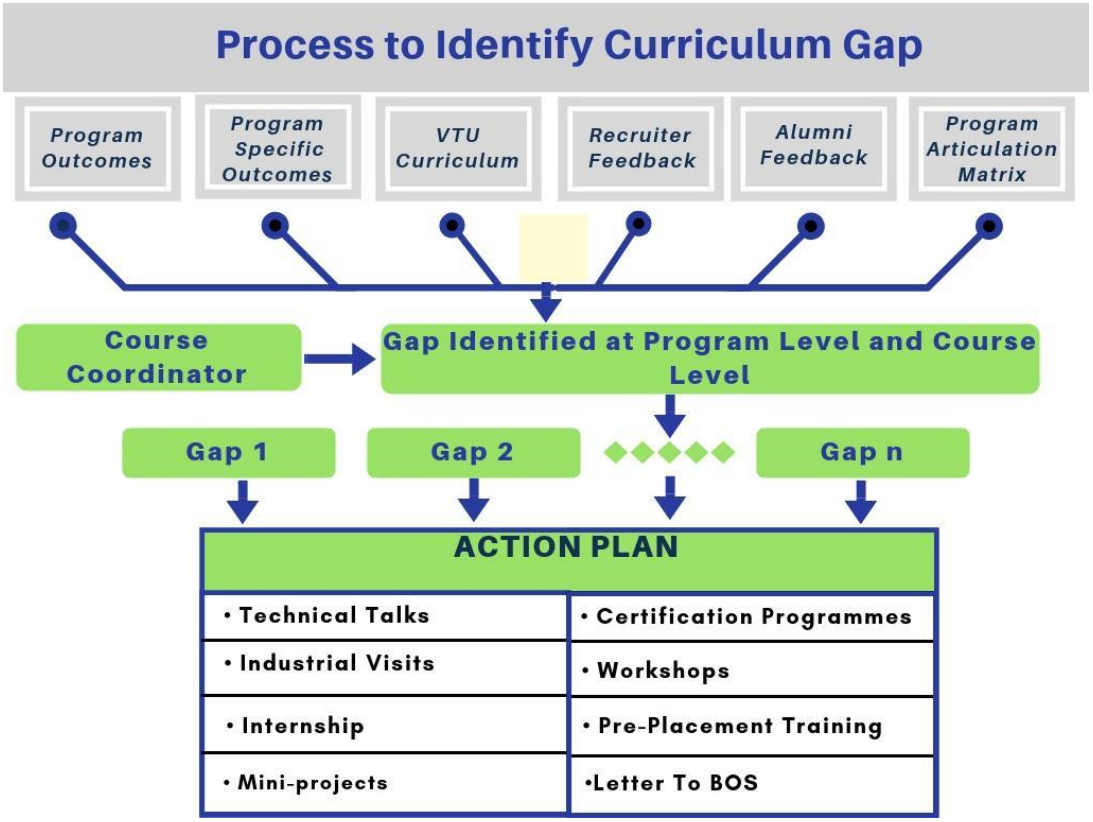

Figure 1: Process to identify curriculum Gap

- The correlation between the Courses, Program Outcomes, and Program Specific Outcomes are prepared on a scale of 1 to 3. This is depicted in Table 2.2 as Program Articulation Matrix.
- Using CO-PO/PSO mapping matrix along with and Alumni suggestions are considered for Program Level gap identification and the action plans for addressing the corresponding gaps.
- Course teacher's teaching experience and Alumni Feedback will be considered for gap identification in Courses.
- The identified Program Level Gaps will be communicated to the University/BoS through proper channel.

- The corresponding action plan will be taking in next academic year whenever that course appears.

SOP to Support Slow Learners and encourage Advanced Learners

Slow Learners support strategy:

HOD and Class coordinators are indentifying the slow learners (weak students) of every class based on their previous academic performance having lower grades or backlogs. Teacher Guardians/Mentors are appointed to enhance the performance of weak student.

- Teacher Guardian's will regularly conduct the meeting and boost the confidence level in weak students.
- Encourage them to attend classes regularly.
- Constantly monitoring their performance in internal tests and intimating their progress to parents.
- Coaching classes are arranged for challenging subjects of current semester as well as for the backlog subjects (if he/she insists).
- Repeated assignment tests will be provided to improve their knowledge.
- Teacher Guardian will provide the suggestions to Problems faced by Slow Learners.

