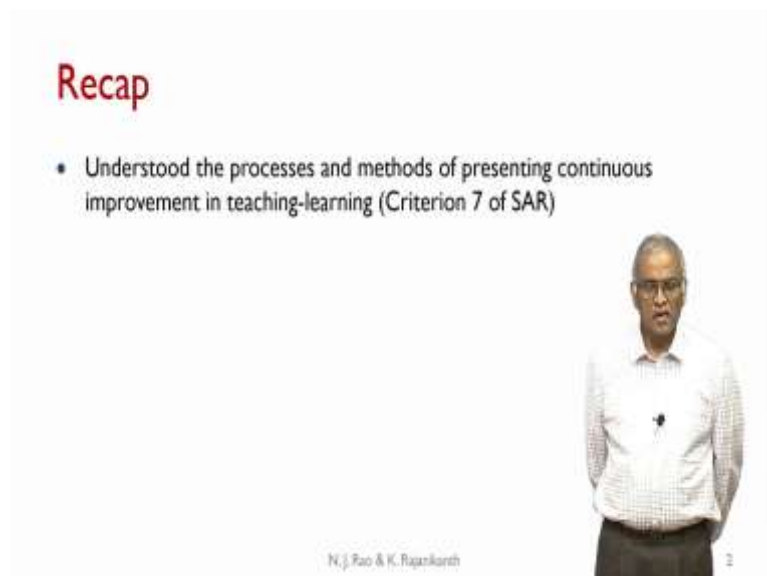**NBA Accreditation and Teaching-Learning in Engineering**
(NATE)
Professor K. Rajanikanth
Retired Principle-MSRIT
Indian Institute of Science, Bengaluru
Lecture 59
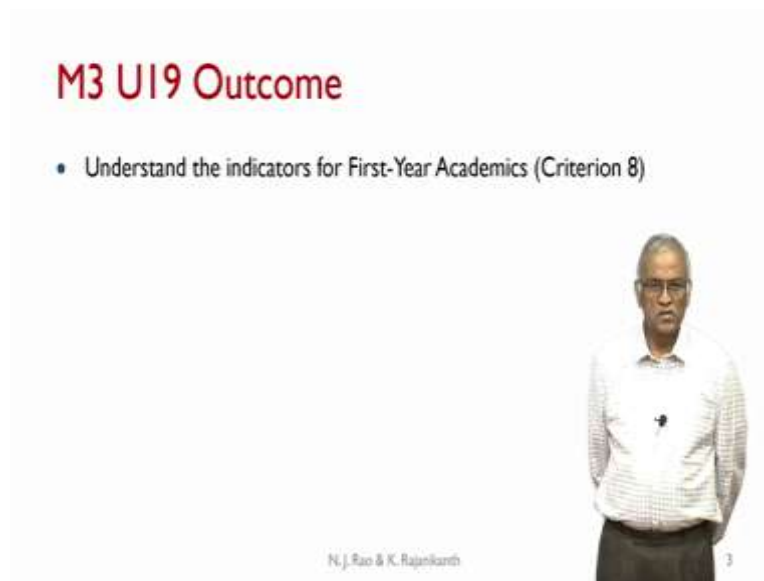
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Greetings and welcome to NATE module 3 unit 19 related to the Criterion 8 of NBA.

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In the earlier unit we understood the process and methods of presenting continuous improvement in teaching learning which constitutes the criterion 7 of SAR.
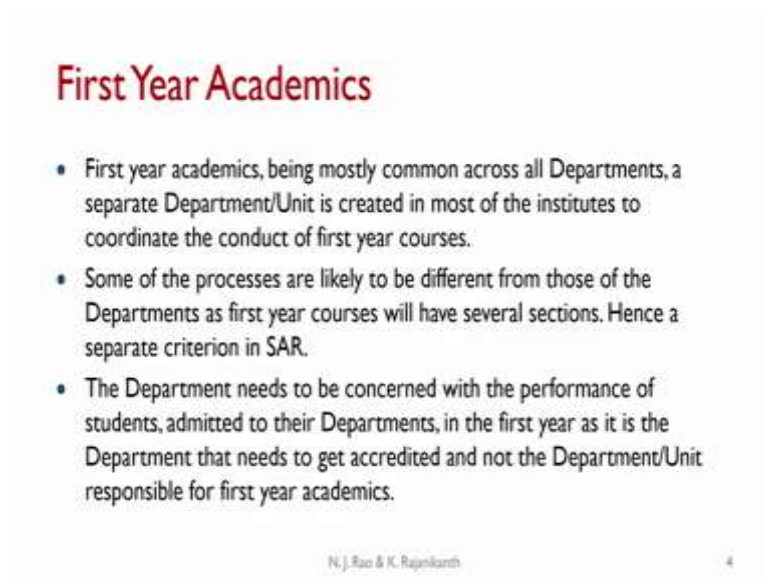
M3 U19 Outcome

