



Academic Auditing Manual

Kerala Technological University
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ACADEMIC AUDITING

1.0 INTRODUCTION

The process of Academic Auditing intends to monitor and enhance the quality of technical education through proper guidelines for both teaching faculty and students, so as to ensure qualified engineers/researchers passing out from Engineering Institutions, affiliated to the Kerala Technological University (KTU).

For proper functioning of academics in an educational institution and to quantify the efforts dispensed by the faculty and students, some assessment components have been designed. These include the assessment of course delivery, as per the curriculum and syllabus of KTU, the co-curricular and extra-curricular activities of students, overall discipline and the academic functioning of the Institution, delivery of the duties and responsibilities of faculty members and monitoring of the class , progress of courses, internal assessment, student welfare and grievances.

This document is envisioned to elaborate the process of academic auditing, which can aid the engineering institution / faculty/ student for success in the Engineering Education arena. It presents the objectives of academic auditing, the process of internal and external evaluation of courses, major/mini projects, seminars, delivery of P/F courses , overall discipline and academic functioning of the institution, duties and responsibilities of faculty members, Research and consultancy and class/course committees

2.0 OBJECTIVES OF ACADEMIC AUDITING:

- (i) To ensure academic accountability.
- (ii) To define quality of each component of the functionalities and to ensure quality of technical education throughout the system.
- (iii) To safeguard functionalities of technical education.

- (iv) To define effectiveness of teaching – learning process and to devise methodology to confirm maximum output from faculty members as well as students.

3.0 COURSE DELIVERY

The B.Tech/M.Tech Programme is administered as a combination of Theory and Practical courses, seminars, mini projects and projects related to the area of specialization. There are Pass/ Fail courses for B.Tech programme which are aimed as a link between society and themselves through NSS/ NCC/ Physical Education activities.

3.1 Lecture Based Courses

The faculty shall introduce the course(pre-requisite, learning objectives and outcome of the course) briefly, on the first day of instruction so as to give an idea of what the course can impart to the students and its importance and relation to the area of specialization. The course plan shall be entered in the course diary which would come as part of the course file. The faculty shall try their best to stick to the course plan. The process will be monitored by the Internal Audit Cell (IAC). Based on the performance of the students in the internal tests, remedial measures in the form of extra classes/remedial classes shall be conducted.

3.1.1 Internal Evaluation

TUTORIALS/ASSIGNMENTS/MINI PROJECTS

Ensure quantum and quality of assignments/tutorials/miniprojects

CLASS TESTS

Ensure quality of question papers - quality of evaluation - Uniform distribution of questions from the portions covered as per the course plan. Two tests of one hour duration are mandatory.

AWARDING OF SESSIONAL MARKS

Based on the performance of students in class test and assignments, sessional marks shall be awarded as per KTU Regulations. Practical classes have only internal evaluation.

3.2 Practical Courses

Practical Instruction manual shall be prepared with theory, procedure, flow charts, equations, tables, model graphs, expected results to be obtained and shall be revised based on changes in the course content.

The first class shall be the introduction to the lab, brief explanation of pre-requisite, learning objectives and outcome, rules and regulations of the lab, cycle of experiments, the expected student attitude and responsibility towards completion of experiments, the experiences they gain towards the end of the lab and division of student batches.

The students shall be instructed to come prepared for the practical classes, after going through the theoretical and practical aspects of the experiment; along with lab record, graph paper, drawing instruments etc. The student has to complete the experiment, perform necessary calculations / programmes / graphs plotting, inferring the results etc. and submit the lab records for getting endorsed by the faculty in charge in the class itself. A viva (1 or 2 questions) on the day's experiment shall be conducted along with the endorsement of the faculty to assess the performance of the student. Marks are to be awarded for lab records/output and viva in each practical class, which shall be added up to award internal assessment marks. Conduct of minimum number of experiments as specified in the syllabus is mandatory.

After all the practical classes are over, a final written test consisting of objective type/written test and practical test shall be conducted by the faculty.

