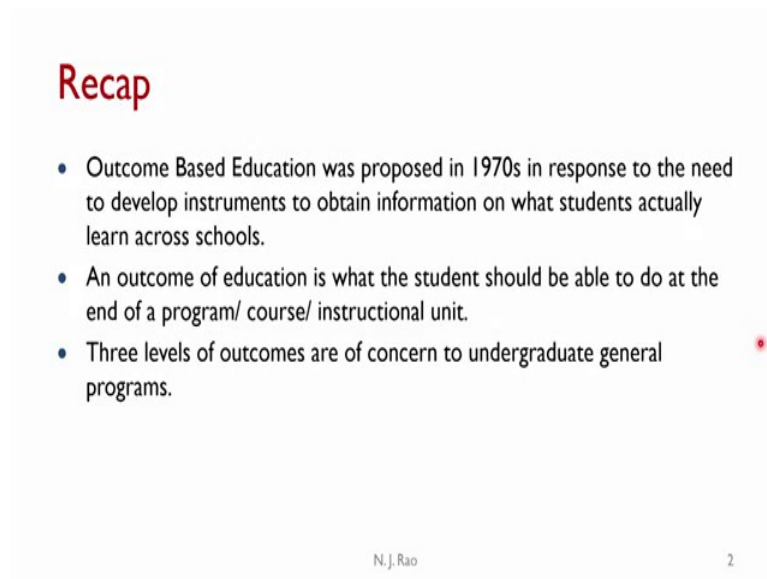


Teaching and Learning in General programs (TALG)
Prof. N. J. Rao
Department of Electronics Systems Engineering
Indian Institute of Science, Bengaluru

Lecture – 05
Accreditation

Greetings and welcome to unit 5 of module 1 of TALG; TALG is Teaching And Learning in General programs.

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Recap

- Outcome Based Education was proposed in 1970s in response to the need to develop instruments to obtain information on what students actually learn across schools.
- An outcome of education is what the student should be able to do at the end of a program/ course/ instructional unit.
- Three levels of outcomes are of concern to undergraduate general programs.

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The unit 5 is going to address the issue of Accreditation. In the last unit we understood that Outcome Based Education was proposed way back in 1970's and mainly in response to the need to have some kind of instruments to obtain information on what students are actually learning across schools, not what they were taught, but what they were learning.

So, an outcome based education is what the student should be able to do at the end of a program or a course or an instructional unit and we identified there are 3 levels of outcomes that are of concern to an undergraduate general programs.

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Unit Outcomes

- MIU5-1: Understand the role of Accreditation
- MIU5-2: Understand the criteria of NAAC Self Study Report (SSR)
- MIU5-3: Understand the centrality of closing the Quality Loop at the levels of COs, and POs and PSOs

N.J.Rao 3

Now, in this unit we will try to understand the role of accreditation, because accreditation plays a major role in terms of designing outcome based education as well. Understand the criteria of NAAC self study report. What is the role of NAAC will try to understand, understand the centrality of closing the quality loop at the levels of COs, POs and PSOs. These are the 3 outcomes we will try to address.

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What is Accreditation?

- Quality Assurance Scheme.
- Quality Standards are set by a designated agency from the perspective of stake holders.
- Quality Standards evolve over time and are compatible with international practices.
- Quality Standards provide a framework for planning and conducting all activities of an Institution.

N.J.Rao

First of all we need to understand, what is accreditation? Accreditation is a quality assurance scheme. Quality standards are set by a designated agency from the perspective

of stake holders. Because one should understand when I have a an institution running and I am trying to get what do you call enroll students and train them and then award a degree. So, some agency in the country will have to look at are you following certain or you are trying to follow certain quality standards? That means, what you are doing is satisfactory because the graduates of the program are becoming the employees, employees of various organizations.

So, accreditation sets the quality standards and also what they do this agency will over a period of time will keep evolving the quality standards and make it compatible with international practices. So, what happens the graduates of our programs are comparable to graduates of programs; similar programs else were in the world. And as far as the a teacher or a student is concerned within an institute, the quality standards provide a framework for planning and conducting all activities of an institution.


It is the quality standards are not only specifically with respect to teaching and learning, but every facet of the institution. Like how are you recruiting people or how are you admitting students, what process you are following, are you maintaining a campus that not only takes care of just simply teaching and learning in a classroom, but all other co-curricular and extracurricular activities, how is the institute interacting with the world outside and what kind of activity it is proposing to improve or other characteristics of graduates and so on and on. So, quality standards - they address not only the teaching and learning, but also every facet of the institute.

