

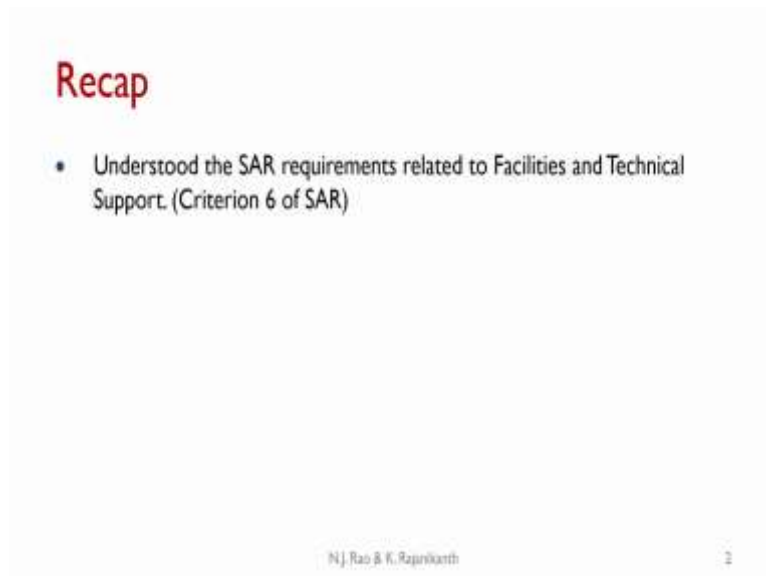
**NBA Accreditation and Teaching-Learning in Engineering
(NATE)
Professor K. Rajanikanth
Retired Principle-MSRIT
Indian Institute of Science, Bengaluru
Lecture 58**

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Greetings, welcome to module 3, unit 18 on Continuous Improvement.

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In the last unit, we understood the SAR requirements related to facilities and technical support that was criterion 6 of SAR.

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M3 UI8: Outcome

- Understand the SAR requirements related to Continuous Improvement. (Criterion 7 of SAR)

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In this unit we will look at criterion 7 of SAR. The outcome for this unit is understand the SAR requirements related to Continuous Improvement.

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Criterion 7: Continuous Improvement

- Criterion 7 is concerned with Continuous Improvement.
- The sub-criteria are same for both Tier I and Tier II institutes. However, the allocations of marks are different.
- There are 4 sub-criteria.
- Total Marks: 75 for Tier I Institute; 50 for Tier II Institute

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The sub criteria under criterion 7 are same for both Tier 1 and Tier 2 Institutes. This criterion is concerned with Continuous Improvement. The sub criteria are same for both Tier 1 and Tier 2 institutes. However, the allocation of marks is different. There are 4 sub-criteria total marks are 75 for Tier 1 Institute, while it is only 50 for Tier 2 Institute.

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Sub-Criteria and Allocation of Marks

Sub-Criterion	Tier I	Tier II
7.1 Actions taken based on the results of evaluation of each of the POs and PSOs	30	20
7.2 Academic Audit and actions taken during the period of Assessment	15	10
7.3 Improvement in Placement, Higher Studies and Entrepreneurship	10	10
7.4 Improvement in the quality of students admitted to the program	20	10
TOTAL	75	50

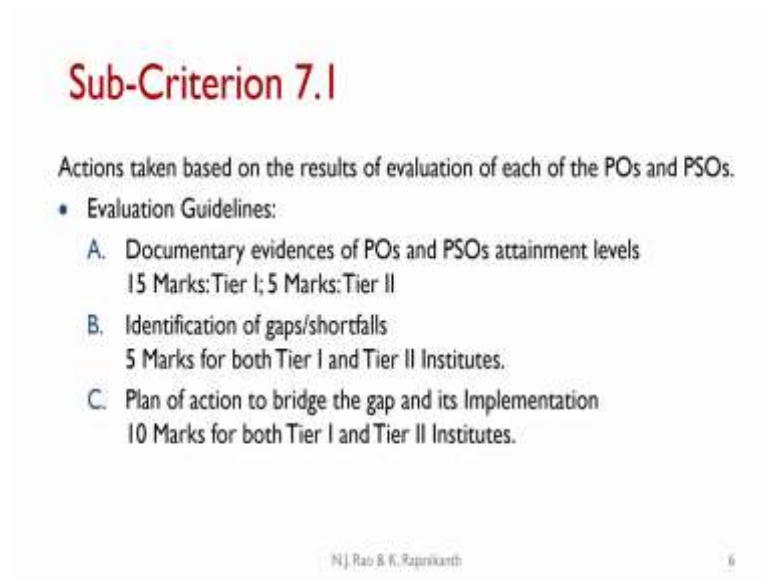
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The sub criteria are as follows 7.1 actions taken based on the results of evaluation of each PO and PSO. The marks for a Tier 1 institute are 30 while a Tier 2 Institute has only 20 marks. 7.2, academic audit and actions taken during the period of assessment, 15 marks for Tier 1 Institute, and 10 marks for Tier 2 Institute are allocated.