3.3 Projects

B.Tech -Identification of students' batches (with maximum of 4 students in a batch), broad areas of projects, guides etc. shall be completed within one week after the commencement of the classes. The attendance of the student in the institution / the external work place shall be maintained by the internal / external supervisor. The day to day activities of the student shall be endorsed weekly. Project evaluations shall be done in twophases –**Mid-term and end term**. The presentation using ICT in limited slides giving salient points on problem definition, literature survey/review, methodology, design & fabrication, computational analysis, statistical analysis, results, discussion, conclusions and bibliography is mandatory for evaluation. Evaluation shall be based on the abovefactors. Conference paper / journal paper based on project shall be given added credits. Interdisciplinary projects, shall be encouraged. Evaluation scheme for final semester project is as follows.

Two progress assessments : 20% by the faculty supervisor(s)

Final project report : 30% by the Assessment Board

Project presentation & Viva : 50% by the Assessment Board.

M.Tech -Project work is spread over the third and fourth semesters. Project work is to beevaluated both in the third and the fourth semesters. Based on these evaluations the grade is finalised only in the fourth semester. See the ORDINANCE for M.Tech for the evaluation procedure.

3.4 Seminar

Presentation - seminar on a topic of current relevance/emerging trends related to the discipline with prior approval of faculty shall be presented. The seminar is to be of 20 minutes duration with another 5 minutes given for questions and answers. The seminar report shall be prepared in the specific format as specified by the Institution. Evaluations shall be based on the style of presentation, technical context, adequacy of reference, depth of knowledge and overall quality. Distribution of marks shall be as follows.

Marks for the report : 30%

Presentation : 40%

Ability to answer questions on the topic : 30%

3.5 Design Project (for B.Tech programme)

Each student or a group of students has to take up a design project. The project topic could be arrived at in consultation with a faculty member in the department. The Evaluation of the project is to be done in two stages. Two project progress evaluations each carrying 20 marks and a final report evaluation and presentation of the project for 60 marks. The project supervisor and two other faculty members from the same or any other department, nominated by the Head of the Department form the evaluation board.

3.6 Comprehensive Examination (for B.Tech programme)

This examination consists of two parts. Part one a written test and the other an oral one.

The written examination shall be objective type of 1 hour duration and shall have 50 marks and is to be conducted by the concerned department. Chairman of the oral examination board shall be a senior faculty in the department and the members include two other faculty members of the department and an external expert from another academic institute or an industry. Oral examination shall carry 50 marks. Comprehensive examination may be conducted any time during the 6th semester with sufficient notice given to the students.

3.7 Delivery of P/F course (for B.Tech programme)

Each B.Tech student shall compulsorily participate in any one of NSS / NCC / Physical Education activities for the required duration. The activities shall be planned without affecting the academics of the students; preferably during weekends and holidays. The students shall be given points for participation in activities as per the guidelines in the B.Tech ordinance and shall

be awarded credits for the P/F courses. The auditor shall verify that facility is provided for such activities and points are awarded as per norms.

4.0 CO-CURRICULAR ACTIVITIES AND EXTRA CURRICULAR ACTIVITIES

Encourage the extra-curricular and co-curricular activities of the students, participation in the activities of Department Associations, Professional bodies, Students' Senate/Union, functions coordinated by the institution etc. Conduct programmes / lectures that are beneficial to the students for the development of Professionalism.

5.0 DISCIPLINE & ACADEMIC AMBIENCE

Discipline & academic ambience shall be maintained in the campus. Any complaints or grievances of the students shall be addressed and solved at the earliest.

Functioning of the following bodies in the institution are necessary for overall discipline and good academic ambience.