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Why Accreditation?

Preparing for accreditation can lead to

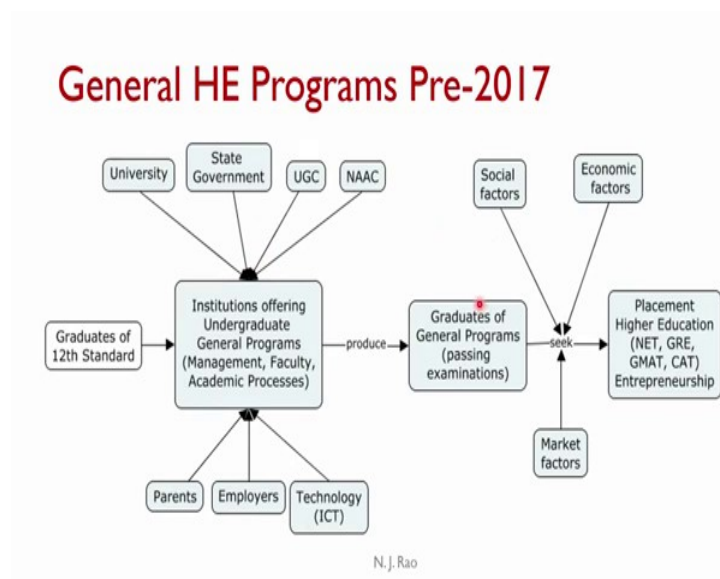
- Continuous improvements to the quality of learning
- Better placements
- Better quality of Student intake
- Better brand name!
- Better contribution to society
- Better chances of funding from all
- Better revenue generation
- **A different mind set of all !!!**



N.J. Rao

And now why should we do go for accreditation, preparing for accreditation can lead to continuous improvements to the quality of learning. It provides even a framework to continuously improve and it can lead to better placements, better quality of student intake, better brand name, better contribution to society, better chances of funding from all types of agencies, better revenue generation even for a college and in summary, a kind of a better mindset of all the people participating that is faculty, staff, management, students, everyone.

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Now, this is how we can portray the relationship or what is happening in an undergraduate institution. For example, graduates of 12th standard are the inputs to this. Institutions offering undergraduate general programs. The institution consists of management, faculty and academic processes and students are the inputs. And the activities of this are directly or indirectly controlled by the university, state government, UGC, NAAC and to a certain extent parents, employers and technology used by the institution.

And all together the institution under the influence of all the others what do you call actors and stakeholders, produce graduates of general programs. Essentially who are graduates of general programs who pass the examinations and these graduates, what do they do? They seek a placement or they go for a higher education or they can write some of the competitive exams and they may become a small number of them may become entrepreneurs. Or just strictly get into a kind of entrepreneurship which has nothing to do with the kind of specialization that he has gone through.

Now, this seeking of any of these activity will depend on social factors, market factors and economic factors, which are not necessarily in the control of the institute. So, an institute cannot guarantee these outputs they cannot guarantee placement higher expecting majority of them go for higher education and so on. Because all these factors will decide where the graduates actually go. Now, this is how the general programs in pre 2017 where happening.

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Accreditation prior to 2017

- The focus was on Inputs, Processes and Outputs
- Outputs were mainly, pass percentages, placements, number of graduates going for higher education, and the number of entrepreneurs.
- These outputs did not necessarily measure what the students learnt.

N.J.Rao 7

Now, accreditation prior to 2017 the focus was on inputs, processes and outputs, that is are you getting right kind of students, the how many seats are getting filled and so on, whether the classes are getting conducted these are all the process and you have all the processes happening or not and then the outputs you have seen they are related to placements, number of graduates going for higher education and the number of entrepreneurs. As we said these outputs need not necessarily measure what the students learnt.

