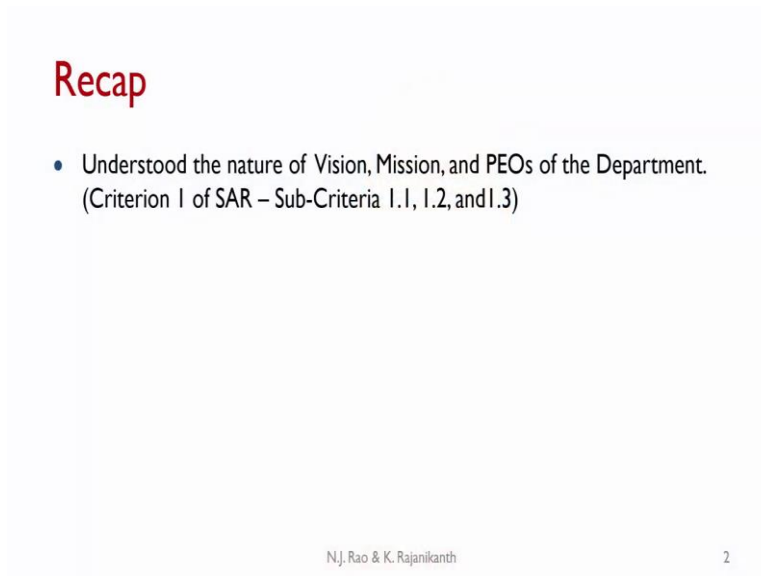


NBA Accreditation and Teaching-Learning in Engineering
Professor K. Rajanikanth
Indian Institute of Science, Bengaluru
Lecture 50
NBA Criterion 1 Vision, Mission, PEOs 2

Greetings, welcome to Module 3 unit 10 Vision Mission and PEOs part 2.

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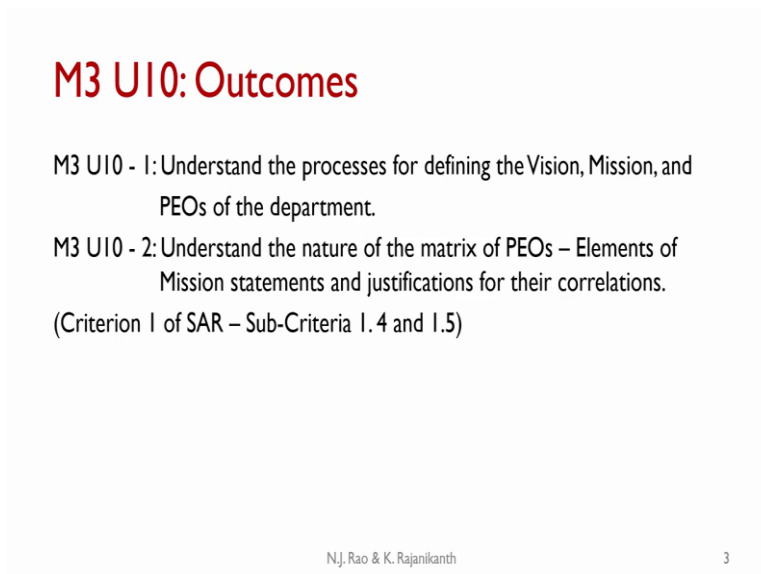
Recap

- Understood the nature of Vision, Mission, and PEOs of the Department.
(Criterion I of SAR – Sub-Criteria 1.1, 1.2, and 1.3)

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In the previous unit, we understood the nature of vision mission and PEOs we looked at this sub criteria 1.1, 1.2 and 1.3 of criterion 1 of SAR.

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M3 U10: Outcomes

M3 U10 - 1: Understand the processes for defining the Vision, Mission, and PEOs of the department.