- i. College council*
- ii. Academic Council*
- iii. Career Guidance & Placement Unit*
- iv. Continuing Education Cell*
- v. Industry – Institute – Interaction Cell*
- vi. Research & Consultancy Cell*
- vii. Central Computing Facility*
- viii. Library Council*
- ix. Community Service Cell*
- x. Professional bodies*
- xi. ECO clubs*
- xii. Students Senate/Union*
- xiii. Student's Grievances redressal Committee*
- xiv. Student's Welfare Committee*

- xv. *Counselling Centre*
- xvi. *Ethics Committee*
- xvii. *Antiragging squad and Antiragging committee*
- xviii. *Hostel committee*
- xix. *Bus/Transportation committee*
- xx. *Sports committee*
- xxi. *Women's forum*
- xxii. *Staff Welfare Committee*
- xxiii. *PTA*
- xxiv. *Canteen committee*
- xxv. *Alumni Association*

6.0 DUTIES AND RESPONSIBILITIES OF FACULTY MEMBERS

1. ***Academic Activities***
2. ***Research & Consultancy***
3. ***Administration***
4. ***Extension Activities***

6.1 Academic Activities

- Class room instruction
- Laboratory Instruction
- Curriculum development
- Developing learning resource material and laboratory development
- Students' assessment & evaluation including examination work of university
- Organization of co-curricular & extra-curricular activities
- Student guidance & counselling
- Continuing Education activities
- Knowledge updating - Generating new knowledge, dissemination through books, seminars, publications

- Self-development through upgrading qualification, experience and professional activities.

6.2 Research & Consultancy

- Research & Development activities and research guidance
- Sponsored Projects
- Consultancy & Testing Services
- Promotion of Industry Institution interaction and R & D.

6.3 Administration

- Academic and Administrative Management of the Institution
- Policy planning, monitoring & evaluation and promotional activities (departmental & institutional level),
- Design and development of new programmes
- Preparation of Project proposals for funding areas of R&D work, lab development, modernization etc.
- Development, administration and management of institutional facilities
- Monitoring and evaluation of academic and research activities
- Participation in policy planning activities (Regional/State/National/ International levels),
- Helping mobilization of resources of the Institution
- Staff development activities
- Maintain accountability, conduct performance appraisal.

6.4 Extension Activities

- Interaction with industry & society
- Participation in community services
- Providing R & D support and consultancy services to industry and other user agencies
- Providing non-formal modes of education for the benefit of the community
- Promotion of entrepreneurship and job creation

- Dissemination of knowledge
- Providing technical support in areas of social relevance

7.0 CLASS/COURSE COMMITTEES

Class Committee for a B.Tech/M.Tech class shall comprise of a senior faculty who does not handle any course for the class as Chairman, faculty Advisor of the class and all the faculty members engaging different courses of the class and 2 student representatives from the class – one at a comparatively high academic level and the other at an average level. The faculty advisor concerned shall be the Convener of this committee.

Course Committee – In the case of common courses for B.Tech (such as Mathematics, Physics, Chemistry etc.) a course committee has to be constituted by the Principal for each course. The chairman shall be a senior faculty member not offering the course. All faculty members handling the course for various classes and 4 student representatives among different classes shall be members.

- **Functions**

The course committees and class committees shall meet at least thrice in a semester- the first at the beginning of the semester, the second and third after the first and the second internal tests respectively. These committees shall monitor the conduct of the course, adherence to the course plan, time schedule, completion of the syllabus, standards of internal tests and evaluation process. These committees will also address the difficulties faced by students and will take suitable remedial actions, if required. At the end of the semester, the committee should meet without the student representatives to review the conduct of the course and finalise the internal assessment marks and approve them.

8.0 STRUCTURE & FUNCTIONING OF THE ACADEMIC AUDITING SYSTEM

The Academic Auditing system comprises of two bodies; the Internal Audit Cell (IAC) at the Institution level and the External Auditor at the University Level. The Internal Audit Cell, will function as a body assisting the External Auditor.

8.1 Structure

Internal Audit Cell (IAC) is a group of faculty members having representation from each department. The members of the IAC shall be nominated by the Head of the Institution, one from each department, in the cadre of Professor or Associate Professor, including arts & science departments. A senior member of IAC shall be its coordinator. The term of IAC shall be one academic year. IAC shall conduct internal academic audit and produce the required documents and records to the External Auditor on demand. IAC is also responsible for uploading monthly report, annual report and any other data required to the external auditor and/or KTU.