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NAAC

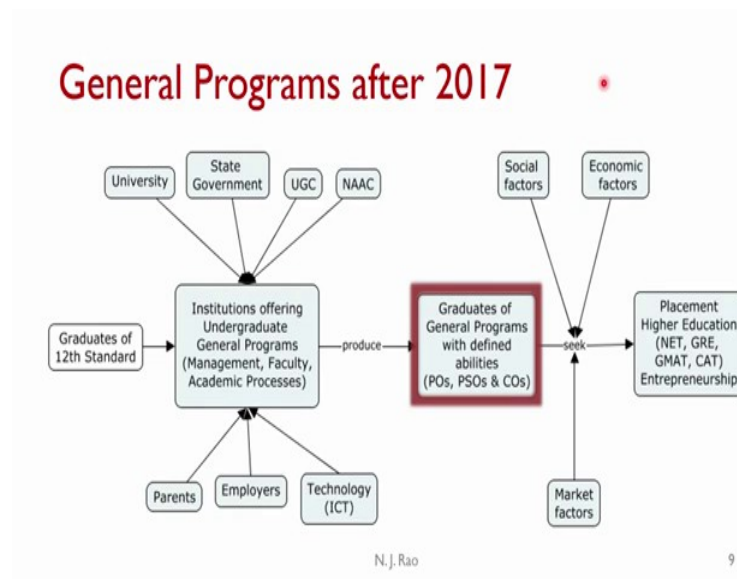
National Assessment and Accreditation Council (NAAC)

- Established in 1994 as an autonomous institution of UGC.
- Revised Assessment and Accreditation (A&A) Framework effective from July 2017.
- Represents an explicit paradigm shift making it
 - ICT enabled
 - Objective
 - Transparent
 - Scalable
 - Robust

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And post 2017 the NAAC has changed its framework, now NAAC if you look at National Assessment and Accreditation Council were established in 1994 as an autonomous institution of UGC. Even now it is like that it comes directly under UGC, but NAAC revised the assessment and accreditation framework effective from July 2017. And it represents an explicit paradigm shift making it ICT enabled; that means, the entire NAAC accreditation process is heavily ICT enabled, then it is made as much objective as possible and it is transparent and it is scalable and it is robust. So, all factors were taken into consideration in designing the accreditation framework in 2017.

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Now, general programs after 2017 how do they look? Expect for the marked one, rest of them remain the same, but now we say the institute should produce graduates with certain defined abilities. These defined abilities are expressed as POs, PSOs and COs that is the major difference; that means, I am producing, I am telling the world I am producing graduates who have attained; need not necessarily be 100 percent they attained the well defined POs, PSOs and COs that is the major difference between the programs prior to 2017 and after 2017.

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NAAC Accreditation post 2017

- The focus is on Inputs, Processes, **Outcomes** and their Attainment, and Outputs
- Outcomes represent what knowledge, skills and attitudes students will be able to demonstrate at the time of graduation.
- Outcomes are identified at the Program level and Course level by the Universities/Institutions and by the Departments
- The Institution uses the results of calculating the attainment of outcomes to continuously improve the levels of attainment of outcomes.

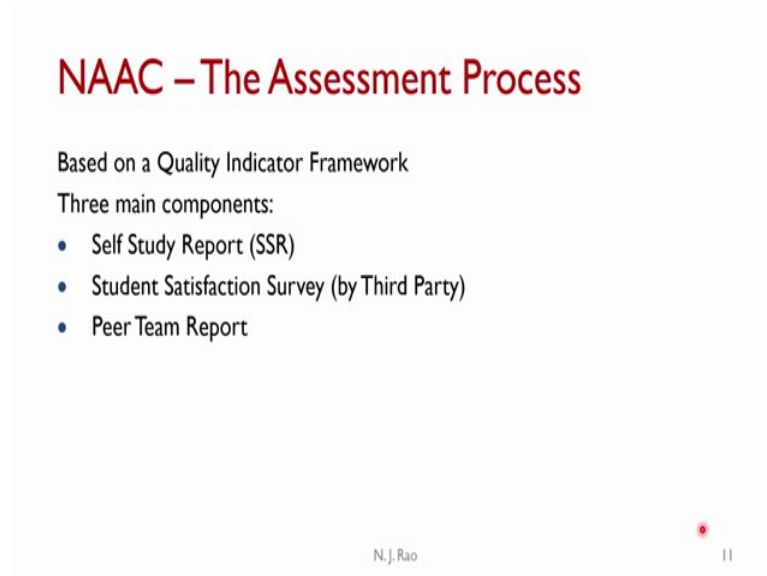
N.J.Rao

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Now, NAAC accreditation post 2017 as we said the focus is also on inputs, processes, but outcomes and their attainment and the outputs that is the focus. Now, to repeat outcomes represent what knowledge skills and attitudes students will be able to demonstrate at the time of graduation. We do not say what they have studied, what kind of subjects or courses they have done, we do not talk in that language, what specific knowledge skills and attitudes have they acquired by the time at the time of graduation. And outcomes are identified at the program level and the course level by the universities institution and also by the departments.