7.3 is improvement in placement, higher studies and entrepreneurship 10 marks for both Tier 1 as well as Tier 2 Institute. 7.4 is improvement in the quality of students admitted to the program, 20 marks for Tier 1 Institute and 10 marks for Tier 2 Institute. A total of 75 marks for Tier 1 Institute and a total of 50 marks for Tier 2 Institute are allocated.

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Sub-Criterion 7.1

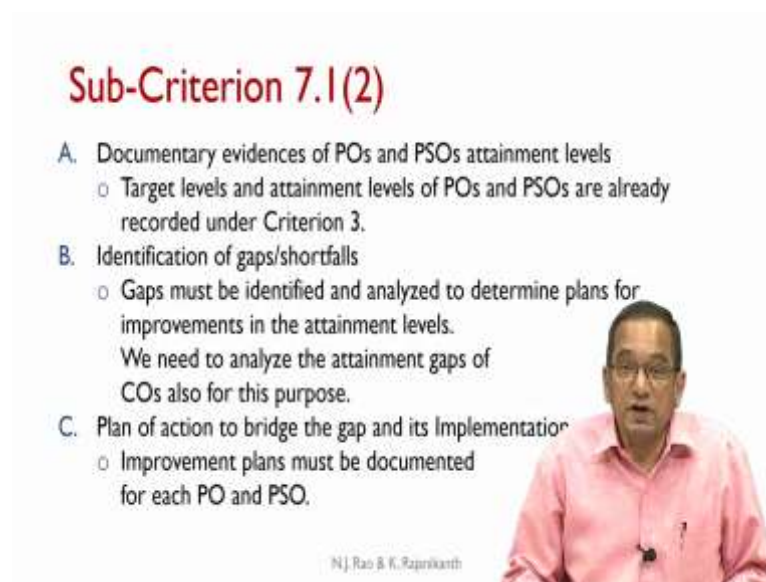
Actions taken based on the results of evaluation of each of the POs and PSOs.

- Evaluation Guidelines:
 - A. Documentary evidences of POs and PSOs attainment levels
15 Marks: Tier I; 5 Marks: Tier II
 - B. Identification of gaps/shortfalls
5 Marks for both Tier I and Tier II Institutes.
 - C. Plan of action to bridge the gap and its Implementation
10 Marks for both Tier I and Tier II Institutes.

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Sub-Criterion 7.1 deals with the actions taken based on the results of evaluation of each of the POs and PSOs. Evaluation guidelines are as follows. Documentary evidences of POs and PSOs attainment levels 15 marks for Tier 1 Institute and 5 marks for Tier 2 Institute. Identification of gaps shortfalls, 5 marks for both Tier 1 and Tier 2 Institutes. Plan of action to bridge the gap and its implementation, 10 marks for both Tier 1 and Tier 2 Institutes.

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Sub-Criterion 7.1(2)

- A. Documentary evidences of POs and PSOs attainment levels
 - Target levels and attainment levels of POs and PSOs are already recorded under Criterion 3.
- B. Identification of gaps/shortfalls
 - Gaps must be identified and analyzed to determine plans for improvements in the attainment levels.
We need to analyze the attainment gaps of COs also for this purpose.
- C. Plan of action to bridge the gap and its Implementation
 - Improvement plans must be documented for each PO and PSO.