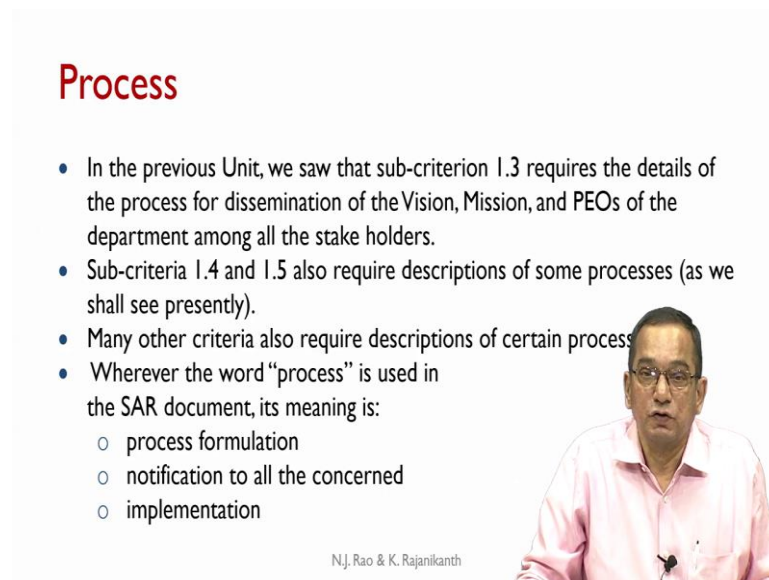
M3 U10 - 2: Understand the nature of the matrix of PEOs – Elements of Mission statements and justifications for their correlations.
(Criterion I of SAR – Sub-Criteria 1.4 and 1.5)

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In this unit will look at the processes for defining the vision, mission and PEOs and understand the nature of the correlation between PEOs and mission elements. So, the

outcomes are the first outcome is understand the processes for defining the vision, mission and PEOs. The second outcome is understand the nature of the matrix of PEOs and elements of mission statements and justifications for their correlations. This is the concern of this sub criterion 1.4 and 1.5.

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Process

- In the previous Unit, we saw that sub-criterion 1.3 requires the details of the process for dissemination of the Vision, Mission, and PEOs of the department among all the stake holders.
- Sub-criteria 1.4 and 1.5 also require descriptions of some processes (as we shall see presently).
- Many other criteria also require descriptions of certain processes.
- Wherever the word “process” is used in the SAR document, its meaning is:
 - process formulation
 - notification to all the concerned
 - implementation

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In the previous unit, we saw that sub criterion 1.3 requires the details of the process for dissemination of the vision mission and PEOs among all the stakeholders. That means, that sub criteria requires the details of the process. Sub criteria 1.4 and 1.5 also require descriptions of some processes, as we shall see presently.

Many other criteria in a SAR require descriptions of certain processes. Whenever the word process is used in a SAR document, its meaning implies three aspects. The first aspect is concerned with the formulation of the process itself, the process must be formulated. The second aspect is notification of the process to all the concern. The third aspect is the implementation of the process. So, whenever we use the word process all these three facet of the process are implied.

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Process (2)

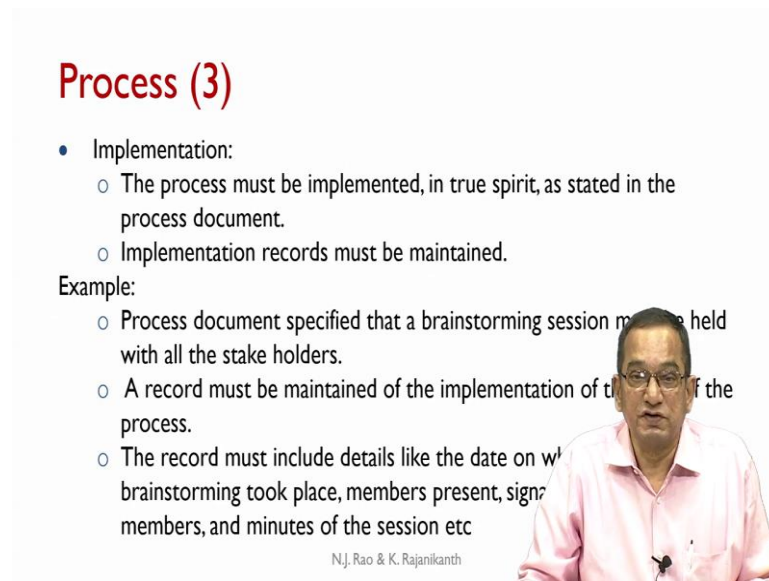
- Process formulation:
 - A clear description of the activities that constitute the process
 - The textual description can be supplemented with a graphic presentation. This will be quite effective in making the process clear.
- Notification to all the concerned:
 - For each process, the department must maintain the list of the stake holders to whom the process document needs to be communicated.
 - Department must maintain a record indicating the communication of the process document to the stake holders concerned.
 - This becomes part of the process implementation record.

