NBA Accreditation and Teaching – Learning in Engineering (NATE)
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Lecture 34
Exit Surveys 2

Greetings, welcome to module 2, unit 13 on the second part of Exit Surveys.

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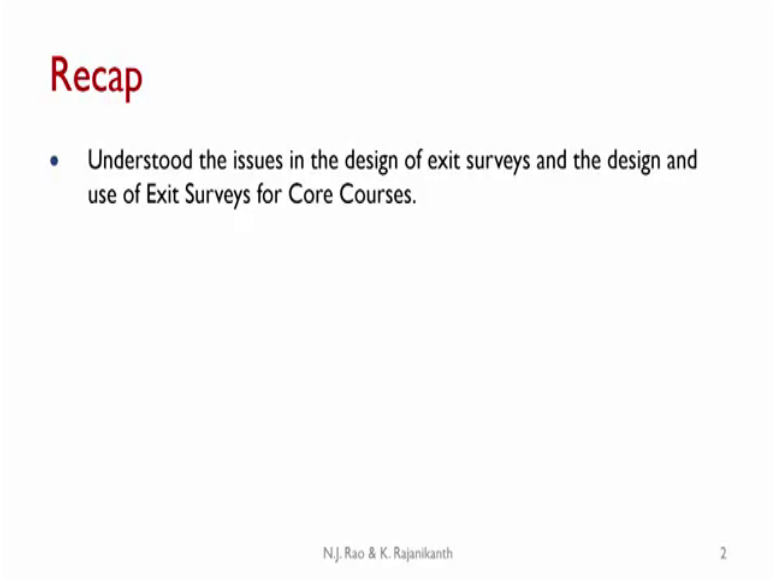

In the earlier unit, we understood the issues in the design of Exit Surveys, and the design and use of Exit Surveys for core courses.

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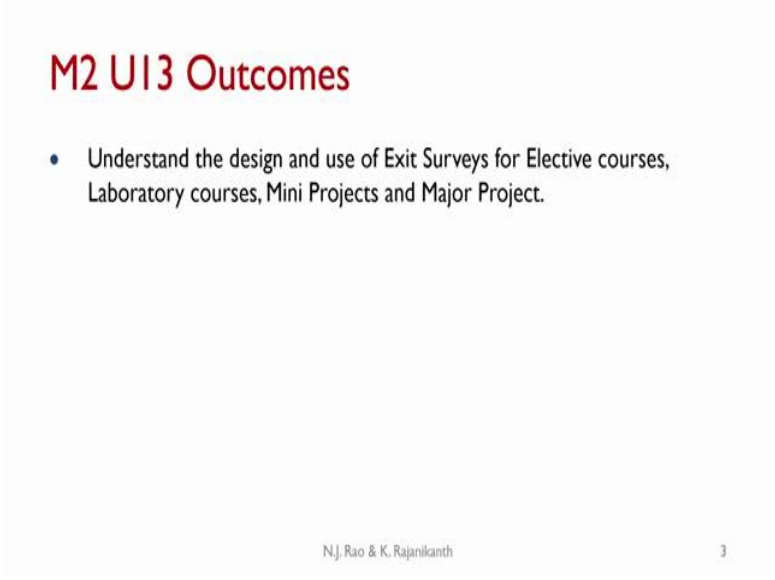

In this unit, we will look at the design and use of exit surveys for other academic activities. So, the outcome for this unit is understand the design and use of exit surveys for elective courses, laboratory courses, mini projects, and major project.

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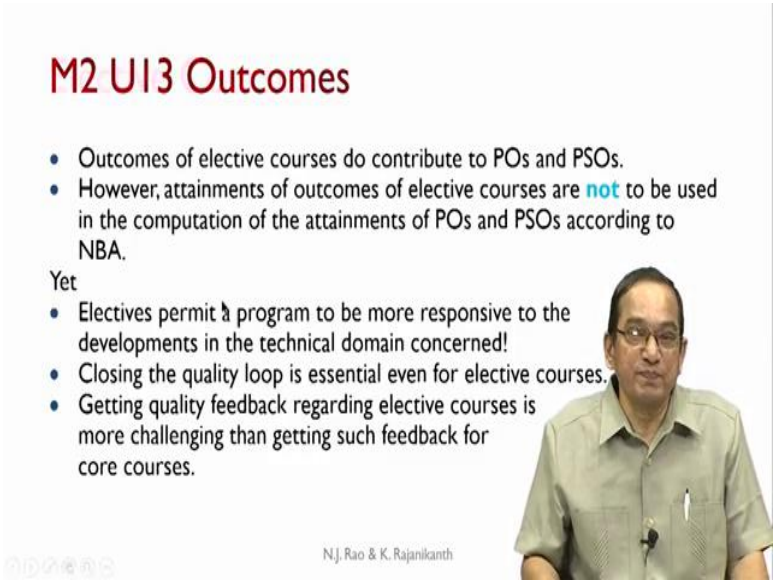

Elective courses are extremely important in any engineering curriculum. Outcomes of elective courses do contribute to the attainment of POs and PSOs. However, attainment of outcomes of elective courses are not to be used in the computation of the attainment of POs and PSOs according to NBA. Yet, we know that electives permit a program to be more responsive to the developments in the technical domain concerned.

Elective can be offered more dynamically, and they can be offered at any point of time during the 4 year program. So thus, they permit a program to be more responsive to the demands of the industry. Closing the quality loop is essential even for elective courses. Even though, the outcome attainments are not used in the computation of the attainment of POs and PSOs. An elective course also is extremely important and thus closing the quality loop is essential, even for elective courses.