External Auditor: The external auditor, appointed by the University, will be a proven academician, preferably retired Professor/ senior Professor or Associate Professor preferably from Government/Aided/Govt Sponsored Self Financing Engineering colleges. The external auditor shall visit their allotted educational institution(s) three times in a semester and as and when required by the University.

The external auditor shall prepare an online report and forward it to the Principal of the Institution and to the KTU. The Principal shall give his response on the observations made by the auditor and shall submit to the KTU within one week.

8.2 Audit procedures

The Principal of the college shall ensure that the records/documents listed in section 9.0 are maintained and accessible for both internal and external auditors.

The IAC coordinator shall ensure that data are uploaded / mailed, as the case may be, within the stipulated time to external auditor/KTU. IAC members should conduct internal audit (inter –

departmental) of the institution, in academic matters. A group of three members of IAC, as decided by the IAC Coordinator shall verify the details of a department; but, a member from the concerned department shall not be a member in the internal audit group.

The external auditor will visit the college, verify the documents and may interview the faculty, staff and students. The auditor shall submit an online report for each class after the audit.

Fig. 1 shows the actions of Academic Auditing.

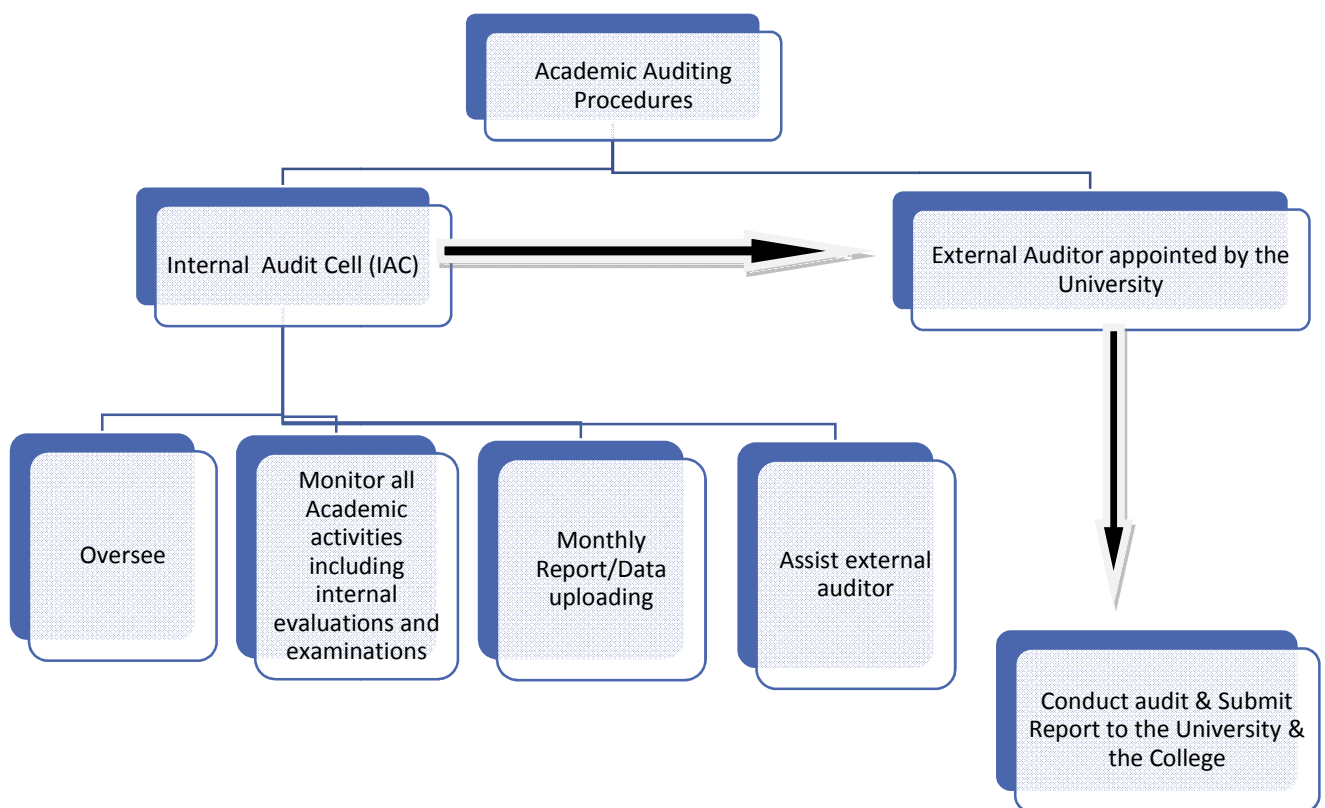


Fig. 1 Academic Auditing Procedure

9.0 DOCUMENTS TO BE PRODUCED FOR AUDIT

Each affiliated institution has to maintain the details of various academic activities in the form of documents given below. These documents shall be made available to the external auditor as and when required.

1. Class Time Table& Faculty Time Table
2. Students Roll List
3. Students Batch List (for practical courses, projects& elective courses)
4. Minutes of course/class committees
5. Course Diary for all the courses including practical, seminar, project etc.
6. Course File
7. Tutorial Log book
8. Equipment Log register used in Laboratories
9. Consolidated Attendance statement of students
10. Consolidated statement of marks of internal tests
11. Seminar presentation details
12. Project (Mini project/Design project/Final semester project) progress review reports
13. Register of internal evaluation marks
14. Student Activities Log Book(for B.Tech programme only)
15. Log book for summer and contact courses
16. Register of Remedial/Bridge/Language Lab classes
17. Minutes of Discipline, Academic and Student Welfare Committees
18. Consolidated semester grades of students