Process formulation, a clear description of the activities that constitute the process must be provided. The textual description can be supplemented with a graphic presentation. This will be quite effective in making the process clear. The second aspect is that the process must be intimated to all the stakeholders concern.

Notification to all the concern for each process the department must maintain the list of the stakeholders to whom the process document needs to be communicated. The stakeholders can be internal stakeholders, as well as external stakeholders and the department must have a list of all the stakeholders to whom the process documents need to be communicated.

Department must maintain a record indicating the communication of the process document to the stakeholders concern, we must have a record showing that the process has been communicated to the stakeholders. This becomes part of the process implementation record.

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Process (3)

- Implementation:
 - The process must be implemented, in true spirit, as stated in the process document.
 - Implementation records must be maintained.

Example:

- Process document specified that a brainstorming session must be held with all the stakeholders.
- A record must be maintained of the implementation of this step of the process.
- The record must include details like the date on which the brainstorming took place, members present, signatures of the members, and minutes of the session etc

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The third aspect of a process is the implementation of the process, the process must be implemented in its true spirit, as stated in the process document and implementation records must be maintained. We must have evidence that the process has been implemented appropriately. As an example, assume that process document specifies that a brainstorming session must be held with all the stakeholders.

A record must be maintained of the implementation of this step of the process. It means that record must be available to show that a brainstorming session indeed was held. The record must include details like the date on which the brainstorming took place, members present, signatures of the members and the minutes of the session, etcetera. These records must be maintained separately. These are different from the process document. The process document is a description of how the process is planned to be implemented. The implementation records show evidence that the process has actually been implemented.

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Process (4)

- Thus, wherever SAR specifies “process”, the department must have:
 - A process document
 - Implementation records (including the communication to the stake holders concerned and the detailed records of process implementation)



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Thus wherever SAR specifies process, the department must have two separate sets of documents. A process document must be available. This documents gives the details of how the process is proposed to be implemented. Then the department must have implementation records including the communication to the stakeholders concerned and the detailed records of process implementation.

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Sub-Criterion 1.4

State the process for defining the Vision and Mission of the Department, and PEOs of the Program.

- Evaluation:
Allocation of marks is different for Tier I and Tier II institutes!
- Guidelines:

Evaluation Guideline	Tier I	Tier II
A. Description of process involved in defining the Vision, Mission of the Department	7	10
B. Description of process involved in defining the PEOs of the program	8	15
TOTAL	15	25

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Now, let us look at sub criterion 1.4. It says state the process for defining the vision and mission of the department and PEOs of the program. Allocation of marks is different for tier 1 and tier 2 Institute's the description of the process involved in defining vision and mission

of the department. Tier 1 Institutes will have 7 marks, while tier 2 Institutes will have 10 marks.

Description of the process involved in defining the PEOs of the program. There are 8 marks for a tier 1 Institute, and there are 15 marks for tier 2 Institute see the total marks for this sub criterion would be 15 for a tire 1 Institute while it would be 25 for a tier 2 institute, the sub criterion 1.4 is concerned with the definition of the processes. A process for defining the vision and mission and a process for defining the PEOs.