Getting quality feedback regarding elective courses is more challenging than getting such feedback for core courses, for a variety of reasons. Including the fact that, the number of restrains can vary for specific elective course, it may not be offered every time. So, there are issues like this which make it more challenging to get valid survey data for elective courses, compare to core courses.

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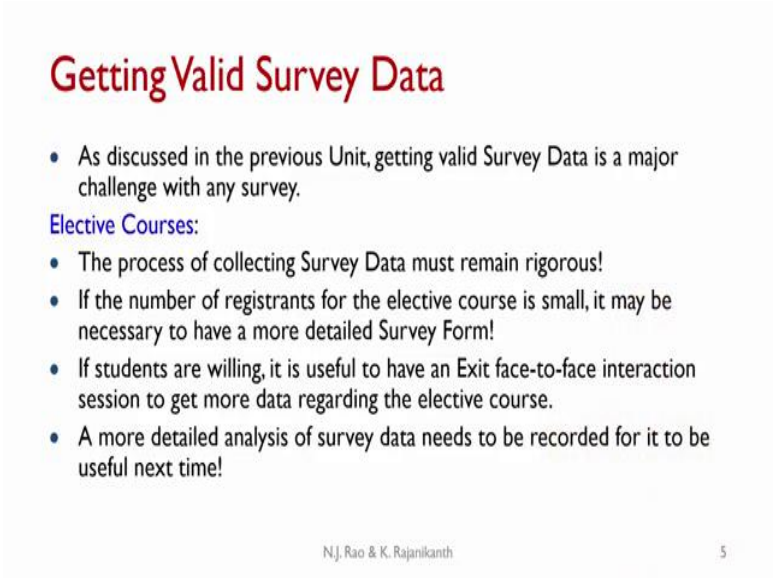

As discussed in the previous unit, getting valid survey data is a major challenge with any survey, particularly so with electives. The process of collecting survey data must remain rigorous, even though it is an elective course. If the number of registrants for the elective course is small, it may be necessary to have a more detailed survey form. As the number of registrants is small, we may need to get more elaborate feedback from the students, and thus we may have to make the survey form also more elaborate.

In fact, if students are willing it is useful to have an exit face to face interaction session to get more data regarding the elective course. A more detail analysis of the survey data needs to be recorded, for it to be useful next time.

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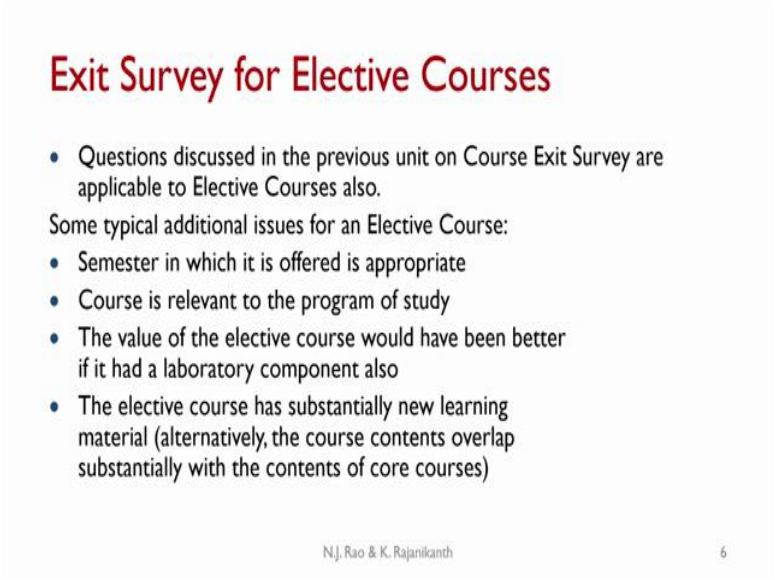

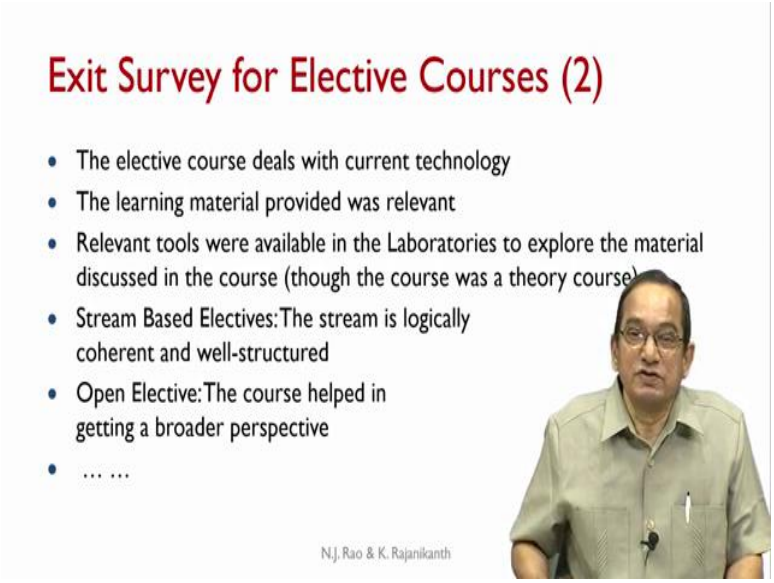

Questions discussed in the previous unit on course exit survey, are applicable to elective courses also. We can have questions regarding the COs, we can have questions regarding the instructor characteristics, we can have questions regarding the learning environment. But additionally, there are certain issues for an elective course. So, some of them can be as follows, the semester in which it is offered is appropriate.

