



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500043

## IMPLEMENTATION PROCEDURE FOR CONDUCTING B.TECH VII AND VIII SEMESTERS PROJECT WORK

Project work is an important component and provides the students with the opportunity to design undertake or conduct an independent research or study related to their degree course.

Upon completion of Final year project, student should be able to identify and describe the problem and scope of project clearly, collect, analyze and present data into meaningful information using relevant tools, select, plan and execute a proper methodology in problem solving, work independently and ethically, present the results in written and oral format effectively and identify basic entrepreneurship skills in project management.

As part of curriculum, a student is normally required to undertake a project work or full semester internship (FSI) leading to research-oriented project work. in their final year of study.

The **project work** activity is spread over in VII semester and in VIII semester. A student shall carry out the project work under the supervision of a faculty member or in collaboration with an Industry, R&D organization or another academic Institution / University where sufficient facilities exist to carry out the project work. Project work (phase-I) starts in VII semester as it takes a vital role in campus hiring process.

**Full Semester Internship (FSI) leading to research-oriented project work** shall be opted in VII semester or in VIII semester. During the FSI, student has to spend one full semester in an identified industry / firm / R&D organization or another academic institution / University where sufficient facilities exist to carry out the project work.

### 1. PROJECT WORK OBJECTIVES:

This course will expose students:

1. To offer an opportunity to demonstrate their competence in laboratory work.
2. To integrate the knowledge gained in courses studied.
3. To allow the exercise maturity, initiative and creative ability.
4. To apply communication skills, both oral and written, to communicate results, concepts and ideas.
5. To solve problems of a non-routine nature.

### 2. PROJECT WORK COURSE OUTCOMES:

**By the end of the course, students are able to show competence in the following areas:**

- CO 1:** Apply the knowledge to implement an investigative or developmental project given general objectives and guidelines
- CO 2:** Make use of laboratory, modern tools and techniques for implementing the project in particular, and on society in general.
- CO 3:** Analyze data to produce useful information and to draw conclusions by systematic deduction.
- CO 4:** Discover the individual / team interactions for an inter-disciplinary research experience.
- CO 5:** Examine the results, concepts, analyses and ideas in written and oral form.
- CO 6:** Evaluate an extended independent investigation that results in the production of a research thesis in the contemporary challenges.

### 3. TYPES OF PROJECTS

Projects may be either one or a combination of the following categories of projects Experimental Research, Case study, Industrial applications, Analytical and Simulation.

#### 3.1. IDENTIFICATION AND ALLOTMENT OF PROJECTS AND SUPERVISORS

1. The Dean of PMCS will communicate through a circular for the faculty requesting them to upload in Student Management Portal (Samvidha) the list of possible projects. Each faculty interested to act as project work supervisors have to upload:
  - a. Three research project work titles, abstracts and related publications.
  - b. Two industry related / innovation related project works.
2. Professors and Associate Professors can now supervise / guide upto 4 projects and Assistant Professors upto 2 projects. Although there may be an upper limit to the number of students allotted to each faculty, they are encouraged to list as many projects as they wish to take up during the academic period. The deadline for this will be 11:59 PM on 15 April each academic year.
3. The students interested in opting FSI in their VII / VIII semesters should inform head of the department by 15 April. They have to submit the form for opting FSI (which can be downloaded from college website - Downloads and Forms) to the Dean of PMCS duly forwarded by the head of the department by 18 April. By 5 PM.
4. **Head of the department will announce the team leaders by 15 April each academic year to the rest of students, eliminating the students opted FSI.**
5. The Dean of PMCS will announce the list of projects on 20 April. Students are encouraged to meet (in person or online) faculty members who have announced projects in their stream. Faculty will be requested to conduct online sessions for briefing students on the projects they have offered. The links to these sessions will be shared by Telegram messenger / email or will be put up on the department notice board.
6. A team size for the project work should not be more than three.
7. The team leader is selected / chosen by Head of the department based on the CGPA upto VI semester. The 2<sup>nd</sup> member has been selected by team leader choice. Students other than, Team leaders and identified as 2<sup>nd</sup> member by team leader are required to select Title and Supervisor from the choice of project work list provided. This gives an equal opportunity in selecting the choice of projects and specialization. Student will be allotted projects and supervisors / guides based on the preference lists given by the students (see the project allocation algorithm).
8. The final project work batches will be intimated by the head of the department on 25 April each year. Students should fill and submit the form for the allotted project (which can be downloaded from college website - Downloads and Forms) to the Dean of PMCS with the concurrence of supervisor / guide and forwarded by head of the department on 30 April by 5 PM.
9. FSI students will have supervisor from the place where they do FSI research project work and Co-supervisor from concerned department. Students opting FSI in VIII semester should attend the Review-1 announced by head of the department. They should elaborate their plans and progress in receiving official permission letter from organisation.
10. Students opted FSI and could not get permission letters from organisation, will have to carry VIII semester FSI individually at institute Research Centres / Technology Innovation and Incubation Centre (TIIC) / Science and Technology Start-Up Park (STSP). Students opting FSI in VII semester should follow the evaluation schedule announcements.