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The slide features a title 'Sub-Criterion 1.4 (2)' in red text. Below the title is a bullet point: 'Exhibits/Context to be Observed/Assessed:'. Underneath the bullet point is a paragraph of text: 'Documentary evidence to indicate the process which ensures effective participation of internal and external department stakeholders with effective process implementation.' At the bottom of the slide, there is a footer with the text 'N.J. Rao & K. Rajanikanth' on the left and the number '9' on the right.

Exhibits context to be observed and assist documentary evidence to indicate the process, which ensures effective participation of internal and external stakeholders with effective process implementation. We already noted that a process implies all the three aspects.

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Sub-Criterion I.4 (3)

A. Description of process involved in defining the Vision, Mission of the Department:

An outline of such a process:

- Brain storming with all the stake holders concerned including Management, Faculty, Current Students, Alumni, Employers, and Industry Experts. There can be multiple follow-up sessions.
- Formulation of the Vision and Mission statements.
- Validation by experts from academia and industry.
- The above three steps may have to be iterated to arrive at the final version.

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Description of the process involved in defining the vision mission of the department. Each department can develop its own process for defining its vision and mission. And outcome outline of a such process would be as follows a brainstorming with all the stakeholders concerned including management, faculty, current students, alumni, employers and industry experts.

The department could invite external academic experts also if it wishes, there can be multiple follow up sessions. These brainstorming sessions would lead to the formulation of the vision and mission statements as a first version. This needs to be validated by experts from academia and industry. The validation would ensure that the vision and mission of the department are reasonable and also they are consistent with the vision and mission of the Institute.

Such a validation would always help in ensuring that the department's vision and mission statements are of good quality. The above three steps may have to be iterated to arrive at the final version if the process of validation leads to a requirement to revisit the vision and mission statements at the brainstorming level, we may have to repeat the three steps again.

So, there can be several iterations before a final version is reached. This is only an outline of the process. The actual details of the process would vary from department to department. But the typical features would be a brainstorming session, a validation and iteration before the final versions are produced.

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Sub-Criterion I.4 (4)

- It is a good practice to establish a department – level committee that can assume responsibility for this process.
- If the institute has an IQAC, it must be involved in the process to ensure uniformity and quality across all the departments of the institute.
- The vision and mission of the institute must be defined first.
- The vision and mission of the department must be compatible with the vision and mission of the institute.
- The vision and mission statements must be reviewed periodically to ensure their quality and relevance. Such a review can be done once every 5-6 years.

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It is a good practice to establish a departmental level committee that can assume the responsibility for this process. If the institute has an internal quality assurance, it must be involved in the process to ensure uniformity and quality across all the departments of, of the Institute. The vision and mission of the Institute must be defined first evidently, the vision and mission of the department must be compatible with the vision and mission of the Institute. The vision and mission statements must be reviewed periodically to ensure their quality and relevance. Such a review can be done once every 5 to 6 years. The need for such a review is also included in the definition of the process.

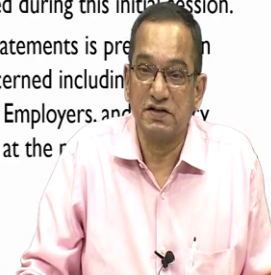
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Sub-Criterion I.4 (5)

A Sample:

- A Brainstorming session with the faculty and students of the Department is held and a preliminary version of the Vision and Mission statements is prepared. The Vision and Mission statements of reputed institutes operating in a similar context are also considered during this initial session.
- The preliminary version of Vision and Mission statements is presented in the meeting with all the stake holders concerned including Management, Faculty, Current Students, Alumni, Employers, and Industry Experts. In-depth discussions are held to arrive at the final vision and mission.

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This is one sample of the process being followed by the department which has an accredited program. You can see that the first step of the process is concerned with brainstorming session. The brainstorming session would be with the faculty and students of the department only. So, this department wishes to have initially a brainstorming session with only the internal stakeholders. That is perfectly alright.