Was the elective offered in a semester which is appropriate. This would depend upon, the prerequisite requirements for the like, that elective course and the semester in which it is offered would make it convenient for the students to attain the course outcomes. So, there can be question on the suitability of the semester in which the elective is offered. Course is relevant to the program of the study.

The value of the elective course would have been better, if it had a laboratory component also. Most of the institutes offer elective courses as theory only courses, 3 is to 0 is to 0, or 4 is to 0 is to 0, or sometimes 2 is to 0 is to 0. But this is a theory only course, the student may feel that the value of the elective course would have been better if it had a laboratory component also. So, we can have a question regarding that aspect. The elective course has substantially new learning material compare to what was available in the core courses.

The same information can be obtained through an alternative question, we can ask the course contents overlap substantially with the contents of the core courses. So obviously, if the students feel that there is a substantial overlap in the content between this elective and some other core course, then the usefulness of that elective naturally gets diminished.

The elective course deals with the current technology, on a scale of strongly disagree to strongly agree we can get the responses of the students. The learning material provided was relevant, relevant tools were available in the laboratories to explore the material discussed in the course, even though the course was a theory course. Even if an elective is offered as a theory only course, if there is a support available in the laboratory, students can explore the material in the laboratory to reinforce their learning from the theory.

So, was there such a facility? Students can be asked about the availability of such a facility, to enhance their learning. Sometimes electives are offered as streams, that means over 3 or 4 semester electives belonging to specific streams are offered, and students are generally advised to choose electives from a single stream. The objective is that, at the end of the sequence courses the students would have mastered one specific stream.

For example, the stream can be on security. So, there can be elective offered as part of a stream. If such is the case, was the stream logically coherent and well structured, the sequence of elective offered did the form a good logical sequence. Open electives the course helped in getting a broader perspective.

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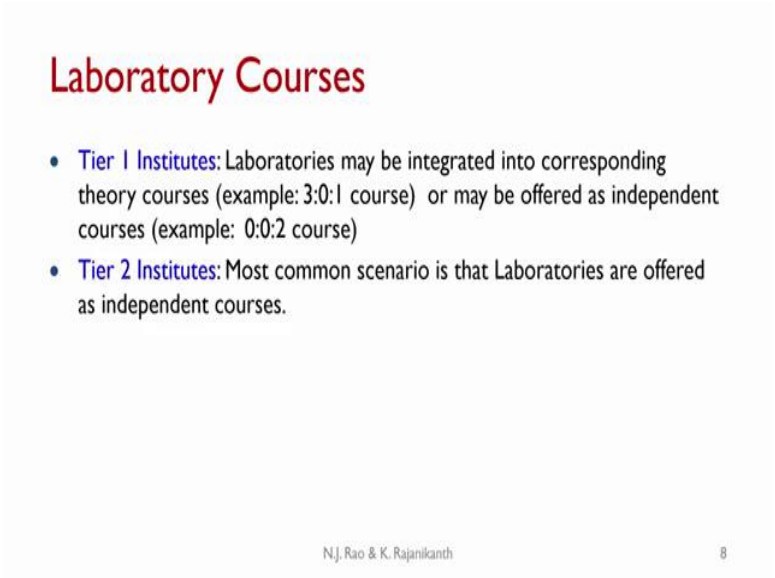

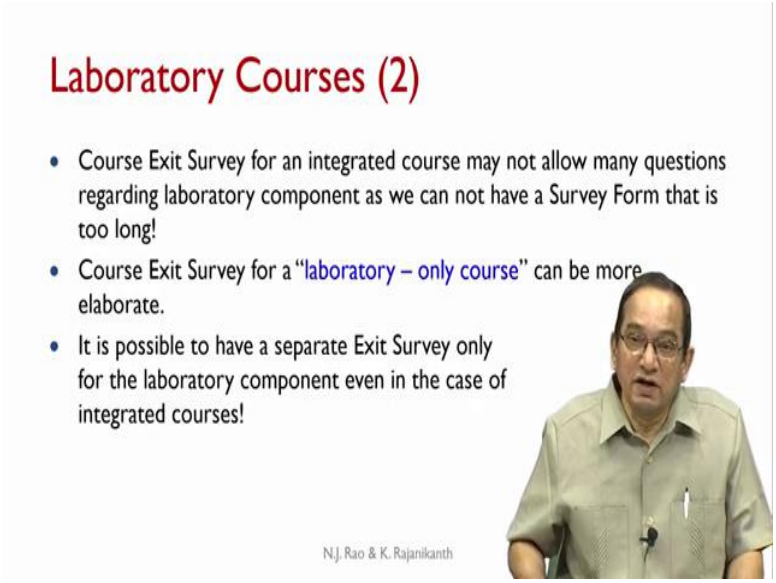

Now let us look at laboratory courses, there is some variation in the way the laboratory courses are offered. In tier 1 institutes, laboratories may be integrated into the corresponding theory courses, example 3 is to 0 is to 1 course 3, hours of theory and one credit of laboratory work. Or may be offered as independent courses, example 0 is to 0 is to 2. Tier 2 institutes, the most common scenario is that laboratories are offered as independent courses.