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Documentary evidences of POs and PSOs attainment levels. Target levels and attainment levels of POs and PSOs are already recorded under criterion 3. Criterion 3, if we recall, deals with course outcomes and program outcomes, the attainment levels of POs and PSOs are

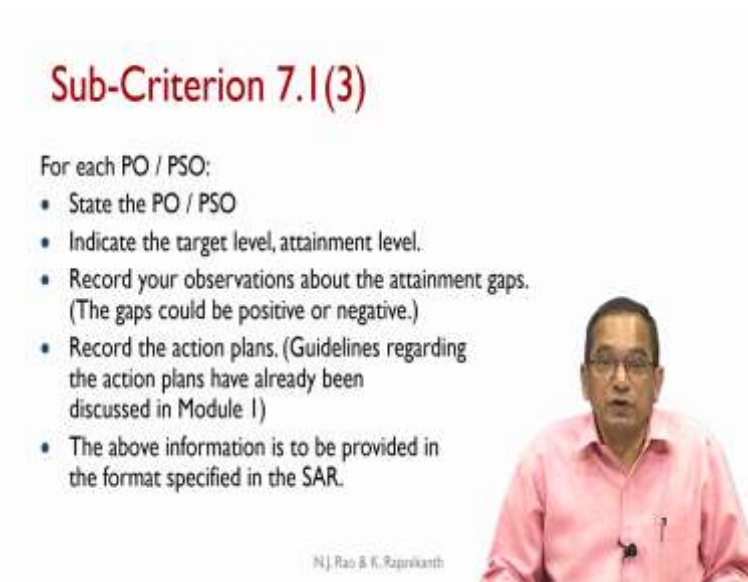
already available under criterion 3. We reproduce the information from that particular criterion.

Identification of gaps and shortfalls. Gaps must be identified and analyzed to determine plans for improvements in the attainment levels. We need to analyze the attainment gaps of COs also for this purpose. The general process through which the gaps are analyzed and improvement action plans are initiated have already been discussed earlier in module 1. The gaps may be positive or negative, if the attainment level exceeds the target level, the department may revise the target upwards.

If the attainment level falls short of the target level, the department needs to initiate appropriate action plans to improve the attainment levels for the next batch. The action plans must be clearly listed. The action plans must help to bridge the gap between the attainment level and the target level.

The evidence that these action plans have been implemented also must be available. Improvement plans must be documented for each PO and PSO separately. These guidelines are same for both Tier 1 and Tier 2 institutes.

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Sub-Criterion 7.1(3)

For each PO / PSO:

- State the PO / PSO
- Indicate the target level, attainment level.
- Record your observations about the attainment gaps. (The gaps could be positive or negative.)
- Record the action plans. (Guidelines regarding the action plans have already been discussed in Module 1)
- The above information is to be provided in the format specified in the SAR.

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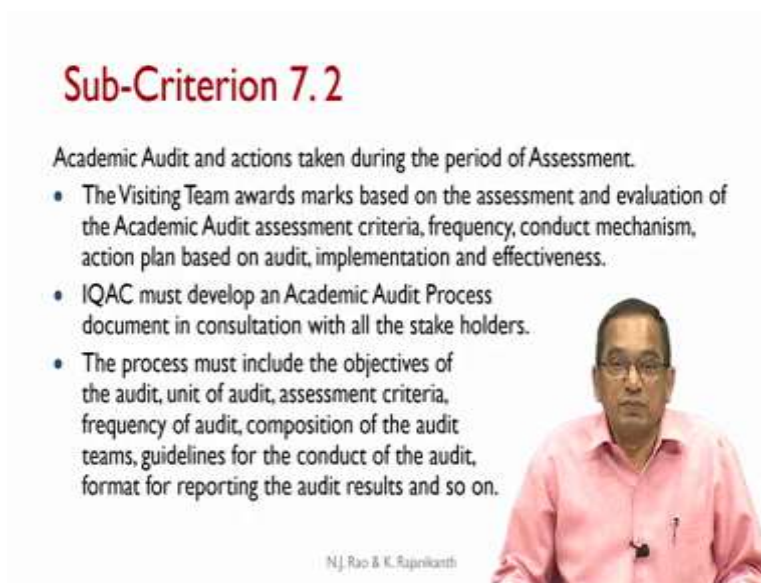
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For each PO and PSO we need to initiate the following activities and maintain the records. State the PO, PSO. PO is stated as given by the NBA. PSO is stated as formulated by the department. Indicate the target level and the attainment level. This data is obtained from the data provided under criterion 3. Record your observations about the attainment gaps. As noted, just now the gaps could be positive or negative.

