Academic Auditing Manual

APJ Abdul Kalam Technological University 2019

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1.0 INTRODUCTION

This document is envisioned to elaborate the process of academic auditing, which can aid the 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, overall discipline and academic functioning of the institution, duties and responsibilities of faculty members, research and consultancy and class/course committees.

There shall be academic auditing in each affiliated college at stipulated intervals. The academic auditing shall be conducted jointly by an Internal Quality Assurance Cell (IQAC) within the college and external academic auditor/auditors appointed by the University. The Internal Quality Assurance Cell in each college shall oversee and monitor all the academic activities including all internal evaluations and examinations. This cell shall prepare academic audit statements in formats prescribed by the University for each semester at regular intervals. These reports shall be presented to the external academic auditor/auditors, who shall use it as reference for independent auditing. The external auditors shall submit the final audit report to the University in the prescribed format.

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.

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 APJ Abdul Kalam Technological University (APJAKTU).

2.0 OBJECTIVES

- (i) To ensure academic accountability.
- (II) 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 KTU.
- (ii) 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.
- (v) To ensure that the colleges are following OBE in its true sense.

Academic auditing shall cover

- (i) Course delivery and adherence to the course plan, syllabus coverage, quality of question papers used for internal examinations, internal evaluation, maintenance of laboratory experimental set ups and equipments, practical assignments, mini projects and conduct of practical classes and their evaluation.
- (ii) Co-curricular and Extra-curricular activities available for students, the monitoring mechanism of activity points to be earned by the students.
- (iii) Academic functioning of the college encompassing students, faculty and college administration covering punctuality, attendance, discipline, academic environment, learning ecosystem, academic achievements and benchmarking.
- (iv)The quality criteria prescribed by NBA/NAAC.

3.0 STRUCTURE & FUNCTIONING OF THE ACADEMIC AUDITING SYSTEM

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

3.1 IQAC: Since quality enhancement is a continuous process, the IQAC will become a part of an institution's system and work towards realizing the goals of quality enhancement and sustenance. The motto of the IQAC is to achieve quality through continuous improvement with cooperation of all stake holders. It will channelize and systematize the efforts of the University towards academic excellence.

Functions

- Taking a lead role in undertaking Academic Audit and to give feedback with the purpose
 of devising quality enhancement programmes.
- Facilitating the creation of a learner-centric environment conducive for quality education and faculty maturation to adopt the required knowledge and technology for participatory teaching and learning process.
- Arrangement for feedback responses from students, parents and other stakeholders on quality related institutional processes.
- Dissemination of information on the various quality parameters of higher education.

The composition

- Chairperson: Head of the Institution
- Teachers to represent all level (Three to eight, the senior among them will be the coordinator/director)
- One member from the Management
- One senior administrative officer
- One nominee each from local society, students and alumni

• One nominee each from Industry and Professional body

The membership of such nominated members shall be for a period of two years. The IQAC should meet at least once in every quarter. The quorum for the meeting shall be two-third of the total number of members. The agenda, minutes and action taken reports are to be documented with official signatures and maintained electronically in a retrievable format.

- It is necessary for the members of the IQAC to shoulder the responsibilities of generating
 and promoting awareness in the institution and to devote time for working out the
 procedural details. The institutions need to submit quarterly the Quality Assurance
 Report (QAR) to the university.
- The IQAC may also need to create its exclusive window tab on its institutional website for keeping the records/files of Academic auditing, Accreditation Team Reports, QAR, and Certificate of Accreditation Outcomes and regularly upload/ report on its activities.
- **3.2 EXTERNAL AUDITOR:** The external auditor, appointed by the University, will be a proven academician, preferably Professors or Associate Professors from Government/Aided/Govt Controlled Self Financing Engineering colleges. The external auditor shall visit their allotted educational institution(s) two times in a year as and when informed 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 three weeks.
- **3.3 AUDIT PROCEDURE:** The Principal of the college shall ensure that the records/documents listed in section 4.0 are maintained and accessible for both IQAC and external auditors. The IQAC coordinator shall ensure that data are uploaded/mailed, as the case may be, within the stipulated time to external auditor/KTU. IQAC members should conduct internal audit (inter Departmental) of the institution, twice a semester. A group of two members of IQAC, as decided by the coordinator shall verify the details of a department. The external auditor will visit the college, verify the documents and may interact the faculty, staff and students. The auditor shall submit an online report for each program after the audit.

4.0 DOCUMENTS TO BE SUBMITTED 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 for the audit.

4.1 COLLEGE SPECIFIC DOCUMENTS

Academic calendar with days earmarked with working days, holidays, other activities etc.

