IARE
INSTITUTE OF
AERONAUTICAL ENGINEERING

COURSE FULL STACK – QUALITY AUDIT REPORT

Audit Framework for Courses Hosted on Akanksha

Purpose: To establish a structured quality-audit framework for evaluating Course Full Stack (CFS) resources hosted on Akanksha, with emphasis on curriculum alignment, outcome-based education, content quality, learning resources, assessment, engineering problem-solving, industry relevance, digital learning quality and continuous improvement.

Scope of the Audit

The audit evaluates whether a Course Full Stack provides complete, accurate, current, outcome-oriented and industry-relevant learning support. **The auditor should examine the actual course resources, not merely their existence on the platform.**

The audit focuses on the quality, completeness, accuracy, relevance and usefulness of resources prepared/curated by faculty.

Course Full Stack Components to be Audited

The Course Full Stack consists of faculty-prepared and curated learning resources designed to support effective teaching, student learning, assessment, problem-solving and industry readiness. The auditor should evaluate each component for completeness, quality, accuracy, syllabus alignment, outcome alignment, relevance and usefulness to students.

1. Course Outline Description (COD)
2. Lecture Notes
3. PowerPoint Presentations
4. Definitions and Terminology
5. Tutorial Question Bank
6. Assignments
7. Case Studies
8. Real-Life Examples
9. Complex Engineering Problems
10. Tech Talk Topics
11. Concept Video Topics
12. Open-Ended Exercises
13. Model Question Papers
14. Previous Examination Question Papers and Solutions
15. Previous GATE Questions
16. ELRV / Recorded Lectures

1. Course Outline Description (COD)

The Course Outline Description should clearly define the course objectives, outcomes, syllabus and module structure, providing the foundation for effective course delivery and outcome-based education.

1	Criteria	Excellent	Reject
1.1	Course Objectives		
1.2	Course Outcomes		
1.3	Complete syllabus coverage		
1.4	Module/unit structure		
1.5	CO–PO/PSO alignment		
1.6	Bloom's Taxonomy alignment		
1.7	Prerequisites		
1.8	Course references/resources		
1.9	Consistency with prescribed curriculum		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

2. Lecture Notes

Lecture Notes should provide comprehensive, accurate and well-structured explanations of the syllabus topics to support classroom teaching and independent learning.

2	Criteria	Excellent	Reject
2.1	Complete syllabus coverage		
2.2	Concept clarity		
2.3	Technical accuracy		
2.4	Relevant examples		
2.5	Diagrams/illustrations		
2.6	Derivations/procedures where applicable		
2.7	Problem-solving content		
2.8	Current and relevant content		
2.9	Readability and consistency		
2.10	References		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

3. PowerPoint Presentations

PowerPoint Presentations should provide concise, structured and visually effective learning content that supports classroom teaching and student engagement.

3	Criteria	Excellent	Reject
3.1	Course Outcomes		
3.2	Complete topic coverage		
3.3	Key concepts		
3.4	Technical accuracy		
3.5	Logical sequence		
3.6	Relevant diagrams/visuals		
3.7	Examples and applications		
3.8	Appropriate amount of content per slide		
3.9	Readability and presentation quality		
3.10	References		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

4. Definitions and Terminology

Definitions and Terminology should provide clear, accurate and consistent explanations of important technical terms, concepts, symbols and abbreviations used in the course.

4	Criteria	Excellent	Reject
4.1	Key terminology coverage		
4.2	Technical accuracy		
4.3	Clear and concise definitions		
4.4	Symbols and abbreviations		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

5. Tutorial Question Bank

The Tutorial Question Bank should provide progressive questions that strengthen conceptual understanding, application, analysis and problem-solving skills.

5	Criteria	Excellent	Reject
5.1	Complete syllabus coverage		
5.2	Conceptual questions		
5.3	Application-oriented questions		
5.4	Analytical questions		
5.5	Problem-solving questions		
5.6	Different difficulty levels		
5.7	Bloom's Taxonomy coverage		
5.8	CO alignment		
5.9	Adequate question variety		
5.10	Faculty-prepared questions appropriate to course content		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

6. Assignments

Assignments should promote independent learning, application of concepts, analytical thinking and practical problem-solving aligned with the Course Outcomes.

6	Criteria	Excellent	Reject
6.1	Syllabus/CO alignment		
6.2	Application-oriented tasks		
6.3	Analytical/problem-solving tasks		
6.4	Appropriate difficulty		
6.5	Independent thinking		
6.6	Syllabus/CO alignment		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

7. Case Studies

Case Studies should present realistic engineering or industry situations requiring students to analyse problems, evaluate alternatives and justify appropriate solutions.