But note that this is a brainstorming session, not a one way communication of the perceptions. It must involve discussions and multi-way exchange of opinions. It is a brainstorming session, not an information collection session. The preliminary version of the vision and mission statements is presented in a meeting with all the stakeholders concerned, including management faculty, current students, alumni, employers and industry experts. So, the brainstorming session with all the stakeholders is considered as the second step in the process. This would lead to the next version of the vision and mission.

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Sub-Criterion I.4 (6)

A Sample (continued)

- The updated version of the Vision and Mission is presented in the meeting of the Departmental Advisory Board that consists of the stake holders representing faculty, industry and alumni. Vision and Mission statements are reviewed, and the next version is developed.
- The updated version of Vision and Mission is validated by Academic experts from university and other reputed institutions. Modifications are made as per their suggestions. The process may return to the first step if the experts suggest the need for such a step. Otherwise, the version after the suggested modifications becomes the near-final version of the Vision and Mission.

The updated version of the vision mission is presented in the meeting of the Departmental Advisory Board that consists of the stakeholders representing faculty industry and alumni. So, this department has defined a process which has certain hierarchical nature vision and mission statements are reviewed and the next version is developed in this meeting of the departmental advisory board.

The updated version of the vision mission is validated by academic experts from university and other reputed institutions, modifications are made as per their suggestion. If the modifications are too many, the process may return to the first step. So, the iterations are

possible. If the modifications are minor, then the version after the suggested modifications becomes the near final version of the vision and mission.

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Sub-Criterion I.4 (7)

A Sample (continued):

- This is further fine-tuned in a meeting involving all the stake holders concerned as well as the experts from academia to arrive at the final version of the vision and mission statements of the department.
- The Vision and Mission statements of the Department are reviewed and modified over a period of about 4 to 5 years following the above procedure.

NOTE: The department can depict this process pictorially in a diagram such as a flow-chart. This is strongly recommended.

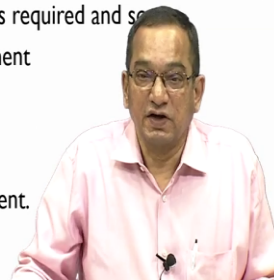
Then, this version of the vision and mission would be fine tuned in a meeting involving again all the stakeholders concerned as well as experts from the academia. This would lead to the formulation of the final version of the vision and mission statement. The vision mission statement of the department are reviewed and modified over a period of about 4 to 5 years following the procedure. So, the department can depict this process pictorially also in a diagram such as a flowchart, in fact this pictorial representation is strongly recommended.

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Sub-Criterion I.4 (8)

B. Description of process involved in defining the PEOs of the program:

- The process for defining the PEOs is broadly similar to the process for defining the Vision and Mission of the department.
- Thus, the process would include similar steps of brainstorming among stake holders, validation by experts, iterations as required and so on.
- However, the Vision and Mission of the department must be compatible with the Vision and Mission of the Institute.
- But, the PEOs are to be correlated to the elements of Mission statements of the department.



The second guideline for evaluation in this sub criterion 1.4 is description of the process involved in defining the PEOs of the program. The process for defining the PEOs is broadly similar to the process for defining the vision and mission of the department. Thus, the process would include similar steps of brainstorming among the stakeholders, validation by the experts, iterations as required and so on.

However, the vision and mission of the department must be compatible with the vision and mission of the Institute. PEOs, on the other hand, are to be correlated to the elements of mission statements of the department. In other words, the PEOs of the program for which accredited is being sought or to be derived from the mission statements of the department. PEOs must be correlated to the mission statements of the department. But for this small change, the process for defending the PEOs is quite similar to the process for defining the vision and mission of the department.

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Sub-Criterion 1.5

Establish consistency of PEOs with Mission of the Department.