Include observations on why the gaps could have occurred include analysis as to the reasons for the attainment levels, not reaching the target levels. This analysis must be objective and logical. Do not include reasons like poor quality students. The reasons for not attaining the set target levels must be related to the teaching learning processes.

Record the action plans. Guidelines regarding the action plans have already been discussed in module 1 like the action plan can never be a vague statement like motivate the students better. Such statement should not be included in the action plans. The action plans must be very specific, doable action items, and the indicated plan must show the resources required to implement those plans. The above information is to be provided in the format specified in the SAR.

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Sub-Criterion 7.2

Academic Audit and actions taken during the period of Assessment.

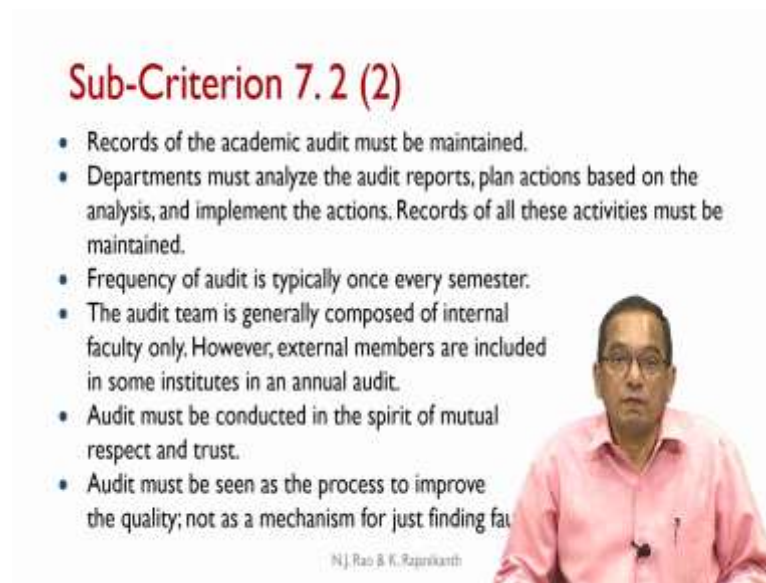
- The Visiting Team awards marks based on the assessment and evaluation of the Academic Audit assessment criteria, frequency, conduct mechanism, action plan based on audit, implementation and effectiveness.
- IQAC must develop an Academic Audit Process document in consultation with all the stake holders.
- The process must include the objectives of the audit, unit of audit, assessment criteria, frequency of audit, composition of the audit teams, guidelines for the conduct of the audit, format for reporting the audit results and so on.

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Sub criterion 7.2 to do deals with academic audit. Academic audit and actions taken during the period of assessment. The visiting team awards marks based on the assessment and evaluation of the academic audit assessment criteria, frequency, conduct mechanism, action plan based on audit, implementation, and effectiveness.

IQAC must develop an academic audit process document in consultation with all stakeholders. If the institute does not have an IQAC, it is high time that it establishes an IQAC. The process must include the objectives of the audit, unit of audit, assessment criteria, frequency of audit, composition of the audit teams, guidelines for the conduct of the audit, format for reporting the audit results, and so on. The unit of the audit can be the department or a specific program.


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Sub-Criterion 7.2 (2)

- Records of the academic audit must be maintained.
- Departments must analyze the audit reports, plan actions based on the analysis, and implement the actions. Records of all these activities must be maintained.
- Frequency of audit is typically once every semester.
- The audit team is generally composed of internal faculty only. However, external members are included in some institutes in an annual audit.
- Audit must be conducted in the spirit of mutual respect and trust.
- Audit must be seen as the process to improve the quality; not as a mechanism for just finding faults.

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Records of the academic audit must be maintained. Departments must analyze the audit reports; plan actions based on the analysis and implement the actions. Records of all these activities must be maintained. Frequency of audit is typically once every semester. However, the institute is free to do the audit more often or less often. The audit team is generally composed of internal faculty only.

However, external members are included in some Institutes in an annual audit. These Institutes conduct the academic audit twice in a year and once in a year, the audit team would include external members. They hope to get more objective results probably when the external faculty are included in the audit teams.