11. A FSI student should publish / present the research findings of his / her Project work in the form of research paper to a national or international peer reviewed journal / international conference with due permission from the supervisor after getting plagiarism check.
12. Students opting Non-FSI project work, will not be considered for FSI project work in VIII semester.
13. If the faculty member does not send his / her list of preferred students, or the list is insufficient, then projects announced by him / her will become non-operational.
14. Interdisciplinary project works are encouraged, but requires Co-Supervisor from the major branch / department of study.
15. The project team must report to their supervisor twice a week and show / update them with the progress of their work.
16. If a student wishes to change his supervisor or topic of the project, he can do so with the approval of the PRC. However, the PRC shall examine whether or not the change of topic / supervisor.
17. Leads to a major change of his initial plans of project proposal. If yes, his date of registration for the project work starts from the date of change of Supervisor or topic as the case may be.
18. The group must maintain a record of their review meetings along with remarks of their discussion and signature of their supervisor.
19. The decision of the faculty meeting will be binding on all students and faculty participating in the procedure.

#### **4. EVALUATION GUIDELINES**

The Continuous Internal Assessment (CIA) shall be for 30 marks and done by a Department Review Committee (DRC) comprising the supervisor, project coordinator, Head of the department, two senior professors and any two deans from the administration. This section evaluates the students' progress during the work that regularly submitting to the supervisor and the assessment is made by PRC as mentioned earlier.

Project work (Phase-I) starts in VII semester as it takes a vital role in campus hiring process. Students shall select project titles from their respective logins uploaded by the supervisors at the beginning of VI semester. Three reviews are conducted by DRC for 10 marks each. Student must upload individual project review report through Samvidha portal the work done up to design phase / prototype by the end of VII semester. The semester end examination for project work (phase-I) is evaluated based on the project work (Phase - I) report submitted and a viva-voce examination for 70 marks by a committee comprising the head of the department, the project supervisor and an external examiner nominated by the Principal.

Project Work (phase-II) starts in VIII semester, shall be evaluated for 100 marks out of which 30 marks towards continuous internal assessment and 70 marks for semester end examination. Three reviews are to be conducted by DRC for 10 marks each. Student must upload individual project review report through Samvidha portal by the end of VIII semester. The semester end examination shall be based on the final work (Phase – II) report submitted and a viva-voce examination for 70 marks by a committee comprising the head of the department, the project supervisor and an external examiner nominated by the Principal.

**A minimum of 40% of maximum marks shall be obtained to earn the corresponding credits.**

## **5. Guidelines for successful completion of the B.Tech project work carried out by B.Tech students in VII (Phase-I) and VIII (Phase-II) semesters.**

1. Project Review Committee (PRC) comprising the supervisor, project coordinator, Head of the department, two senior professors and any two deans from the administration. The head will form the committee at beginning of academic year and will inform the head of institution accordingly.
2. The committee will be responsible for evaluating the timely progress of the project works and communicating the progress report to the students.
3. Project evaluation rubrics provided by the institute are to be followed while evaluation by PRC.
4. During synopsis presentation, the project can be accepted / rejected. This decision will be taken by PRC. If rejected, the group must come up with new project idea within 7 days of project being rejected.
5. A student shall submit his status report with 6 reviews (3 reviews per semester) conducted by the PRC.
6. The internal evaluation shall be made on the basis of reviews and on the progress of the work evaluated by PRC.
7. A research paper must be presented / published in a conference / journal related to project and need to be shown at the time of final internal project presentation.
8. Four copies of the Project Thesis certified by the supervisor and HOD shall be submitted to the Examination control office after getting plagiarism check (Similarity index should be less than 20%) and approved by Dean R&D.
9. Head of the departments should submit PRC reports and panel examiners who are eminent in that particular field to office of dean, planning and monitoring at least 07 days before the submission of the thesis.
10. The semester end examination shall be based on the final report submitted and a viva-voce examination by a committee comprising the head of the department, the project supervisor and an external examiner appointed by the Principal from panel of six examiners given by the HOD. The project thesis is sent to the same examiner for the adjudication.
11. If the report of the examiner is favorable, viva-voce examination shall be conducted by the supervisor, HOD and external examiner who adjudicated the thesis
  - a. Student has to secure 40% of marks in the viva-voce examination and a minimum aggregate of 40% of total marks (viva-voce examination and internal evaluation taken together) to pass. If the report of the viva voce is failed (viva-voce marks).
  - b. If report of vivo-voce examination is failed (less than 40% marks), the student has re-register for next supplementary examination.
12. If the report of the examiner is unfavorable, the student shall revise and resubmit the Thesis, in the time frame as decided by the PRC. If the report of the examiner is unfavorable again, the thesis shall be summarily rejected. The student has to re-register for supplementary examination.

## **CONCOCT – Project Expo and METE - Technical Festival**

IARE organizes various programs for the all-round development of the students. The Product Expo (METE) and Project Expo (CONCOCT) is being organized in the odd semester (October) and even semester (April) every year respectively to elicit the innovative ideas and technical skills of the students. Students will be rewarded with prizes and appreciation certificates.

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