- Understand the indicators for First-Year Academics (Criterion 8)

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Now in this unit we will try to understand the indicators for first year academics, which is criterion 8.

First Year Academics

- First year academics, being mostly common across all Departments, a separate Department/Unit is created in most of the institutes to coordinate the conduct of first year courses.
- Some of the processes are likely to be different from those of the Departments as first year courses will have several sections. Hence a separate criterion in SAR.
- The Department needs to be concerned with the performance of students, admitted to their Departments, in the first year as it is the Department that needs to get accredited and not the Department/Unit responsible for first year academics.

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Now, first year academics, they constitute mostly the common courses across all departments. Like, if you take a course like programming, problem solving through programming through C, it is taken by students of all departments. Similarly a course like physics, chemistry, mathematics one and two and so on. They're all taken by students of all branches.

So many colleges have come to the state where they create one department. Whatever name they give, which coordinates all the courses, let us say physics, chemistry, math, and for that matter all first year courses. And this particular department is responsible for organizing the courses, the identifying the faculty scheduling them, as well as conducting the internal tests and so on and on. And the department very rarely gets involved in the conduct of these courses.

So to that extent, the first year academics are made separate from the remaining 3 years academics in any program. And here some of the processes are likely to be different from those of the departments. As first year courses will have multiple sections very large number of sections. Depending on the college you may have as many as 12 sections for a course.

Let us say on problem solving through programming and that is the reason why a separate criterion is identified in SAR. But the department needs to come to be concerned with the performance of its own students who are in the first year. So, to that extent, their academic performance will also constitute part of their own SAR, okay.

So, the department which conducts the courses is not, it does not get accredited at all by NBA, it is the department which has to gather the information from this particular department which is conducting first year courses and then put it in a format and make it part of the SAR. So, it should be remembered. It is a department that is getting accredited, not the department which conducts the first year courses.

Criterion 8: First Year Academics
(50 –Tier II & Tier I)

Same weightage for Tier II and Tier I institutions.

8.1 First Year Student- Faculty Ratio (FYSFR)	05
8.2 Qualification of Faculty Teaching First Year Common Courses	05
8.3 First Year Academic Performance	10
8.4 Attainment of Course Outcomes of first year courses	10
8.5 Attainment of Program Outcomes of all first-year courses	20

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And here there are 5 criteria, 5 sub criteria under this. And in both the cases, Tier 1 and Tier 2 institutions, the marks allocated for criterion 8 is 50. And the first sub criterion is first year students do you have the right faculty ratio? Faculty, First Year Student Faculty Ratio that is 5 marks. Qualification of faculty teaching first year common courses, 5 marks. First year academic performance 10 marks. Attainment of course outcomes of first year courses is 10 marks. Attainment of program outcomes of all first year courses, 10 marks.

Sub-Criterion 8.1 First Year Student-
Faculty Ratio (FYSFR) (05)

Evaluation Guidelines:
- For each year of assessment = (5 × 20)/ FYSFR
- (Limited to Max. 5) Average of Assessment of data in CAY, CAYm1 and CAYm2

Note: If FYSFR is >25, then assessment is equal to zero.

Exhibits/Context to be Observed/Assessed:
- No. of Regular faculty calculation considering Regular faculty definition and fractional load; Faculty appointment letters; Salary statements
- No.-of-students calculation as mentioned in the SAR

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Now, coming to the Sub-Criterion in 8.1, you have to compute the First Year Student Faculty Ratio, how do we compute this? This is a simple formula. The student faculty ratio is computed based on in the same way that we have been calculating how many first year

students are there in the college? And then, how many faculty are there who belong to this particular department, which is conducting first year courses, that ratio should be better than 20.