The course exit survey, for an integrated course may not allow many questions regarding the laboratory component, as we cannot have a survey form that is too long. Already there are several questions regarding the theory part, and we cannot have too many questions regarding the laboratory part in the same survey form. However, even for integrated course we can have a separate survey for the laboratory component.

If we are conducting such a separate survey for the laboratory component, then the survey form can be design to be reasonably comprehensive. Course exit survey for a laboratory only course, obviously can be more elaborate and more comprehensive.

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Exit Survey for Laboratory Courses

- Questions discussed in the previous unit on Course Exit Survey are applicable to Laboratory Courses also.

Some typical additional questions related to Laboratories:

- Laboratory work helped in attaining the stated competencies
- Laboratory work added value to the knowledge gained from the corresponding theory courses
- The time provided for carrying out the experiments was:
  Totally inadequate … Needlessly more time

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Exit Survey for Laboratory Courses (2)

- Assessments at the end of a laboratory session were useful.
- Laboratory manuals provided were helpful in attaining and demonstrating the stated outcomes.
- Laboratory manuals reduced the laboratory work to merely "filling up table/s"
  Strongly Agree … Strongly Disagree
- Relevant learning material was available and easily accessible
- Technical support staff in the laboratory were helpful

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Exit Survey for Laboratory Courses (3)

- Adequate training was provided on the use of tools required/helpful in the Laboratory Work (Example: Debuggers in a programming environment)
- The required equipment was well maintained and calibrated properly
- Required components were always available
- The physical environment in the lab was well maintained.
- The course had some open-ended experiments allowing some exploratory learning

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Questions discussed in the previous unit on the course exit survey, are applicable to laboratory courses also. The same kind of questions that we asked for core course or elective courses, can be asked for laboratory courses also. However, some typical additional questions related to the laboratories can be as follows. Laboratory work help in attaining the stated competencies, laboratory work added value to the knowledge gained from the corresponding theory courses.

The time provided for carrying out the experiments was totally inadequate to needlessly more time. How much time was allocated to the laboratory work Was it too small or was it too much, in which case it could have been waste of time.

Assessments at the end of the laboratory session were useful. Typically, most of the institutes have a short assessment, maybe in the form of a viva at the end of every laboratory session. So, we can ask question whether such assessments were useful. Laboratory manuals provided were helpful in attaining and demonstrating the stated outcomes.

Laboratory manuals reduced the laboratory work to merely filling up tables. Sometimes, the laboratory manuals are so elaborate that the students really gain no new knowledge while conducting the experiment, they follow the manual in a routine fashion get the measurements and complete the tables. Then, the quality of the learning is bound to be quite inferior. So, we can ask a question, whether the laboratory manuals reduce of the laboratory work to merely filling up the tables in a mechanical fashion.

We can ask, on a scale of strongly agree to strongly disagree. Relevant learning material was available and easily accessible. Technical support staff in the laboratory were helpful. Adequate training was provided on the use of tools required, helpful in the laboratory work. Certain tools are required from the curriculum point of view and students needs to be given training, that is adequate for them to become comfortable with use of such tools. Certain tools are not required, strictly speaking from the curriculum point of view but learning those tools would enhance the quality of learning by the students.

Such tools may be helpful in the laboratory work, though not required from a curriculum point of view. Was training provided on such tools helpful in the laboratory work. So, we can ask the quality of training provided to the students, on the use of tools required from the perspective curriculum, not required from the perspective of the curriculum but helpful in the laboratory work.

Was the training adequate? So, we can ask a question and again the response can be on a scale of totally inadequate to highly adequate. The required equipment was well maintained and calibrated properly, required components were always available, the physical environment in the lab was well maintained. The course had some open ended experiments, allowing some exploratory learning.

Again, this would be an important aspect even from the accreditation perspective. Is the total lab completely structured and the students are required to do only predefined experiments or is there an opportunity provided to the students to engage in some exploratory learning, by working on certain open ended experiments.

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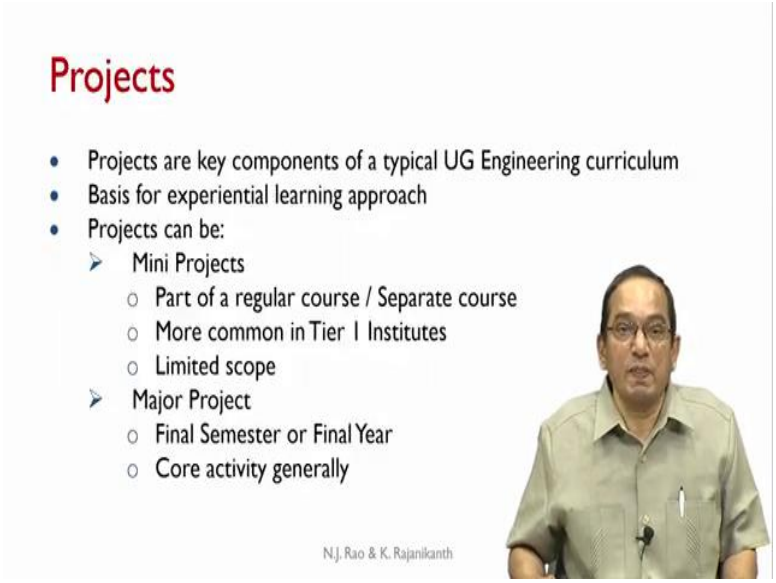