It depends on what kind of institution you are and will presently see NAAC recognizes 3 types of institutions, university, autonomous college and affiliated college. they have classified institutions into this 3 and the expectations from each one of them are somewhat different. And the institution uses the results of calculating the attainment of outcomes to continuously improve the levels of attainment of outcomes. So, you measure something and based on that you plan to improve it further.

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The slide features a title 'NAAC – The Assessment Process' in red text at the top. Below the title, it states 'Based on a Quality Indicator Framework' and 'Three main components:'. A bulleted list follows, containing 'Self Study Report (SSR)', 'Student Satisfaction Survey (by Third Party)', and 'Peer Team Report'. At the bottom center, the name 'N.J.Rao' is displayed, and at the bottom right, the number '11' is shown next to a small red dot.

Now, let us understand the assessment process of NAAC. Based on the quality indicator framework that has been defined there are three main components, one is Self Study Report - SSR as they call it and student satisfaction survey. It is generally done by third party and peer team report. That means, the institute submits the self study report in a particular structure, that is already predefined by NAAC you fill in all the details and it is electronically submitted to NAAC.

And then what happens after that the NAAC will appoint a peer team; that means, some faculty selected from other institutions, that team will come and visit the institute and give a report and then a third party will conduct a student satisfaction survey online. And the results of all this all the three are integrated once again by a software tool and it will produce a number and we see that different grades are given to different institutions.


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Quality Indicator Framework (QIF)

Seven Criteria for assessment of HEIs:

1. Curricular Aspects
2. Teaching-Learning and Evaluation
3. Research, Innovations and Extension
4. Infrastructure and Learning Resources
5. Student Support and Progression
6. Governance, Leadership and Management
7. Institutional Values and Best Practices

- Key Indicators (KIs) under each Criterion
- KIs are further delineated as Metrics



N.J. Rao

The quality indicator framework has seven criteria, **curricular aspects, teaching - learning and evaluation, research, innovations and extension, infrastructure and learning resources, student support and progression, governance, leadership and management and institutional values and best practices**. And these are the seven criteria under each criterion we have some key indicators. They are not equal in number across all criteria, but there are key indicators and once again each key indicator is further delineated as metrics. That means, you can call them sub key indicators, but they are called metrics.

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Assessment Summary

Criterion	U	Au	Aff
1. Curricular Aspects	150	150	100
2. Teaching-learning & Evaluation	200	300	350
3. Research, Innovations & Extension	250	150	120
4. Infrastructure & Learning Resources	100	100	100
5. Student Support & Progression	100	100	130
6. Governance, Leadership & Management	100	100	100
7. Institutional Values & Best Practices	100	100	100
Total	1000	1000	1000

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Now, the assessment summary if you look at, the seven criteria are shown and then U is university, Au is autonomous college and Aff is affiliated college. The reason between why there is considerable difference between affiliated and autonomous college is that affiliated college they cannot take several independent decisions; they are decided by the university. So, that is why the weightages are correspondingly adjusted. For example, curricular aspects designing the curriculum is responsibility of the university and or an autonomous college, but not that of affiliated institute, but to that extent the weightage given to the affiliated college is somewhat reduced it is only 100 marks whereas, for the other two - 150 marks.

Teaching-learning and evaluation that is where the affiliated college has maximum role to play and that is why 350 marks are given whereas, less marks are given for autonomous and university. Coming to research and innovation and extension the university has lot more responsibility; that is why are given 250 and autonomous college 150 and the number of marks given to affiliated college is 120.

In an affiliated college because of the very nature of the institution, the teachers are likely to have less time for any kind of thing research, innovation or extension, but it is not 0; that means, the affiliated college cannot just merely take a position that my role is only to teach. They have to be involved in some amount of research innovation and extension, whatever they do otherwise the 120 marks that are allocated out of 1000 are at stake.

The others as you can see predominantly almost they have the same marks except for minor differences. Infrastructure and learning resources, everyone should have the appropriate one. Student support and progression few more marks for affiliated. Governance leadership and management; unless all the key indicators are attained you lose marks out of that 100. Institutional values and best practices this is the very interesting thing that was included by doing several activities the for example, if you get into the details of this you will find that there are several things that can be done as an institution, so 100 marks for that.

The way the accreditation is done is by way of what you call you have 1000 marks identified out of this they are divided into 7 criteria and the depending on the marks that

you get out of this 1000 first thing is you are accredited or not accredited, if you are accredited they will give some grade like A B C that is how it is done.