If it is greater than 25, then the assessment is equal to 0 that means you get 0 marks. Otherwise it gets adjusted to 5 into 20 divided by FYSFR. And this you have to compute the data over 3 academic years and take an average. And the number of marks even if you have more faculty with you, the maximum number of marks you can get is only 5. Now, what are the exhibits that you would, the visiting committee will look at?

Number of regular faculty calculation considering regular faculty definition and fractional load, faculty appointment letters, salary statements and so on. Using all that it will try to make sure that the number of faculty present is calculated appropriately. And the number of students of calculation is already presented in the earlier criterion as a part of SAR.

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And as far as qualification of faculty are concerned this again 5 marks for both types of institution and it is fairly straightforward 5x plus 3y divided by RF, RF is required faculty in the ratio of 20. And 5x is the number of PhD holders and y is the number of master's degree holders. So, if you look at the again maximum marks that you can get will be only 5. So, once again, the documentary evidence, faculty qualifications, these will have to be kept ready in appropriate form for the visiting committee to take a look at.
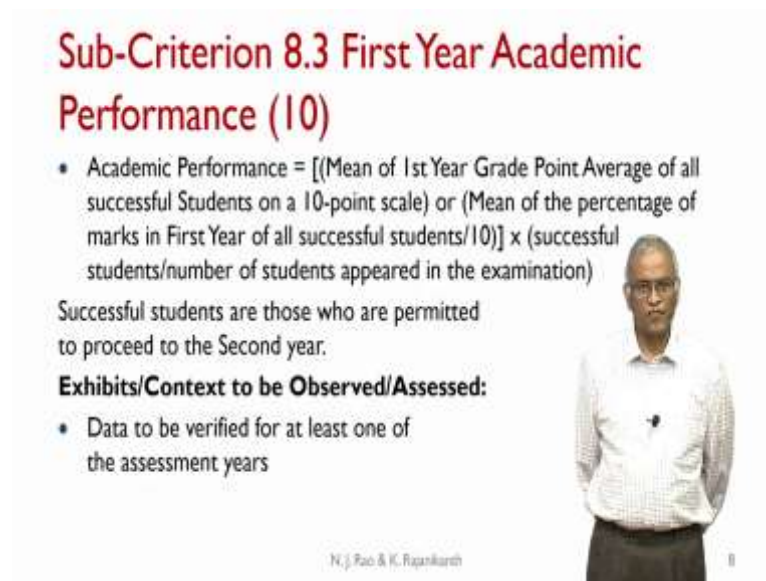
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Sub-Criterion 8.3 First Year Academic Performance (10)

- Academic Performance = [(Mean of 1st Year Grade Point Average of all successful Students on a 10-point scale) or (Mean of the percentage of marks in First Year of all successful students/10)] × (successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the Second year.

Exhibits/Context to be Observed/Assessed:

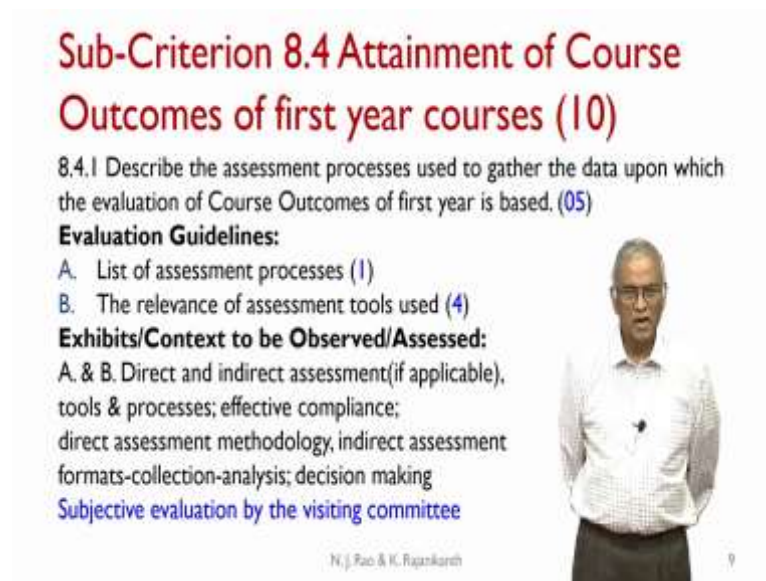- Data to be verified for at least one of the assessment years