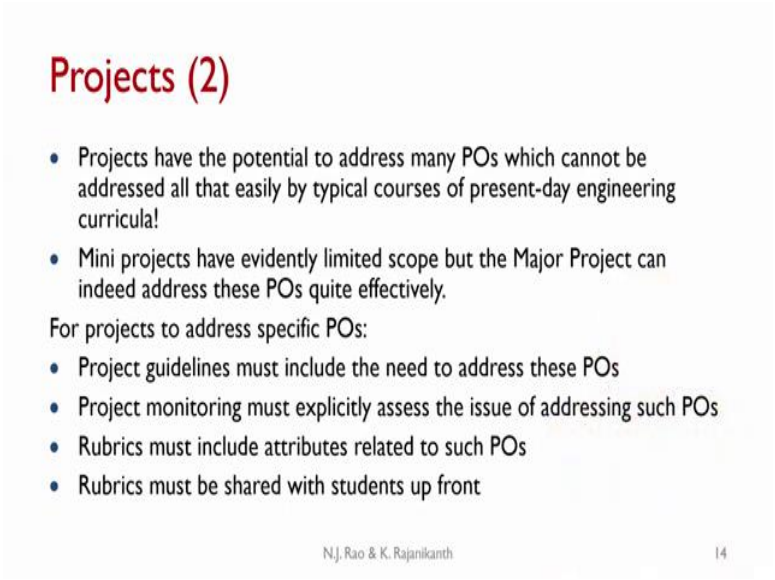

Now let us look at projects, projects are key components of a typical UG engineering curriculum. They form the basis, for experiential learning approach. Projects can be mini projects, or a major project. Mini project can be offered as a part of regular course or as a separate course by itself. Mini projects are more common in tier 1 institutions, though these are becoming increasingly popular in tier 2 institutes also.

The scope of a mini project is generally, quite narrow and limited because it is done in a short span of time and there are other academic activities during the semester. So, the scope of a mini project generally is, rather narrow. The major project is done either in the final semester or in the final 2 semesters, and this is a core activity generally and substantial resources are devoted to the implementation of the major project.

Students spend considerable amount of time in the work related to the major project. So, the scope of the major project is quite vast.

Projects have the potential to address many POs, which cannot be addressed all that easily by typical courses of present day engineering curricula. For example, the POs related to engineering society, environment and sustainability, ethics, project management and finance, these are some of the POs which cannot be addressed that easily by the present day courses. Project has the capability, the potential to address this POs.

Mini projects have evidently limited scope, but the major project can indeed address these POs quite effectively. But for project to address specific POs, certain prerequisite are there. Project guidelines must include the need to address these POs. Explicitly, the guideline must state that the project has to address this POs. Project monitoring must explicitly asses, the issue of addressing such POs.

During periodic monitoring, the guides must ensure that the project work is really addressing these stated POs. Rubrics must include attributes related to such POs, and rubrics must be shared with students upfront, student must also clearly know that they are being evaluated on the quality of their work related to these specific POs. If these conditions are met, then projects have the potential to address many POs.

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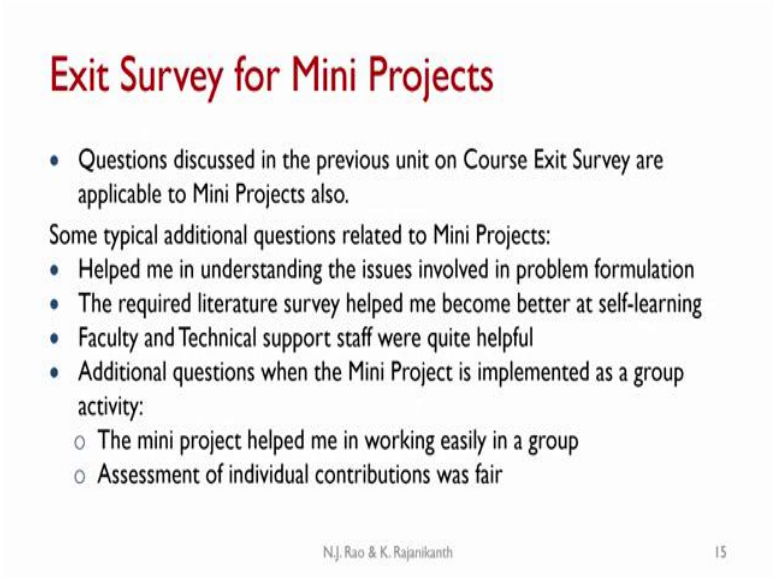

Question discussed already in the course exit survey are applicable to mini project also, but some typical additional questions related to mini projects are as follows. Helped me in understanding the issues involved in problem formulation. The required literature survey helped me become better at self learning. Faculty and technical support staff were quite helpful. Additional questions when the mini project is implemented as a group activity can be; the mini project helped me in working easily in a group, assessment of individual contributions was fair.