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Distribution of Metrics and KIs across Institutions

	U	Au	Aff/CC
Criteria	7	7	7
Key Indicators (KIs)	34	34	32
Qualitative Metrics (Q ₁ M)	38	38	41
Quantitative Metrics (Q _n M)	99	98	80
Total Metrics (Q ₁ M + Q _n M)	137	136	121

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But now finally, how is this obtained. Again key indicators and metrics are divided like this. Key indicators are for university there are 34, autonomous also 34, but affiliated colleges are what do you call constituent college of the university also it is 32.

Qualitative metric again the metrics are two types, one is qualitative in the sense some report is written somebody after reading that document they will decide how many marks can give against that particular metric. So, qualitative metrics are 38, 38 and 41 whereas, quantitative metrics as you can see they are dominant 99 for university, 98 for autonomous, 80 for affiliated college.

And so, the total number of metrics are also they also differ and as you can see the maximum weightage is given to the quantitative metrics. That means, it is data based, once you supply the data how what is happening in your institution. There is a software tool that decides how many marks to give it is as straight forward as that.

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Metrics and Grade Sheet

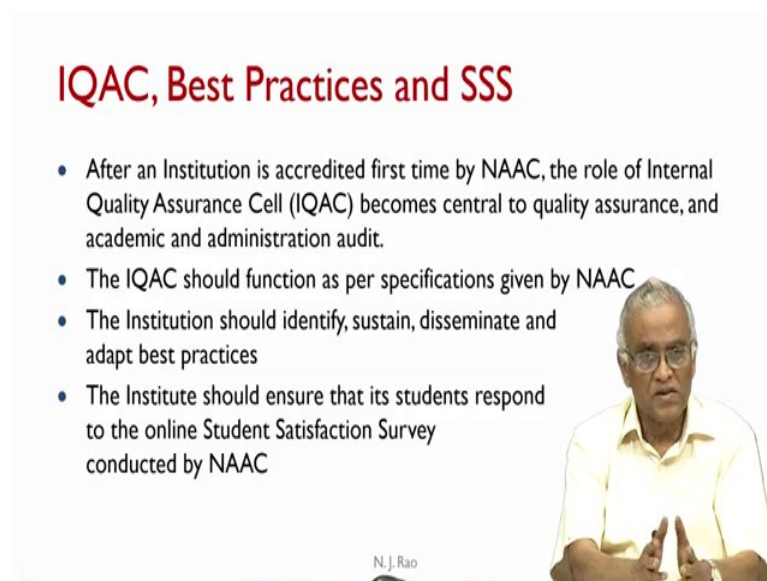
- 7 Criteria
- System Generated Score (based on Q_n Ms)
- Peer Score (Based on Q_1 Ms)
- Institutional Grade Sheet (Based on Q_1 Ms, Q_n Ms, and Student Satisfaction Survey)

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So, how is a grade sheet done. You have 7 criteria, system generated score as you call it based on quantitative metrics, once you submit the software just calculates and gives you a score and then that score is not known to the peer committee which visits the institute. And then peer score means the committee that visits the institute and inspects talk to people and so on they are qualitative metrics against that they will give marks.

The institutional grade sheet is based on qualitative metrics, quantitative metrics, and the student satisfaction survey. Now if you look at broadly a 70 percent of the marks are for quantitative metrics, out of 1000, 700 marks go as per the quantitative metrics, about 27 percent of the marks are decided by peer committee and it is based on it is they generate the score after the visit and three remaining 3 percent is based on the student satisfaction survey which is conducted online. So, as you can see 73 percent of the marks are somehow decided by a tool based on the data.

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IQAC, Best Practices and SSS

- After an Institution is accredited first time by NAAC, the role of Internal Quality Assurance Cell (IQAC) becomes central to quality assurance, and academic and administration audit.
- The IQAC should function as per specifications given by NAAC
- The Institution should identify, sustain, disseminate and adapt best practices
- The Institute should ensure that its students respond to the online Student Satisfaction Survey conducted by NAAC

N. J. Rao

Now, these are the commitments now, when you are doing your affairs and trying to get accredited and so on. After institution is accredited for the first time by NAAC, the role of what you call IQAC - Internal Quality Assurance Cell becomes central to quality assurance and academic and administrative audit. That means, they not only regularly conduct academic and administrative audit internally, but any time the university or UGC or NAAC; they want certain type of information to be provided, either for accreditation or for any other kind of thing, it is the IQAC cell that places the interface between the institute and UGC and NAAC.