- Minutes and action taken reports of student's grievances and appeal committee meetings
- Minutes and action taken reports of discipline and welfare committee meetings
- > Detailed reports of co curricular and extracurricular activities
- > Teaching and technical staff details with acquittance roll
- Arrangements made in case of faculty left in between, taken long leave etc.
- > Central library register showing volume and title of books, journals etc.
- > IQAC meeting minutes, internal audit reports etc

4.2 DEPARTMENT SPECIFIC DOCUMENTS

- Minutes and action taken reports of course/class committees of UG/PG
- Minutes and action taken reports of advisory meetings
- > Academic calendar with days earmarked with working days, holidays, other activities etc.
- Course Diary for all the courses
- Tutorial Log book
- Internal test question paper and sample answer scripts
- Equipment log registers used in Laboratories
- Laboratory manual, records and course file for all practical courses
- Log book for summer and contact courses
- Practical test question paper and sample answer scripts
- Project (Mini project/Design project/Final semester project) progress review reports
- Result Analysis (UG/PG)
- ➤ Details showing the conduct of remedial/minor/honours classes
- > Details of faculty evaluation and action taken on it
- > Department library register showing volume and title of books, journals etc
- Register showing activity points
- Details of MOOC courses taken by UG/PG students
- > Details of computing facility in the computer lab (UG/PG)
- Conduct of PG thesis work
- > Details of relevant licensed software available in the department

5. ASSESSMENT OF VARIOUS OUTCOMES

Assessment tools are direct and indirect:

Direct Assessment	Indirect Assessment
Internal Exam	Course End survey
End Semester Exam	Program Exit Survey
Assignment, Tutorial	Alumni Survey
Course Project, Case Study	Employer Survey
Field Visit report	
Seminar	

5.1 CO ATTAINMENT

Percentage Weightage for Direct and Indirect Components

Direct	Indirect					
80	20					

Sample weightage for different direct assessment Tools

Internal Exam	Assignment	Tutorial	Course Project	End Semester Exam	Total	
30	20	10	10	30	100	

TARGETS FOR CO ATTAINMENT

First time

Internal Evaluation: Average of Internal Marks for the same Course and Program in the previous 3 Academic Years

End Semester Exam: Average of End Semester Exam Marks for the same Course and Program in the previous 3 Academic Years

Subsequent Academic Years

Not less than Previous Year Target, Continuous Improvement Desirable

Fixing Attainment Levels

70% or more students Score More than Set Target : 3
60% students Score More than Set Target : 2
50% or more students Score More than Set Target : 1
Less than 50% students Score More than Set Target : 0

Sample CO Attainment Calculation

TARGET Internal: 62%, Assignment: 75%, End Sem: 58%

Student	% Internal exam marks	% Assignment marks	% Course project marks	% End sem exam marks
1	75	85	80	75
2	60	80	75	68
3	55	73	50	55
4	90	68	68	80
5	80	60	90	45
6	75	90	68	82
7	78	85	75	70
8	48	60	70	56
9	61	80	85	50
10	40	80	60	78
% students above target	50%	60%	82%	60%
Attainment level	1.0	2.0	3.0	2.0

Direct Attainment of CO1 = $1.0 \times 0.3 + 2.0 \times 0.2 + 3 \times 0.2 + 2.0 \times 0.3$ = 1.90

Let the attainment through Course End Survey be 2.8

Overall attainment of CO1 = $1.90 \times 0.8 + 2.8 \times 0.2$ = 2.08

5.2 PO ATTAINMENT

Percentage Weightage for Direct and Indirect Components

Direct	Indirect
70	30

A sample mapping of CO-PO for one particular subject is shown below:

СО	Overall Attainm ent	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
EC101.1	2.08	3											
EC101.2	2.56	3	3	3									
EC101.3	2.4	2						3					
EC101.4	2.2										3		
EC101.5	1.9	3								3			

Direct Attainment of PO1 = $(2.08+2.56+2.4\times0.66+1.9)/4 = 2.031$

Let the Indirect attainment of PO1 be 2.7

PO1 overall attainment = $2.031\times0.7+2.7\times0.3$ = 2.232

6. INSTRUCTIONS TO EXTERNAL AUDITORS

To conduct academic audit in an effective manner within the limited time, the key aspects are categorised into A,B and C. Aspects in A category are very important, requires meticulous checking. Though aspects under B category are also important they are not as important as A category aspects. Aspects under C category are primarily for information purpose. Random checking can be employed for assessing aspects under B and C categories. The auditors can schedule the assessment based on this categorisation spending more time in assessing key aspects under A category and less time for aspects under C category. The category of each key aspect is given below within brackets. The general guideline for assessment is also given for each aspect. Wherever numerical values are possible, please give the numerical value in AUDITOR'S REMARKS column in the portal. Kindly give specific remarks against each key aspect (at least for A category items) so that appropriate corrective steps can be taken. Note that your specific remarks are more valuable than the ratings.