- Evaluation:
Allocation of marks is different for Tier I and Tier II institutes!
- Guidelines:

Evaluation Guideline	Tier I	Tier II
A. Preparation of a matrix of PEOs and elements of Mission statement	5	5
B. Consistency/justification of correlation parameters of the above matrix	5	10
TOTAL	10	15

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Sub criterion 1.5 deals with the consistency of the PEOs with the mission of the department establish consistency of PEOs with mission of the department. Allocation of marks is different for tier 1 and tier 2 Institute. There are two guidelines. The first one says that a matrix of the PEOs in the elements of mission statement must be available preparation of a matrix of PEOs and elements of mission statements.

Here, the marks are 5 for tier 1 Institute as well as for tier 2 Institute. The second evaluation guideline is concerned with assessing the consistency or justification of the correlation parameters of the whole matrix. This is again, the subject to evaluation by the visiting committee. The marks allocated for a tier 1 Institute are 5 while the marks allocated for tier 2 Institute are 10. Thus the total marks under sub criterion 1.5 would be 10 for tier 1 Institute, while it would be 15 for tier 2 Institute.

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Sub-Criterion 1.5 (2)

- Exhibits/Context to be Observed/Assessed:
 - A. Availability of a matrix having PEOs and Mission elements
 - B. Justification for each of the elements mapped in the matrix

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The exhibits context is to be observed and assessed. Availability of a matrix having PEOs and mission elements, the matrix having PEOs and mission elements must be available. The second guideline is concerned with the quality of the justification for each element map in the matrix. This is based on the subjective evaluation by the visiting team, the department provides the justification, the justification provided is evaluated for its quality by the visiting team.

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Sub-Criterion 1.5 (3)

A. Preparation of a matrix of PEOs and elements of Mission statement:

PEO	M ₁	M ₂	...	M _k
PEO1:				
PEO2:				
...				
PEOn:				

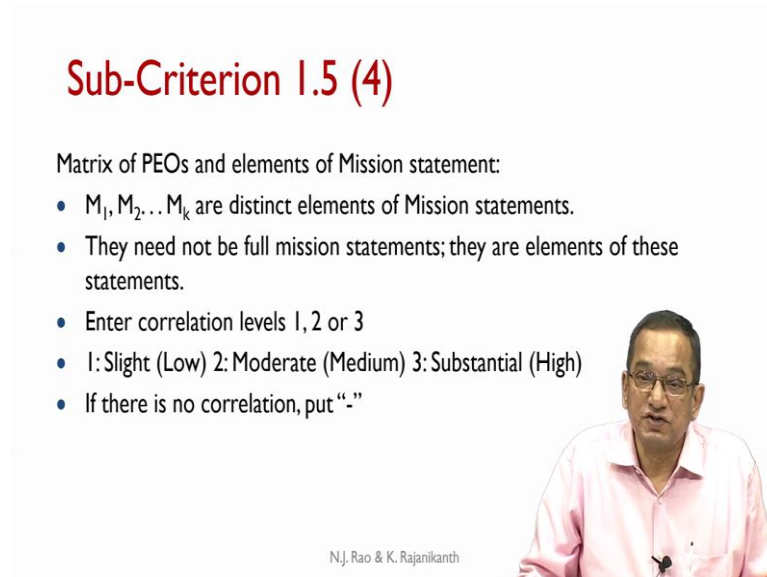


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This is an example of how such a matrix would look. This is the matrix of PEOs and elements of mission statements. We have n PEOs equals PEO 1, PEO 2 and so on up to PEO

n. Then we have certain phrases from the mission department, mission of the statement, M1, M2 up to Mk. Note that M1, M2 and so on are not total missions statements.

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Sub-Criterion I.5 (4)

Matrix of PEOs and elements of Mission statement:

- $M_1, M_2 \dots M_k$ are distinct elements of Mission statements.
- They need not be full mission statements; they are elements of these statements.
- Enter correlation levels 1, 2 or 3
- 1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)
- If there is no correlation, put “-”

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They are key phrases from the mission statements. There are distinct elements of the mission statements, they capture some key aspects of the mission statements. The correlation is established between PEOs and such distinct elements of mission statements, the correlation is quantized the correlation levels need to be entered as 1 or 2 or 3. 1 means that the correlation is low or slight, 2 means that the correlation is moderate or medium. 3 means that the correlation is substantial or is very high.