19. Result Analysis

10.0 COURSE DIARY AND COURSE FILE

10.1 Course Diary

A course diary is to be maintained by each staff of the department for each course handled by him/her. Course Diary becomes a part of the course file

10.1.1 Course Diary for Lecture Based Courses

It shall contain

- Time Schedule of classes
- Syllabus
- Course plan

- Year Calendar
- Details of assignments, tutorials
- Attendance of students
- Marks awarded for assignments, internal exams etc
- Internal evaluation marks
- Topics covered and mode of instruction in each class
- Extra classes engaged
- Learning materials provided

A sample of course diary is given in Appendix 1

10.1.2 Course Diary for Practical Courses

It shall contain details such as

- Time Schedule of class
- Syllabus
- Course Plan
- Attendance of Students
- Practical Evaluation Sheet
- Marks for class viva
- Marks for Final test
- Internal Evaluation marks

10.1.3 Course Diary for Seminar/Projects

It shall contain

- Time Schedule of class
- Attendance of students
- Seminar/Project presentation details (Name of student presented, Time slot, Seminar/Project Topic)

- Seminar/Project evaluation details

10.2 Course File

10.2.1 Course file for Lecture based courses: One course file each for each theory course is to be maintained in the Department for each semester. The Course file shall contain the following documents:

(1) Course diaries of all faculty who have engaged the course (2) question paper and scheme of evaluation for 1st and 2nd internal exam, all assignments given, Make-up / Re-Test given (if any) etc.. (3) Previous Year University question papers, (4) Sample answer sheets (at least one excellent, one good and one marginal pass) for all internal exams and assignments given, (5) sample tutorial sheets, quiz or any other assessment done, (6) all answer sheets of Make-up / Re-Test given (if any) (7) Mapping of Course outcome and Programme outcomes (POs) (8) Industrial relevance of the course, if any

10.2.2 Course File for Practical courses: One course file each for each Practical course has to be maintained in the Department for each semester. Course file shall contain the following documents:

(1) Course Diary of all batches (2) Question paper and scheme of evaluation for Lab internal exam, Make-up / Re-Test given (if any) etc., (3) Sample answer sheets (at least one excellent, one good and one marginal pass) for Lab internal exam) (7) Mapping of Course outcome and Programme outcomes (POs) (8) Industrial relevance of the course, if any

10.2.3 Course File for Seminar/Projects

It shall contain (i) Course Diary (ii) Consolidated List of Seminar/Project topics with PO mapping and industrial relevance, if any