6.1 COLLEGE SPECIFIC ASSESSMENTS

Compliance to the Academic Calendar of KTU (B): Verify various academic activities such as commencement of the semester, dates of internal tests, dates of publishing of marks etc. by cross checking with KTU academic calendar, the college academic calendar and course diary.

Functioning of students grievances and appeal committee (B): Verify minutes and action taken reports

Functioning of Academic Discipline & Welfare committee (B): Verify minutes and action taken reports

Facility for co- curricular and extracurricular activities (C): Evaluate this aspect from interaction with students and also by verifying certificates of achievements, photographs/videos etc.

Average student to faculty ratio (A): The average student to faculty ratio index is to be calculated as {20xTotal number of faculty}/{Total sanctioned strength for all programmes}. The rating is to be given according to value obtained. Rating is EXCELLENT if the value is 1 or more, GOOD if it is more than 0.9, FAIR if it is between 0.75 & 0.89, POOR if it is between 0.6 & 0.74 and VERY POOR if it is less than 0.6.

Example: If a college has 5 UG programmes (B Tech) and 2 PG programmes (M Tech) with sanctioned strength as follows

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UG1 – 60 (2015-16,2016-17,2017-18, 2018-19)
UG2 – 60 (2015-16,2016-17, 2017-18), 45(2018-19)
UG3 – 60 (2015-16,2016-17,2017-18, 2018-19)
UG4 – 60 (2015-16,2016-17,2017-18, 2018-19)
UG5 – 60 (2015-16,2016-17, 2017-18, 30 (2018-19)
PG1 – 24 (2017-18), 18(2018-19)
PG2 – 24 (2017-18), 0 (2018-19)
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Total sanctioned strength = 60x4+60x3+45x1+60x4+60x4+60x3+30x1+24+18+24+0 =1221. If the college has 47 regular faculty then average student to faculty ratio = 20x47/1221=0.77. Rating is FAIR. Give the value of student to faculty ratio index in REMARKS COLUMN. Also give the actual strength in this column for information. Sanctioned strength and actual strength are available in KTU website for all the colleges. Number of regular faculty may be verified from the attendance registers.

Faculty Retention (A): If the Average student to faculty ratio is maintained at 1 or more throughout the year rating is EXCELLENT, GOOD if it is more than 0.9, FAIR if it is between 0.75 & 0.89, POOR if it is between 0.6 & 0.74 and VERY POOR if it is less than 0.6.

Faculty Qualification Index (A): FQ = (10 X + 4 Y)/F where X is number of regular faculty with Ph.D, Y is number of regular faculty with PG, F is number of regular faculty required to comply 1:20 faculty student ratio. The rating is to be given according to value obtained. Rating is EXCELLENT if the value is 7 or more, GOOD if it is more than 5.5, FAIR if it is more than 5.0, POOR if it is more than 4.5 and VERY POOR if it is less than 4.5.

Number of qualified technical staff (A): Verify the technical staff strength from the attendance register, and rate according to the strength.

Facility of central library with respect to volume and title of books, online & print journals (A): If the central library has books and journals as per AICTE norms, rating is EXCELLENT. Else, rating may be given accordingly.

Functioning of IQAC and Progress of IQAC report uploading (A): It can be judged from the report uploaded in KTU portal which are viewable by the academic auditors. If all relevant records are maintained and reports are uploaded in time, EXCELLENT can be given; else grade according to the nature.

Principal's response on previous audit reports (A): The College may be asked to give print out of the last audit report. If the Principal has responded, rating may be given according to the genuineness, VERY POOR may be awarded if the Principal has not responded timely.

6.2 PROGRAMME SPECIFIC ASSESSMENTS

Class/course committee meetings and action taken report (B): Verify report and minutes of committee meetings. If meeting is not held mention so in the REMARKS column.

Advisory meetings and action taken report (B): Verify report and minutes of committee meetings. If meeting is not held mention so in the REMARKS column.

Schedule of Time Table (C): Verify the schedule.

Syllabus coverage as per course plan (B): Do random verification of some course diaries.

Conduct of Tutorial Classes (B): A tutorial log book shall be maintained by each department. All details regarding conduct of tutorial classes must be recorded in the log book. Rating may be given based on the mode of conduct and effectiveness of tutorial classes. Note deficiency in conduct of tutorial classes under REMARKS column.

Conduct of internal tests (A): Do random verification of question papers and sample answer scripts. Assessment can be done based on (i) punctuality of valuation (ii) distribution of marks awarded.

Syllabus coverage of practical course (A): Verify course diary, sample work record, log book of equipment etc. Assessment can be done based on number of students in a batch, time given for doing the experiment, completion of calculations in the lab itself etc.