Audit must be conducted in the spirit of mutual respect and trust. For audit to be really successful, it must be conducted in a very cordial atmosphere. Audit must be seen as the process to improve the quality not as a mechanism for just finding faults.

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Sub-Criterion 7.2 (3)

- Assessments during the audit typically address the following academic issues:
 - COs of all the courses, their target levels, attainment levels, and action plans based on gap analysis.
 - CO – PO/PSO mappings.
 - Target levels, attainment levels, gap analysis, and consequent action plans with respect to POs and PSOs.
 - Quality of all assessment instruments including internal tests, quizzes, assignments; and end semester examinations for Tier I Institutes.

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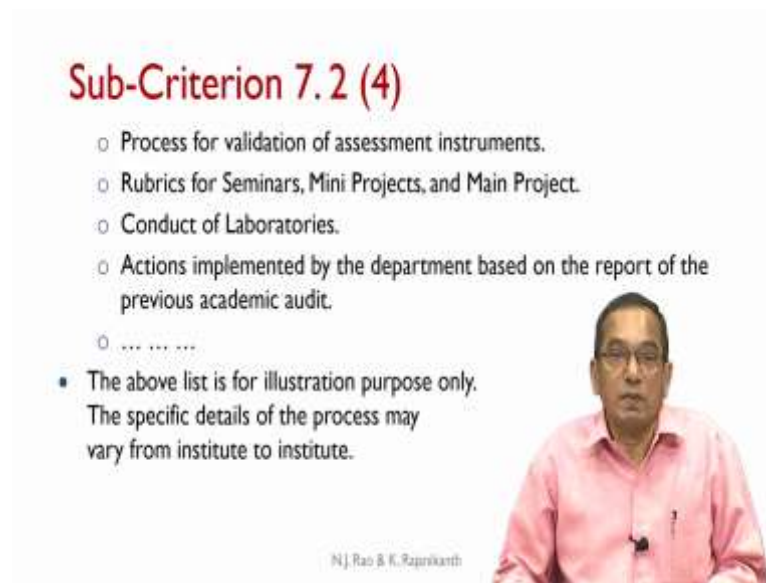
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Assessments during the audit typically address the following academic issues. The list provided is only a sample there are many other academic activities that need to be audited. COs of all the courses, their target levels, attainment levels and action plans based on the gap analysis, CO to PO, PSO mappings.

Target levels, attainment levels, gap analysis, and consequent action plans with respect to POs and PSOs. Quality of all assessment instruments, including internal tests, quizzes, assignments, and end semester examinations for Tier 1 Institutes.

The departments are supposed to have a question paper validation committee, which scrutinizes the question papers for the quality and suggest modifications when the quality is not satisfactory. Even though such a process exists, the audit team must check that the process is implemented in its true spirit and the final assessment instruments are of good quality.

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Sub-Criterion 7.2 (4)

- Process for validation of assessment instruments.
- Rubrics for Seminars, Mini Projects, and Main Project.
- Conduct of Laboratories.
- Actions implemented by the department based on the report of the previous academic audit.
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- The above list is for illustration purpose only. The specific details of the process may vary from institute to institute.

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Process for validation of assessment instrument itself can be checked during the audit. Rubrics for seminars, mini projects and main project. Conduct of laboratories. Actions implemented by the department based on the report of the previous academic audit. This is an extremely important aspect of the audit process. Once the academic audit is completed, and the report is submitted to the institute, and a copy is sent to the department.

The department must analyze the report and initiate actions in response to the concerns raised in the report. These actions must be recorded. Evidence of their implementation must be available for inspection by the next audit team. This ensures that the quality cycle is completed. This is only an illustrative list. There are many other academic activities that need to be audited.

The audit team can verify the instruction plans are lesson plans, the audit team can examine the implementation records or what are also called as teaching dairies. The audit team can look at any specific pedagogical initiatives launched by the department.

In fact, all the academic activities come under the purview of an academic audit. Thus the process document must be fairly elaborate, clearly spelling out all the criteria to be assessed. It must list all the areas to be audited by the audit team. The specific details of the process may vary from institute to institute.