If there is no correlation, the department is expected to put simply a dash in the matrix. So, in this matrix, each cell is filled with a value of 1 or 2 or 3 or is marked as a dash indicating that there is no correlation.

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Sub-Criterion 1.5 (5)

B. Consistency/justification of correlation parameters of the above matrix:

- Every mapping between a PEO and an element of Mission statement shown in the matrix must be justified.
- The justification may be presented in one or two sentences.
- Quality of the justifications is evaluated by the visiting team. This will be based on the perception of the evaluators.
- Let the justification be logical and to the point. It is better to avoid verbose and vague justifications.

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The department must justify the correlation entries made in the matrix. Every mapping between a PEO and in element of the mission statement shown in the matrix must be justified. The justification can be quite brief but it must be to the point. The justification may be presented in one or two sentences.

Quality of the justification is evaluated by the visiting team. This will be based on the subject to perception of the evaluators. It is better to have a justification, which is brief, terse, logical and to the point. It is better to avoid verbose and vague justifications.

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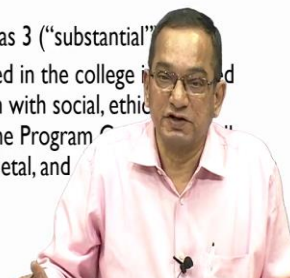
Sub-Criterion 1.5 (6)

Example 1:

- PEO4: Act with global, ethical, societal, and ecological awareness expected of practicing engineering professionals.
- M31: "responsible citizen with social, ethical and environmental awareness"
- PEO4–M31: The mapping strength is marked as 3 ("substantial")

Justification: The learning environment provided in the college is designed to mould the students into responsible citizen with social, ethical and environmental awareness; this coupled with the Program Outcomes will lead Graduates to Act with global, ethical, societal, and ecological awareness.

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As an example of how the justification can be provided. We have one example. This example is again taken from the documents of an accredited program. PEO4 states act with global, ethical, societal and ecological awareness expected of practicing engineering professionals. There is an element from mission 3 statement which talks of responsible citizens with social, ethical and environmental awareness. We are not showing here the full mission statement. This is a phrase from the mission statement 3.

The correlation between PEO4 and this phrase from mission 3 is marked as 3, meaning the correlation is substantial. The justification provided by the department is as follows. The learning environment provided in the college is designed to mold the students into responsible citizens with social, ethical, and environmental awareness. This coupled with the program curriculum will lead graduates to act with global ethical, societal and ecological awareness. As the correlation between the element of the mission statement and the PEO is very strong, it is marked as 3 indicating substantial correlation.

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Sub-Criterion 1.5 (7)

Example 2:

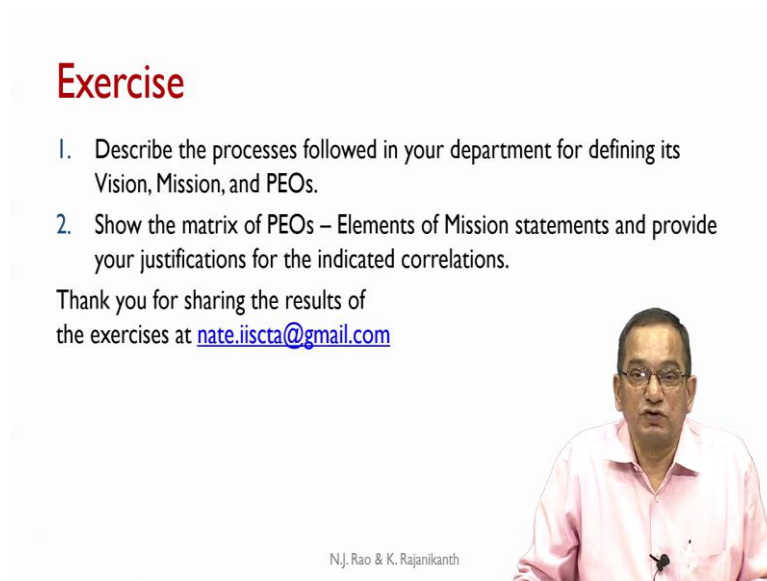
- PEO2: Be successful professions contributing to the society as responsible citizens with proven technical expertise.
- M31: “learning environment conducive for acquiring professional competence”
- PEO2–M31: The mapping strength is marked as 2 (“moderate”)