Evaluation of student's performance in practical classes (A): Verify the number of experiments and title of experiments with that of syllabus. Verify that work record is evaluated on the same day and viva is conducted on each lab class from the course diary (Lab attendance register). Give % (average) of experiments completed in REMARKS column.

Conduct of Practical test (A): Do random verification of question papers and sample answer scripts. Assessment can be done based on (i) scheme of valuation (ii) distribution of marks awarded.

Facility to do experiments in the lab (A): Verify whether all experimental set ups are available as per requirement by verifying the stock register, log register etc.

Conduct of remedial/minor/honours classes (B): Each department is supposed to keep a register for recording the details of conduct of remedial/minor/honours classes. Verify this register for assessing this aspect.

Maintenance of course diary (A): Course diary is a very important document. All faculty members shall maintain course diaries for all the subjects handled by him/her. All details such as syllabus, course plan, assignments, attendance, internal test marks, extra classes, course materials, ICT/Digital mode of instruction etc shall be entered in the course diary.

Assessment of Outcomes (A): Refer section 5. The following details are to be verified for assessment of outcomes:

- Whether internal and assignment question papers mention about COs and knowledge levels?
- Whether the question papers confirm to knowledge levels?
- ➤ Whether appropriate tools are used for CO/PO assessment?
- Whether targets are fixed as specified in section 5?
- Whether CO/PO attainment calculation completed?
- Whether there is continuous improvement?

The rating can be given based on the outcome of above parameters.

Faculty evaluation & remarks of the HoD (A): Can be assessed based on (i) number of feed backs taken in a semester (ii) % of students participated (iii) corrective actions taken for improving teaching effectiveness (iv) mode and criteria for evaluation etc. Verify the file containing faculty evaluation and action taken on it. Mention the number of faculty evaluations conducted and mode & criteria in REMARKS column.

Facility in the department library for references (C): Verify the facility in the department library and check the log register.

Conduct of Seminar & Mini project (A): Assess the conduct and evaluation of seminar/mini project for UG/PG according to relevant clauses in the ordinance. Verify whether proper references are done prior to selection of seminar topic and sample reports.

Conduct of Project/Thesis (A): Assess the conduct and evaluation of project/thesis for UG/PG according to relevant clauses in the ordinance. Verify whether proper references are done prior to selection of project topics and sample reports.

Faculty with Ph.D for the program (A): Verify the faculty list and rate as EXCELLENT if one Ph.D faculty is there for each PG program. Else rate it as POOR.

Students attending MOOC or other online courses (B): Verify the file showing the details of UG/PG students undergoing/undergone MOOC courses with relevant proof. It can be rated as EXCELLENT if at least 10% of UG students and 50% of PG students are there in the list. The rating can be changed as GOOD etc. according to the variation.

Computing facility in the department (A): Check whether enough computing facility is available for both UG/PG students.

Facility available in the department to do thesis work including relevant licensed software (A): Verify whether all relevant licensed software is there in the computer lab for both UG/PG students for doing their project/thesis work.

6.3 INTERACTION WITH STUDENTS

Syllabus coverage (B):

Lab Facility and conduct of Labs (B):

Co-curricular facility (C):

Extra-curricular facility (C):

All intimation from University conveyed properly in time (A):

Approach of the management in addressing student grievance (B):

Availability of Faculty for all subjects (B):

Any other remarks (C):

Extra fees/fine imposed on students (B):

The above parameters may be assessed after the interaction with students and then to be rated accordingly. Regarding extra fees/fine, grading need not be given. Only specific remarks be given against the column.

7.0 CHECKLIST

7.1 PRINCIPAL

- Constitute IQAC (if not existing) as mentioned in section 3
- ➤ Make aware all staff about audit procedure/related documents
- > Inform IQAC coordinator and HoDs to prepare documents as mentioned in section 4
- Ensure that the quarterly reports are uploaded to the University portal
- > Give response in the corresponding column of external auditors report

7.2 IQAC COORDINATOR

- > Carry out internal audit twice in a semester with 2 members of IQAC team
- Upload the report to the University portal in every quarter
- > Ensure that all documents as in section 4 are prepared
- Contact external auditor and arrange for the audit
- > Assist the auditor through the audit process
- Arrange one member from IQAC (preferably from that department) to assist external auditor for the evaluation of program specific aspects

7.3 EXTERNAL AUDITOR

- ➤ Inform the Principal/IQAC coordinator of the College where auditing is assigned
- Carry out audit meticulously as mentioned in sections 5 and 6
- Verify all documents mentioned in section 4
- Prepare the report by giving remarks against all columns
- Upload the report within one week of the audit
- Submit TA/DA/Honorarium bills within two weeks of the audit