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And 8.3 is related to first year academic performance. This is somewhat similar to second and third year academic performance. That is, the academic performance is mean of first year grade point average of all successful students on a 10 point scale. But if their college is using percentage marks, then mean or the percentage of marks in first year of all successful students divided by 10.

Then you are converting into a 10 point scale multiplied by successful students, divided by number of students appeared in the examination. So by multiplying the fraction of successful students with the mean first year grade point average, you get a number for academic performance.

And successful students are those who are permitted to proceed to the second year as per the rules of the institution. So, this data will also be verified by the visiting committee based on the documentation provided by the college.

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Sub-Criterion 8.4 Attainment of Course Outcomes of first year courses (10)

8.4.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is based. (05)

Evaluation Guidelines:
A. List of assessment processes (1)
B. The relevance of assessment tools used (4)

Exhibits/Context to be Observed/Assessed:
A. & B. Direct and indirect assessment(if applicable), tools & processes; effective compliance; direct assessment methodology, indirect assessment formats-collection-analysis; decision making
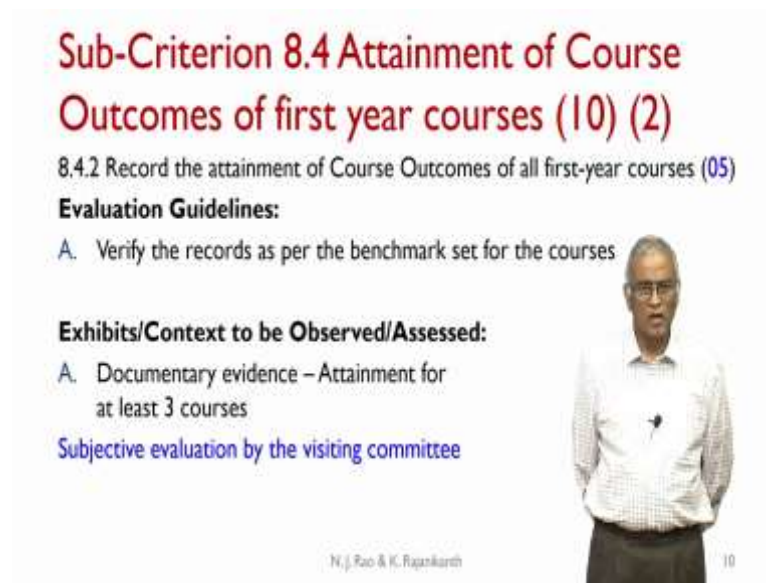Subjective evaluation by the visiting committee

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And 8.4 is the attainment of course outcomes of the first year courses. Once again these are 5 marks for this 8.4.1. In this you have the list of assessment processes if you put you will get 1 mark and justification of the relevance of assessment tools used you get 4 marks, by enlarge you the processes used and the relevance of these tools will be somewhat similar to the attainment of course outcomes at second year or third year level.

And by enlarge these also will be kind of common across all departments. So, if you have done well in the other one, it should not be difficult to get these 5 marks and the documentary evidence will also identify whether it is direct and indirect assessment and the tools processes, effective compliance, direct assessment methodology, indirect assessment formats, collection analysis decision making all that the way it has been done for second and third year in a similar format, they have to do it for the first year as well.

And 8.4.2 is the continuation of attainment of course outcomes you have to record the attainment of course outcomes of all first year courses. This we have explained there can be several methods and we have presented one particular method of how to compute the course attainment or the CO attainments of a course, that is you have several course outcomes.

Each course outcome can be at a particular cognitive level and there is a particular weight age that is given based on which you identify your internal evaluation process and semester and examinations using all similar methods here, you compute the attainment of course outcomes. And this particular process should be arrived with the consent of the entire institute. And that data will be verified and evaluated by the visiting committee.