So, when you are trying to do that all the departments and all the faculty have to cooperate or be part of this quality assurance cell and in trying to supply the required information in a common format ok. What format the information has to be sought is generally decided by IQAC depending on the requirement of the external agency. And even functioning of IQAC is specified by NAAC; that means, IQAC should function in one particular way; there should be a committee that looks after it is affairs and periodically you change the committee, they have to maintain certain documentation and every year they have to submit a report to NAAC and so on.

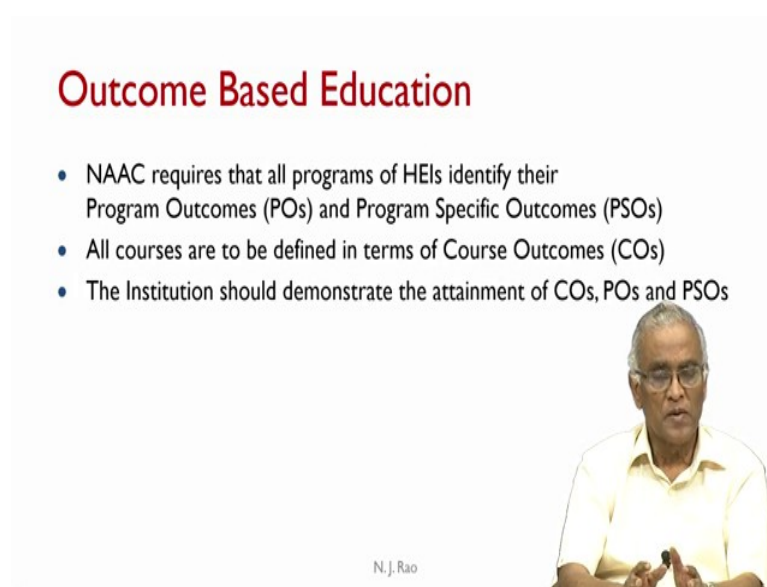
So, the IQAC should function as per the specifications of the NAAC and eventually all faculty will get will get to operate through this. And institution should identify, sustain, disseminate and adopt best practices. What are these best practices? Let us say some

teacher has experimented with certain way of teaching and found it is very useful. That is student have learnt better or they participated better.

So, whatever activity that a teacher has experimented and found that it is it led to better learning that kind of thing should be documented, how the measurement has been done and established truly there has been an improvement in the learning. Once all that is established that best practice is to be collected by IQAC for example, and it should be disseminated made available to not only to all the faculty of the institute, but generally to the university and the world outside through it is website.

And another role that they have to play the institute should ensure that it is students respond to the online student satisfaction survey generally this student satisfaction survey is done with the final year students before they leave the institute and your these alumini of the institute. So, you keep track of them, you keep track of their email IDs and whenever a survey like this is to be conducted, the agency should be able to contact the alumini of the institute and the final year students. So, then it becomes comprehensive, it is mainly for student satisfaction survey.

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Outcome Based Education

- NAAC requires that all programs of HEIs identify their Program Outcomes (POs) and Program Specific Outcomes (PSOs)
- All courses are to be defined in terms of Course Outcomes (COs)
- The Institution should demonstrate the attainment of COs, POs and PSOs

N.J.Rao

The slide features a video inset of a man with glasses and a light-colored shirt, identified as N.J.Rao, who appears to be speaking or presenting. The background of the slide is white with a thin vertical line on the right side.

Now, what does NAAC require? NAAC requires that all programs of higher education institutions, identify their program outcomes, program specific outcomes and all courses are to be defined in terms of course outcomes. And the institute institution should demonstrate the attainment of COs, POs and PSOs. So, coming back to our outcome

based education module. So, our requirement now is because NAAC requires that you identify your POs and PSOs and COs and also demonstrate their attainment that is what we will do in the rest of the units.


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Closing the Quality Loop

- Many of the processes required for accreditation need to have the step of “closing the loop”.
- A model useful for understanding this is the Deming's Quality Cycle:

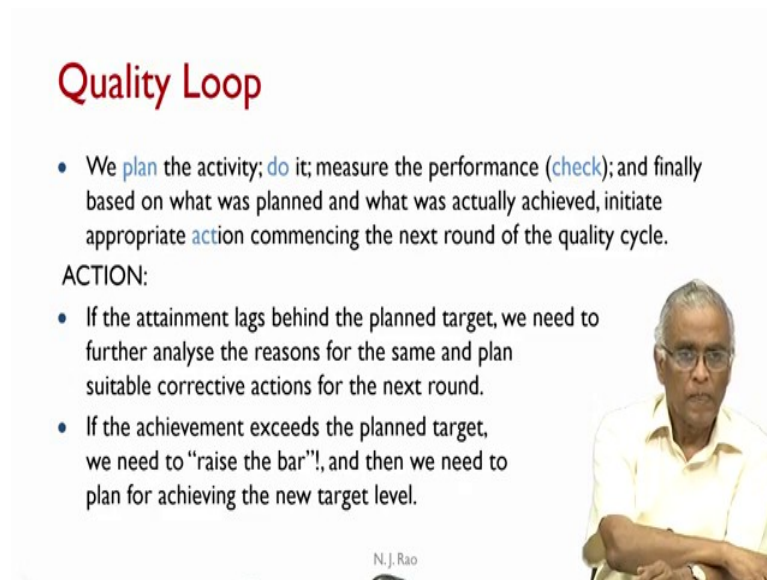
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graph TD; Plan --> Do; Do --> Check; Check --> Act; Act --> Plan;
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N. J. Rao



Now, as I said there is one fundamental issue called closing the quality loop that is the purpose of insisting on the accreditation. Many of the processes required for accreditation need to have the step of “closing the loop”. What is this loop? The we call it Deming’s Quality Cycle. Deming’s quality cycle has come with respect to industries and productions and so on. So, here what you do you plan? You plan something you want to get something and then actually do and then check whether have I attained something and then depending on checking what I have attained then I will again act. So, that is the quality cycle, let us look at what exactly do we do in this.

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Quality Loop

- We **plan** the activity; **do** it; measure the performance (**check**); and finally based on what was planned and what was actually achieved, initiate appropriate **action** commencing the next round of the quality cycle.

ACTION:

- If the attainment lags behind the planned target, we need to further analyse the reasons for the same and plan suitable corrective actions for the next round.
- If the achievement exceeds the planned target, we need to "raise the bar"!, and then we need to plan for achieving the new target level.

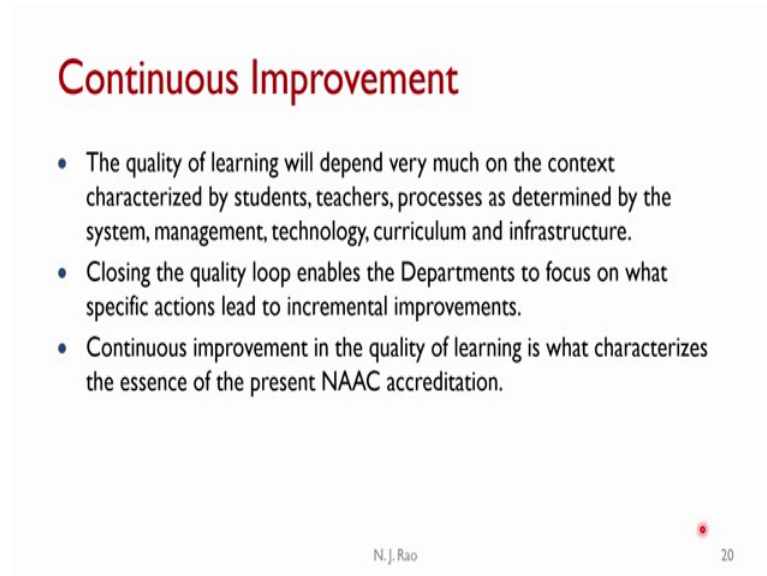
N.J. Rao

We plan the activity do it measure the performance that is checking and finally, based on what was planned and what was actually achieved initiate appropriate action commencing the next round of quality cycle that is what it is. That means, plan here would mean what are the outcomes I am trying to achieve ok, what outcome should be attained, that is writing the outcomes is the planning and also I set a target.

That means, I should be able achieve this target and then actually you teach and conduct your assessment and evaluation and all that - that is doing. Then you measure the performance of your students and then check how far you are from the target. Depending on the attainment gap of the target you plan what to do next and initiate the action for closing the gap or improving or increasing the target.

That means if the assessment lags behind the planned target we need to further analyse the reasons and for the same and plan suitable corrective actions for the next round. A teacher when he teaches in the classroom will know clearly where the students are finding it difficult, where the adequate time is not given or more problems to be solved, all that the teacher will understand during the process of doing and then you can plan for the next round what exactly to be improved in that. If the achievement exceeds the planned target you raise the bar, you increase the target, enhance the target and then we need to plan for achieving the new target level.