Justification: The learning environment provided in the college is designed to promote professional competence. This enables the graduates to be successful professionals known for technical competence.

Another example, PEO2 be successful professionals contributing to the society as responsible citizens with proven technical expertise. A phrase from mission statement 3 talks of learning environment conducive for acquiring professional competence. The mapping between PEO2 and this phrase of the mission statement is marked as 2 that is moderate. The justification provided is as follows.

The learning environment provided in the college is designed to promote professional competence. This enables the graduates to be successful professionals known for technical competence. You can imagine yourself to be the evaluator and decide on the quality of this justification.

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Exercise

1. Describe the processes followed in your department for defining its Vision, Mission, and PEOs.
2. Show the matrix of PEOs – Elements of Mission statements and provide your justifications for the indicated correlations.

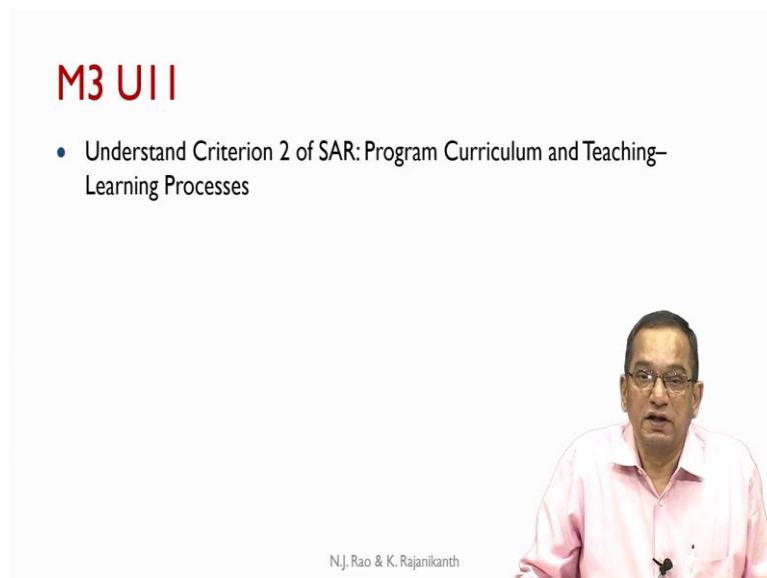
Thank you for sharing the results of the exercises at nate.iiscta@gmail.com

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The slide features a video inset of a man in a pink shirt and glasses speaking. The text is in a clean, sans-serif font, with the title 'Exercise' in a larger, bold, red font.

Couple of exercises, described describe the processes followed in your department for defining its vision, mission and PEOs of the program being offered by the department. Another exercise show the matrix of PEOs elements of mission statements and provide your justification for the indicated correlations. Thank you for sharing the results of the exercise at nate.iiscta@gmail.com.

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M3 U11

- Understand Criterion 2 of SAR: Program Curriculum and Teaching-Learning Processes

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The slide features a video inset of the same man in a pink shirt and glasses speaking. The text is in a clean, sans-serif font, with the title 'M3 U11' in a larger, bold, red font.

We will look at the criterion 2 of SAR in the next unit understand criterion 2 of SAR. This criterion is concerned with program curriculum and teaching learning processes. Thank you.