Sub-Criterion 8.5 Attainment of Program Outcomes of all first-year courses (20)

8.5.1 Indicate results of evaluation of each relevant PO/PSO (15)

Evaluation Guidelines:

A. Process of computing POs/PSOs attainment level from the COs of related first year courses (5)

B. Verification of documents validating the above process (10)

Exhibits/Context to be Observed/Assessed:

A. & B. Documentary evidence for each relevant PO/PSO

Subjective evaluation by the visiting committee

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And 8.5 is attainment of program outcomes of all first year courses. And this carries 20 marks. If you look at the statement of 8.5.1 indicate results of evaluation of each relevant PO PSO, strictly speaking, if all courses of first year are compulsory for all branches, the word PS1 need not be mentioned in this context. As we can see, sub criterion 8.5 does not mention PSO, but 8.5.1 does include the word PSO. Why is it so?

In some colleges all courses that are offered in the first year are not compulsory for all departments, sometimes some courses which are specific to a department in that case, for that particular course, PSOs becomes relevant. But by enlarge, or at least most of the courses in first year, we are only concerned with POs.

So, the process of computing the attainment level from the COs, we have mentioned that in the previous with respect to the earlier criteria, how do you relate COs to POs and PSOs once again it is not a unique process, but we have explained one particular method of computing it. And if you are following that, yes, you can also follow the same method here or otherwise, the college if it redefines that process of correlating COs with POs and PSOs you need to follow that.

And here there are two parts. One is what is the process of computing that has to be explained that carries 5 marks and verification of documents validating the above process and where you are actually computing the attainment of POs and PSOs. And this documentation will be verified subjectively by the visiting committee.

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Sub-Criterion 8.5 Attainment of Program Outcomes of all first-year courses (20) (2)

8.5.2 Actions taken based on the results of evaluation of relevant POs /PSOs (5)

Evaluation Guidelines:

A. Appropriate actions taken (5)

Exhibits/Context to be Observed/Assessed:

A. Documentary evidence for each relevant PO/PSO

Subjective evaluation by the visiting committee

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And in 8.5.2 that is, what are the actions you are taking based on the results of evaluation of relevant POs PSOs. That is, having computed the PO attainments and then having set some targets for PO attainment then depending on the attainment gap, you plan to take appropriate corrective action.

That corrective action also needs to be presented here and this carries 5 marks, okay, once again you for each course that you, or each PO, you try to record the corrective actions you propose to take to improve the attainment of program outcomes. This, evaluation will also be subjective by the visiting committee.

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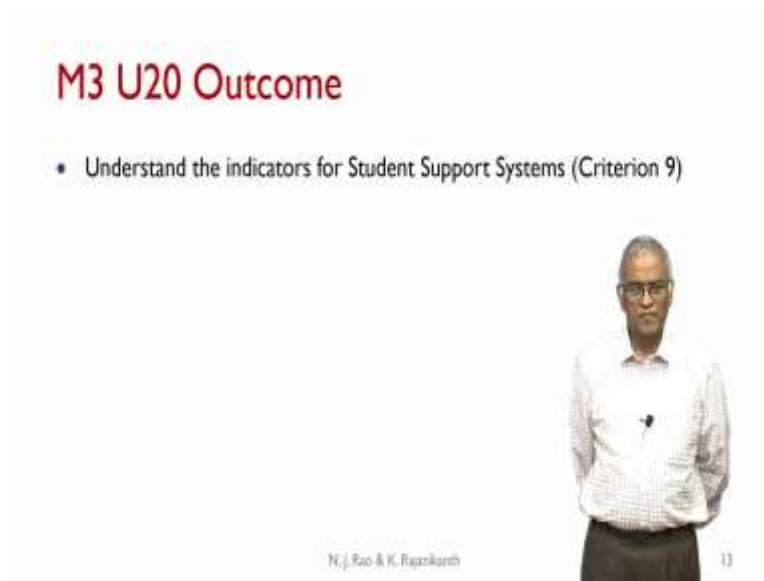
And in the following unit, we will try to understand the indicators for students support systems, which constitutes Criterion 9.

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Thank you very much.