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Continuous Improvement

- The quality of learning will depend very much on the context characterized by students, teachers, processes as determined by the system, management, technology, curriculum and infrastructure.
- Closing the quality loop enables the Departments to focus on what specific actions lead to incremental improvements.
- Continuous improvement in the quality of learning is what characterizes the essence of the present NAAC accreditation.

N. J. Rao 20

So, that is how the quality cycle will go on and this will also lead to; obviously, continuous improvement. Continuous improvement is one of the goals as specified by NAAC; that means, every institution should continue should strive for continuous improvement, you cannot stay static, whatever one is doing you should be able to do better next year. So, you should continuously improve the attainment of the outcomes. But as we all realize the quality of learning will depend very much on the context characterized by students; students are not the same year, teachers also come and go and the processes determined by the system also will change, the management, technology, curriculum and infrastructure all of them play a role.

So, nothing is static, so you have to constantly adjust yourself to ensure that the quality of learning is continuously improving rather than going down. And by going through this process of closing the quality loop it enables the departments to focus on some specific actions leading to incremental improvements.

You cannot vaguely say oh this year students are not that very particularly good, we need to change the tools that are available and so on, you cannot vaguely say you have to be very specific with regard to this course - these are the additional experiments that I have to add in the lab or this is the way these are the additional presentations that need to be made by experts and so on like that, it has to lead to specific actions that is the core of continuous improvement.

So, continuous improvement in the quality of learning is what characterizes the essence of the present NAAC accreditation that should be remembered and all faculty irrespective whether they are very new newly new entrance or to be very senior faculty all of them will have to be part of this continuous improvement process.

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Exercises

- What are the differences between outputs and outcomes?
- Who is benefitted by Accreditation and how? (Write in 250 words maximum)
- What in your view are the advantages and disadvantages of Accreditation? (Write a maximum of five each)
- Present your own view through a diagram of the dependence of the quality of learning on specific factors related to a course you taught.

If you share your responses the instructor will be thankful. (talg.iiscta@gmail.com)

N.J.Rao

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Now, we request you again doing this exercise is more to engage with what has been presented and by doing this many of the things will be internalize. So, try to answer these questions, what are the differences between outputs and outcomes? Who is benefitted by accreditation and how, write maximum 250 words.

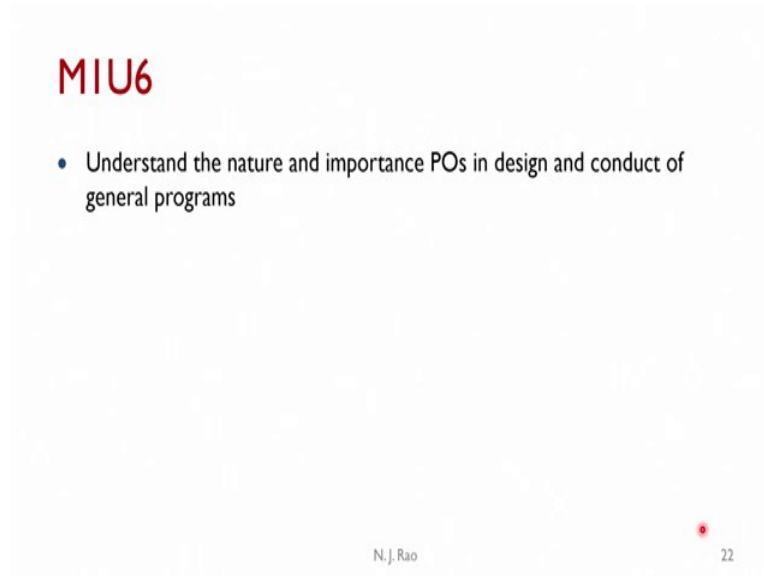
What in your view or the advantages and disadvantages of accreditation? For example, somebody can say disadvantage is the work load of faculty will significantly increase writing all these reports one can say that it is a disadvantage.

Present your own view to a diagram of the dependence of the quality of learning on specific factors related to a course you taught. Take a course that subject has it is own particular features and then you have certain context and some infrastructure related to that and you have certain type of students coming to you identify all the factors that influence the quality of learning.

Quality of learning is defined in terms of course outcomes and their attainment that is how we mention the quality. So, you can also share the responses with the instructor; we

will be happy to listen to or experience or understand your experiences better, you can send it to this particular email ID.

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And in the next unit 6 we understand the nature and importance of program outcomes in design and conduct of general programs and after that we will also at PSOs. So, after understanding POs and PSOs we will move on to how to write course outcomes.

Thank you very much.