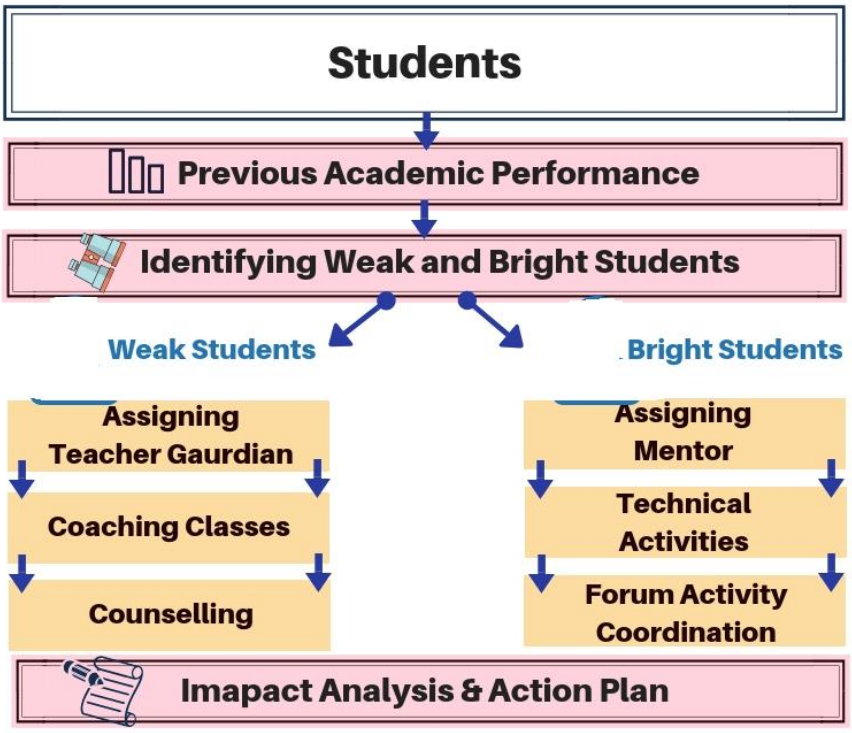

Figure 2.7: Methods followed to support Weak & Bright student's activities

Advanced Learners support strategy:

HoD and Class Coordinators will choose Bright students based on their Academic Performance having higher grades. Department will provide a necessary input to improve their skill set to meet the industry requirements and to improve in all aspects.

- Encourage and providing facility to bright students to take up industry related projects/internship (NARL, NRSC etc).
- Enhance their leadership/technical/presentation skills with Technical activities under Forum.
- Encourage them to score good grades in their final examination.
- Encourage them to participate in seminars/conferences in different institutes.
- Encourage them to enroll NPTEL courses.
- Encourage them to participate in coding activities like GitHub, Hackerearth and Hackerrank.
- Top two highest scorers of every semester will be awarded with cash prizes during college annual day.

C. Quality of Classroom Teaching

Each classroom is spacious and equipped with black board and visual aids to create a better ambience for effective teaching learning environment.

- Each lecture is scheduled for one hour. During the lecture, faculties take efforts to keep students engaged by reviewing and asking questions on previous lecture and interactively deliver the lecture planned for the day.
- Class rooms are well-ventilated.
- Classes are conducted from 9 am to 5 pm inclusive of interactive sessions and other extra activities.

The following innovative teaching methods are adopted by the faculty in the class room:

- **Lecture Capture Video** will record the class room lecture, faculty and students will get an email link to review the lecture once again. Impartus Lecture Capture is a video-based learning platform that enables educators to capture, edit, and distribute content. It provides students the deeper understanding of their topics as they review classroom content at any time, from anywhere. Absentees can review the Class Video Lecture.

- Class rooms are Equipped with LCD Projectors to demonstrate the theory classes by using Power Point Presentations, Animations, Video Lectures.
- In addition to above methods traditional method of teaching using Black Board is also continued for mathematical & problem-solving subjects.

D. Conduct of experiments and continuous assessment

- Faculty In-charge for Laboratory conducts 45 minutes of instructions of experiments and allows students to execute the experiments as per the instructions given in a three-hour laboratory session per week.
- Periodically faculty in-charge will clarify the doubts inside the lab raised by the students during conduction.
- Faculty in-charge will assess the laboratory session performance as per the lab rubrics with the help of lab observation book and record for each experiment conducted.
- Faculty incharge will conduct Lab Internal Assessment Test before the last working day of the semester as per the lab rubrics.

Rubrics used for Continuous Evaluation in Regular Lab Session

Parameters	Allocated Marks	Low	Medium	High
Execution	2	Given experiment was not executed in the lab session	Given experiment was done but programming errors were not cleared.	Given experiment was done and successfully executed without errors.
		0 Marks	1 Marks	2 Marks
Viva Voce	2	Student did not answer any viva voce question	Student Answered only a few viva voce questions	Student answered all the viva voce questions
		0 Marks	1 Marks	2 Marks
Record / Observation writing	6 `	Record and Observation was not submitted in the lab session	Record / Observation was submitted but incomplete	Completed record / observation was submitted

		0 Marks	1-3 Marks	4-6 Marks

Table 2.2.1C: Rubrics used for Continuous Evaluation of lab I.A Test

Parameters	Allocated Marks	Low	Medium	High
Procedure write up	5	Student was not able to write algorithm /program / circuit diagram	Student was able to write the algorithm /program/ circuit diagram with small logical errors	Student was able to write the algorithm /program/ circuit diagram as per the desired result.
		0 Mark	1 - 2 Marks	3 - 5 Marks
Execution	5	Student was not able conduct the experiment	Student was partially able to conduct the experiment with logical errors	Student was able to conduct the experiment as per the expected output of the problem
		0 Mark	1 - 2 Marks	3 - 5 Marks
Viva Voce	5	Student did not answer any question	Student answered only few question	Student answered all the questions.
		0 Mark	1 - 2 Marks	3 - 5 Marks

Student feedback of Teaching Learning Process and Actions taken

- At the end of the semester, all the students are required to fill a feedback-form apprising the faculty using specific format.
- Lecture classes are monitored by HoD using Lecture Video Capture-Impartus, giving constructive comments to improve the quality of teaching and the teaching- learning process.

- Counseling by the HoD for those faculty members who have secured less scores and negative comments, if any, in the feedback. This motivates them to improve their skills and abilities.
- If required training/orientation programmes are conducted by professional experts or suggested to master the skills of the faculty members in the nuances of teaching, thus improving the efficiency of teaching-learning process.

Feedback Impact analysis

- Helps in understanding the student's problem with respect to teaching learning process.
- Teaching performance of faculty improves.
- Students will be able to understand the subjects effectively.