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Sub-Criterion 7.3

Improvement in Placement, Higher Studies and Entrepreneurship

- Evaluation Guidelines:

- A. Improvement in Placement numbers, quality, core hiring industry and pay packages. (5 Marks. Common to both types of Institutes.)
- B. Improvement in Higher Studies admissions for pursuing PhD in premier institutions (3 Marks. Common to both types of Institutes.)
- C. Improvement in number of Entrepreneurs (2 Marks. Common to both types of Institutes.)

(The required data is already provided under sub-criterion 4.5. Marks are given proportionately considering numbers in the base year current assessment year minus 3.)

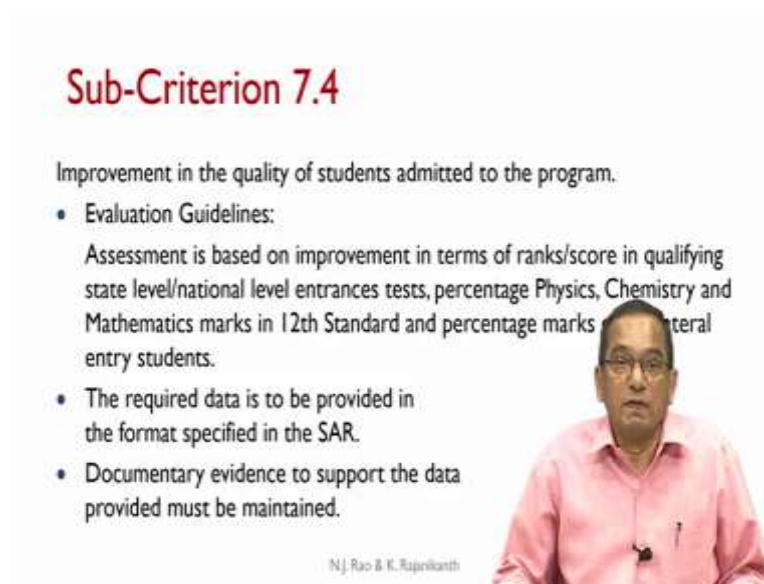
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Improvements in placement, higher studies and entrepreneurship. There are three evaluation guidelines, improvements in placements number, quality, core hiring industry and pay packages, 5 marks common to both types of institutes. Improvements in higher studies admissions for pursuing PhD in premier institutions, 3 marks common to both types of institutes. Improvement in the number of entrepreneurs 2 marks, common to both types of institutes.

The required data is already provided under sub criterion 4.5. Marks are given proportionately considering the numbers in the base year current assessment year minus 3. So that is taken as the reference and marks are awarded based on the data, taking the data in current assessment year minus 3 as the base data.

It is to be carefully noted that if the placement numbers are the number of students getting admitted into institutes of reputation, or the number of students becoming entrepreneurs is actually coming down instead of going up, then the department must tell adequate valid reasoning to explain this dip in the performance. Institutes are supposed to improve year on year. However, if there is an occasional dip, the department must have valid reasons to explain the dip.

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Sub-Criterion 7.4

Improvement in the quality of students admitted to the program.

- Evaluation Guidelines:
Assessment is based on improvement in terms of ranks/score in qualifying state level/national level entrances tests, percentage Physics, Chemistry and Mathematics marks in 12th Standard and percentage marks of lateral entry students.
- The required data is to be provided in the format specified in the SAR.
- Documentary evidence to support the data provided must be maintained.

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The sub criterion 7.4 deals with improvement in the quality of students admitted to the program. The evaluation guidelines should be assessment is based on improvement in terms of ranks score in qualifying state level or national level entrance test percentage marks in physics, chemistry and mathematics in the 12th standard and percentage marks of the lateral entry students.

The required data is to be provided in the format specified in the SAR. The number of students admitted under each category, the ranks and scores in appropriate eligibility examinations. The marks scored by the students in their 12th standard and percentage of marks for lateral entry students. All this data must be provided in a specified format. Documentary evidence to support the data provided must be maintained.

Admission records must be clearly available. Student information must be available. The visiting team can check any part of these details. Based on the quality of the students admitted to the program year on year, the visiting team would award marks.

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So that completes our criterion 7. In the next unit we will look at criterion 8 of SAR. Will understand the SAR requirements related to first year academics.

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Thank you.