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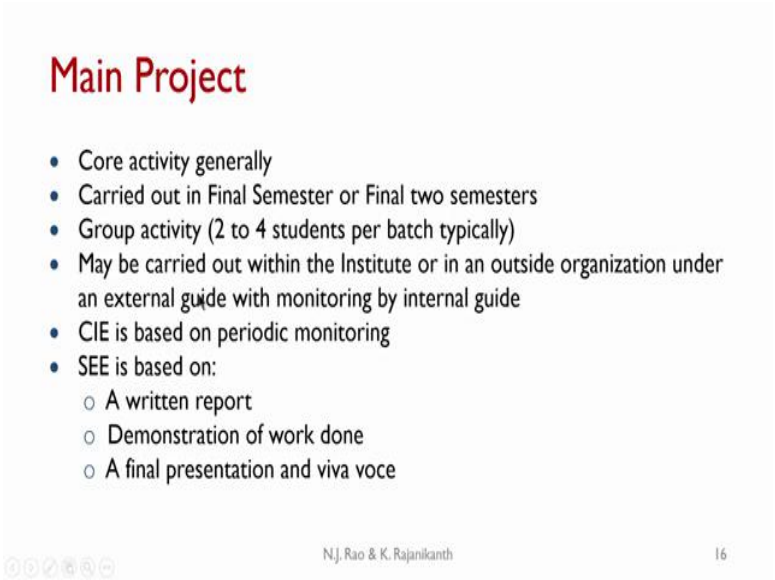

When it comes to major project or the main project, which is carried out either in the final semester or in the final 2 semesters. We notice that it is generally a core activity, project is a

core activity in most of the engineering curricula. It is carried out in the final semester or final 2 semesters. And in most of the institutes it is a group activity, 2 to 4 students per batch, typically in most of the institutes.

It may be carried out within the institute or in an outside organization, under an external guide; with monitoring by internal guide, a guide from the institute. The CIE is based on periodic monitoring, by the internal guide. The SEE is based on 3 components typically, written report is submitted by the students, demonstration of the work done is done by the team, and there is a final presentation by the students either individually or in small teams and usually this is followed by viva voce. So, a project evaluation during the SEE is based on all these 3 components.

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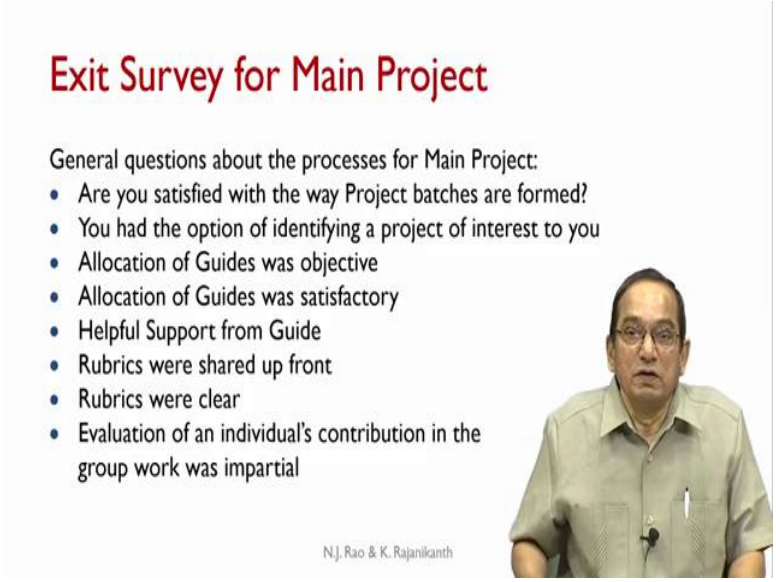

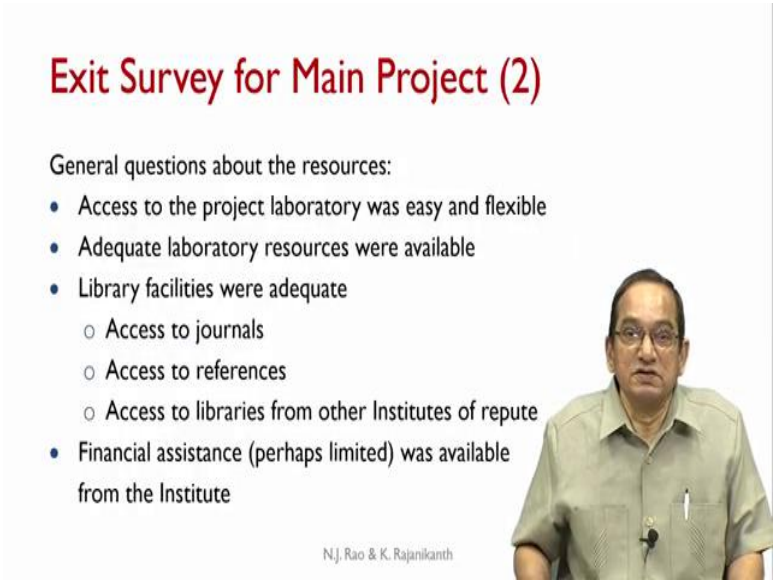

There are several process in place, in any institute regarding the projects. Because there is a major activity, institutes would have certain well defined processes to implement the projects. We can have general questions about these processes in the exit survey for the main project. Are you satisfied with the way project batches are formed, this is an important aspect from accreditation perspective to also.

How are the project batches formed, are they formed based on alphabetical ordering of the names of the student, every 3 students in the sequence form a batch, or some option is given to the students, or is there an option which is intern moderated by the department. What is the process by which project batches are formed, is it satisfactory? Did you have the option of identifying project of interest to you, that means how was the project allocated to the project teams?

Did the department do the allocation by itself, or did the department take in account the interest of the students, or was there a consultative process through which the allocation of the project was done. So, we can have questions on the process by which the projects are allocated to the students. Allocation of guides was objective, that means there was a well established written policy document stating the process by which the guides are to be allocated to the teams.

Allocation of guide was satisfactory, helpful support from the guide, rubric were shared up front, rubrics were cleared, evaluation of an individual's contribution in the group work was impartial. Because the project work is a group activity while assessing it becomes important to assess not only the contribution of the group as a whole, but the contribution of each individual in the group. So, was the evaluation of the individual's contribution in the group impartial?