7	Criteria	Excellent	Reject
7.1	Authentic/realistic context		
7.2	Clear problem statement		
7.3	Technical information/data		
7.4	Engineering constraints		
7.5	Required analysis		
7.6	Multiple-solution potential		
7.7	Real-world/industry relevance		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

8. Real-Life Examples

Real-Life Examples should connect theoretical concepts with practical engineering, industrial and societal applications to strengthen students' understanding of real-world relevance.

8	Criteria	Excellent	Reject
8.1	Concept relevance		
8.2	Engineering applications		
8.3	Industry examples		
8.4	Current technology examples		
8.5	Practical implementation		
8.6	Theory-to-practice connection		
8.7	Societal applications where relevant		
8.8	Technical accuracy		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

9. Complex Engineering Problems

Complex Engineering Problems should require analysis, application, design or evaluation and reflect realistic engineering constraints rather than simple definition or recall questions.

9	Criteria	Excellent	Reject
9.1	Authentic context		
9.2	Technical complexity		
9.3	Open-ended or multiple-solution potential		
9.4	Engineering constraints		
9.5	Data/assumptions		
9.6	Required analysis/design		
9.7	Engineering judgement		
9.8	Trade-offs		
9.9	Expected deliverables		
9.10	CO alignment		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

10. Tech Talk Topics

Tech Talk Topics should expose students to emerging technologies, industry practices, recent developments and professional trends related to the course.

10	Criteria	Excellent	Reject
10.1	Technical relevance		
10.2	Emerging technologies		
10.3	Industry trends		
10.4	Recent developments		
10.5	Research/innovation		
10.6	Practical applications		
10.7	Industry relevance		
10.8	Student-level suitability		
10.9	Scope for exploration		
10.10	Periodic updating		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

11. Concept Video Topics

Concept Video Topics should identify important, difficult or application-oriented concepts that can be effectively supported through visual and digital learning resources.

11	Criteria	Excellent	Reject
11.1	Syllabus/topic coverage		
11.2	Concept identification		
11.3	Technical accuracy		
11.4	Visual explanation		
11.5	Practical demonstrations where applicable		
11.6	Appropriate duration		
11.7	Relevance to Course Outcomes		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

12. Open-Ended Exercises

Open-Ended Exercises should encourage creativity, independent thinking, exploration and multiple approaches to solving engineering problems.

12	Criteria	Excellent	Reject
12.1	Problem statement		
12.2	Multiple approaches/solutions		
12.3	Creativity		
12.4	Independent thinking		
12.5	Real-world context		
12.6	Engineering constraints		
12.7	Analysis/design		
12.8	Justification		
12.9	Expected deliverables		
12.10	CO alignment		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

13. Model Question Papers

Model Question Papers should provide realistic examination practice with appropriate syllabus coverage, question patterns, difficulty levels and assessment of different cognitive skills.

13	Criteria	Excellent	Reject
13.1	Complete syllabus coverage		
13.2	Appropriate examination pattern		
13.3	Marks distribution		
13.4	CO alignment		
13.5	Bloom's Taxonomy coverage		
13.6	Difficulty balance		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

14. Previous Examination Question Papers and Solutions

Previous Examination Question Papers should provide authentic examination resources that help students understand examination patterns, syllabus coverage and expected levels of preparation.

14	Criteria	Excellent	Reject
14.1	Year/semester identification		
14.2	Syllabus relevance		
14.3	Examination pattern		
14.4	Multiple years where available		
14.5	Solutions available		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

15. Previous GATE Questions

Previous GATE Questions should contain only authentic questions that have actually appeared in previous GATE examinations. Faculty are responsible for selecting, verifying and organizing the questions.

15	Criteria	Excellent	Reject
15.1	Authentic GATE questions only		
15.2	Questions actually appeared in previous GATE examinations		
15.3	GATE year identified		
15.4	Relevant topic/course identified		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

16. ELRV / Recorded Lectures

ELRV/Recorded Lectures should provide accessible, structured and technically sound digital learning support for self-paced learning and reinforcement of classroom concepts.

16	Criteria	Excellent	Reject
16.1	Accessible & available		
16.2	Structured & organized		
16.3	Syllabus coverage		
16.4	Audio/Video quality		
16.5	Relevance to Course Outcomes		
16.6	Supports self-learning		
16.7	Practical examples		
16.8	Appropriate duration		

Note: Mark ✓ under "Excellent" if the criterion is fully satisfactory; otherwise, mark ✓ under "Reject."

Course Specialist **HOD** **Engine Committee** **Principal**