Then we can ask general questions about the resources. Main project would need considerable resources, and we can have certain general questions about the resources in the exit survey. Access to the project laboratory was easy and flexible. Typically, the regular laboratories would follow a strict schedule for opening times and closing times. The access to such regular laboratories may be rather restricted.

So, is there separate facility, a separate project laboratory with more flexible access rules, so that students could work beyond the regular hours on their projects. So, access to the project laboratory was easy and flexible. So, we can get the responses on a scale of highly agree to highly disagree. Adequate laboratory resources were available. Library facilities were

adequate, most of the times the project implementation would require reference and access to some latest information.

And thus, library facility is play a key role in good implementation of projects. So, where the library facilities adequate. Did the students have good access to generals, did the students have good access to other reference material. In case a required resource is not available in this library, is there an arrangement of this library with other standard library (())(22:59) to borrow the resources from the other library.

So, access to libraries from other institute of repute, did this library have an understanding with other libraries of repute to exchange the material. Financial assistance, perhaps limited was available from the institute. Some institutes do have a policy of providing limited financial assistance to students, when the projects involved certain financial resource commitments. For example, many of the projects in mechanical engineering or civil engineering, may require purchase of special materials, occasionally even purchase of some additional equipment.

What is the extent to which institute provides financial assistance for such projects. It is clear that the institute cannot provide total financial assistance if there are too many projects, which require the financial resources. But is there some assistance, probably limited assistance provided for such projects. So, we can ask questions about the available financial assistance.

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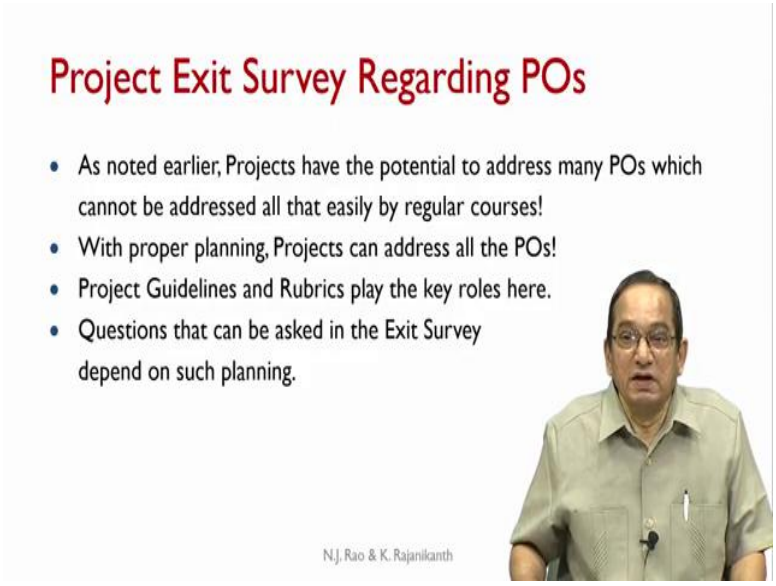

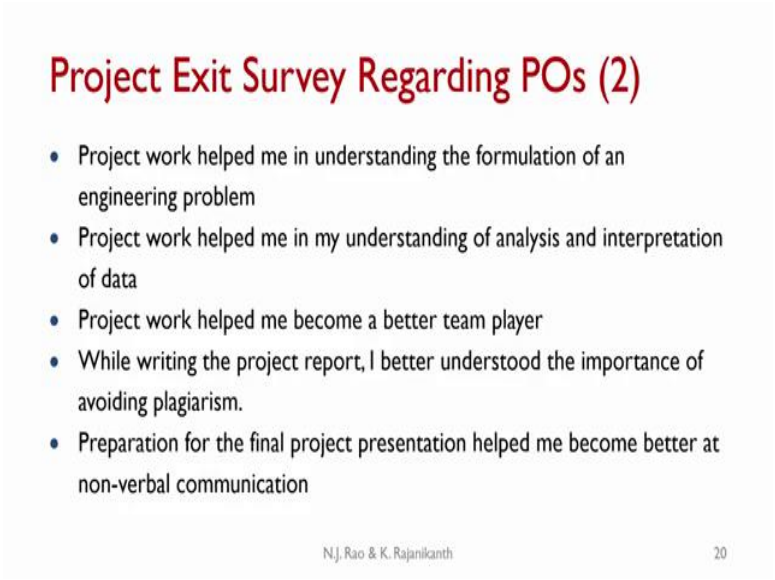

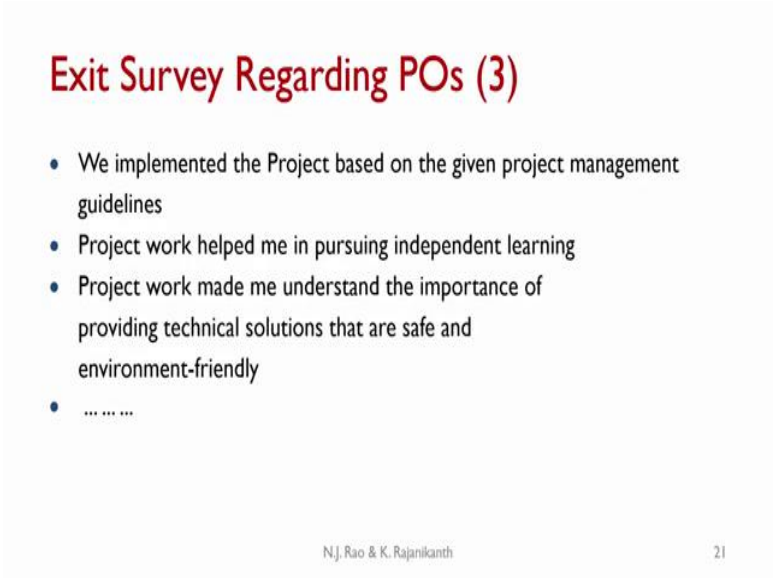

Then as we noted earlier, projects have the potential to address many POs which cannot be addressed all that easily by regular courses. With proper planning project and address all the POs, project guidelines and rubrics play the key role here. Now, if proper guideline are issued to the students, and proper rubrics are formulated and shared upfront with the students, we can ask questions in the exit survey regarding the relationship of the project to the POs, and the extent to which the POs are being attained. So, questions that can be asked in the exit survey depend upon such planning.

Some of the questions that can be included in the exit survey, would be as follows. The responses to these questions can also be used as a form of indirect attainment computation for the relevant POs. Or it can be used as a form a supplementary information for determining the extent to which, the POs are being attained. Project worked helped me in understanding formulation of an engineering problem, obviously related to one PO.

Project work helped me in my understanding of analysis and interpretation of data. Project work helped me become a better team player. While writing the project report I better understood the importance of avoiding plagiarism. Preparation for the final project presentation helped me become better at nonverbal communication. In fact, we can have questions regarding every PO that is being addressed by the project work through proper planning.

We implemented the project based on the given project management, management guidelines. Project work helped me in pursuing independent learning. Project work made me understand the importance of providing technical solutions that are safe and environment friendly, this is obviously related to the PO on environment and sustainability.

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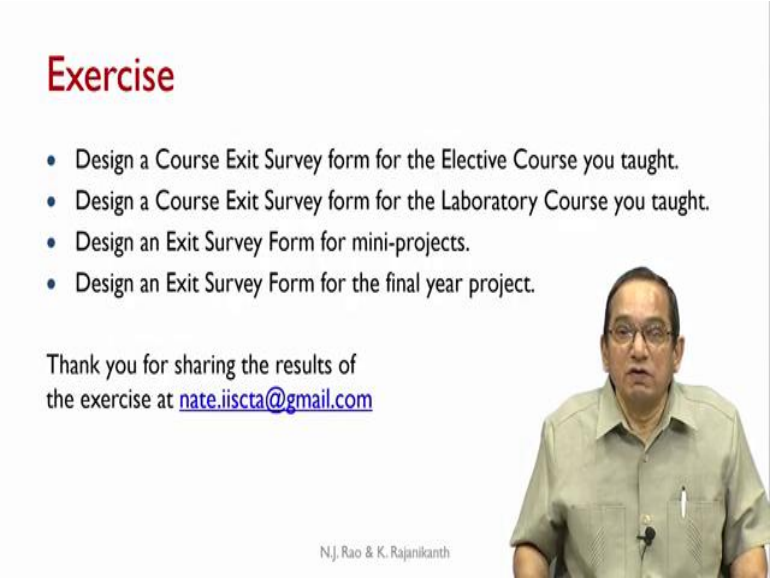

So, we can have questions like this, in the project exit survey related to several POs. Design a course exit survey form, for the elective courses that you have taught. Similarly, a course exit survey form, for a laboratory course that you taught. Design an exit survey form for mini projects, design an exit survey form for the final year project.

In the last exercise, you can make suitable assumptions regarding the POs that are planned to be addressed by the project activity. You can assume that, suitable rubric have been formed, suitable information has been provided to the students regarding the need to address those POs. Making such assumptions, you can design the exit survey form for the final year project. Thank you, for sharing the results of the exercise at natedot iiscta at gmail dot com.

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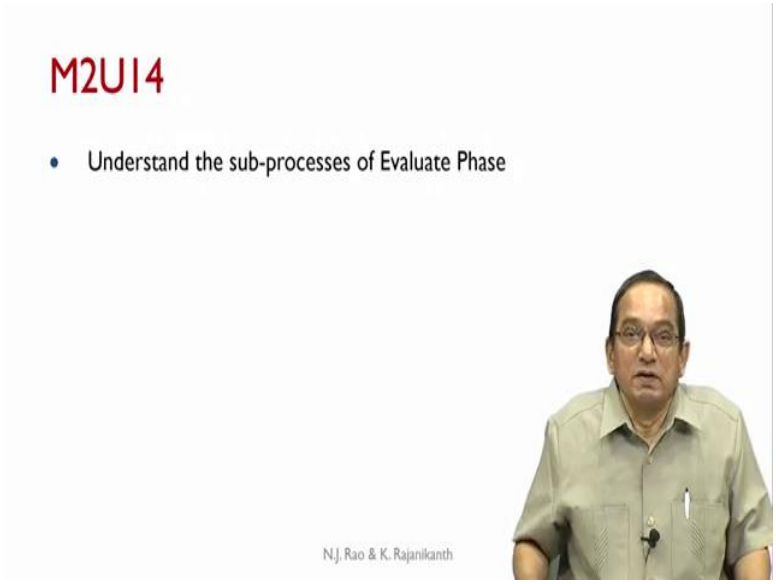

In the next unit, we will understand the sub processes of evaluate phase, the last phase of the ADDI model. Thank you, and we will meet in the next unit. Thank you.