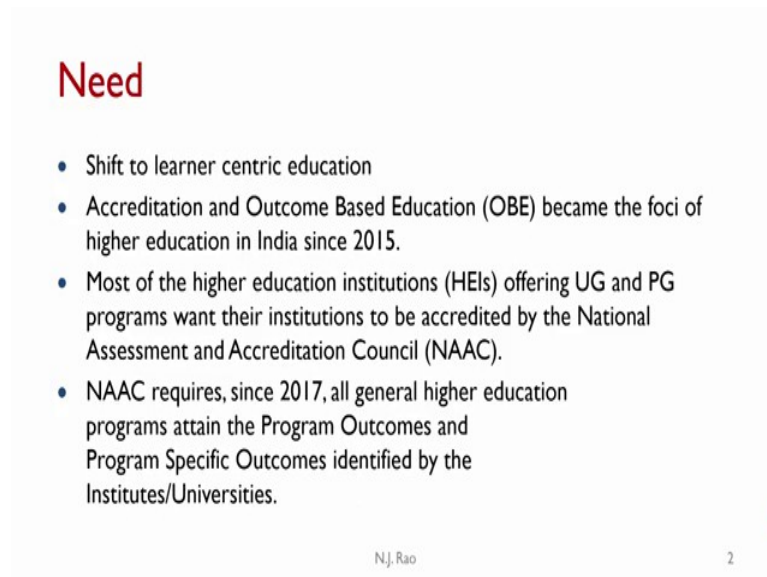


**Teaching and Learning in General programs (TALG)**  
**Prof. N. J. Rao**  
**Department of Electronics Systems Engineering**  
**Indian Institute of Science, Bengaluru**

**Lecture - 01**  
**Overview of TALG**

Greetings and welcome to the course Teaching and Learning in General Programs. We call it TALG. You may ask, why do we require when we have been teaching for such a long time in all higher education institutions, we have been teaching all types of courses, and faculty have acquired a lot of experience in handling teaching and learning in their classrooms. So, why do we require a course like this? Let us look at what is the need for this.

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**Need**

- Shift to learner centric education
- Accreditation and Outcome Based Education (OBE) became the foci of higher education in India since 2015.
- Most of the higher education institutions (HEIs) offering UG and PG programs want their institutions to be accredited by the National Assessment and Accreditation Council (NAAC).
- NAAC requires, since 2017, all general higher education programs attain the Program Outcomes and Program Specific Outcomes identified by the Institutes/Universities.

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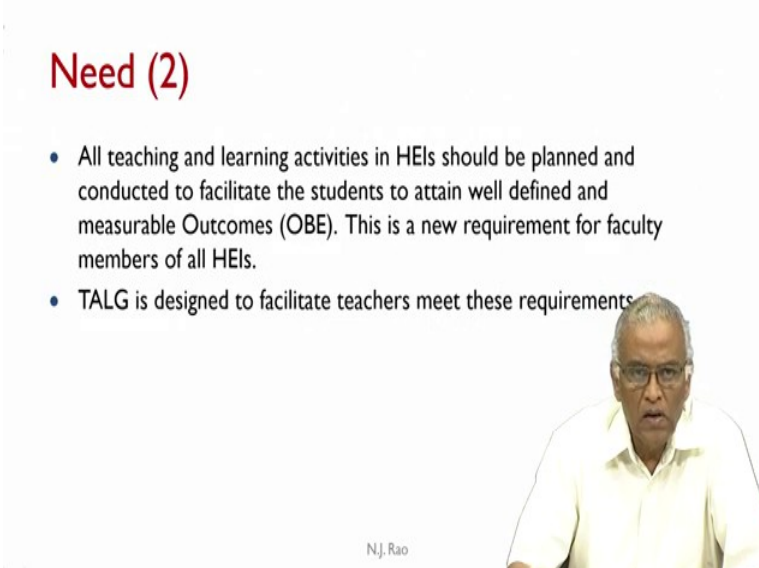
Several things have happened in the recent past with regard to higher education. First thing is shift to learner centric education, that has become **the** focal point for all the changes that have been happening since almost 2015.

There are two things that happened as the consequence of this focus on learner centric education; one is accreditation, a process though it has been in use or it has been used for a long time, but the accreditation processes themselves have changed significantly. Second one is outcome based education officially has become a focus of higher education in India since 2015.

Most of the higher education institutions offering both UG and PG programmes, want their institutions to be accredited by NAAC; National Assessment and Accreditation Council. In fact, the accreditation of a higher education institution by NAAC has become compulsory for all degree Colleges or Universities and so on.

NAAC requires, since 2017, all general higher education programs to attain certain Program Outcomes and Programs Specific Outcomes identified by the Institutes and Universities. So, we are introducing two terms here called **program outcomes** and **programs specific outcomes**, which we will elaborate in the later part of this presentation.

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**Need (2)**

- All teaching and learning activities in HEIs should be planned and conducted to facilitate the students to attain well defined and measurable Outcomes (OBE). This is a new requirement for faculty members of all HEIs.
- TALG is designed to facilitate teachers meet these requirements

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All teaching and learning activities in higher education institutions should be planned and conducted, to facilitate students to attain well defined and measurable outcomes.

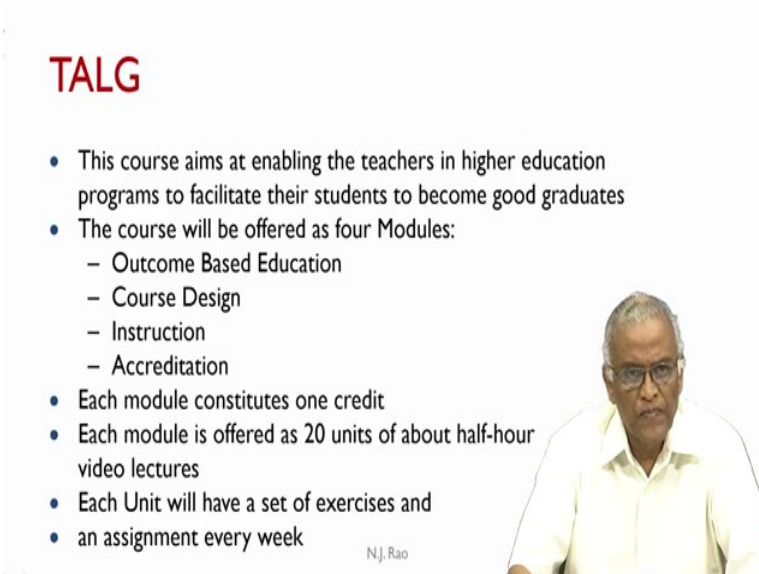
Please note that the focus is on well defined and measurable outcomes and their attainment. This is a completely new requirement for faculty members of all higher educational institutions. As it is something new; everyone will have to get familiar with what this is and what this attainment means. And, that is why even very experienced faculty, all good faculty follow certain processes of their own, which are mostly individualised or intuitively done.

Because of this accreditation requirement as well as requirement of operating within

outcome based education, it becomes necessary for all faculty to understand these issues related to OBE and accreditation, and plan and conduct their courses in this framework. TALG is designed to facilitate teachers to meet these requirements. It should not be viewed by faculty as if that we are you are trying to straitjacket everything. There is no imposition and there is no requirement as far as academic aspects of your course is concerned.

What do you want to teach, how do you want to teach, how do you want to access all this is still completely in the hands of the instructor or the teacher, but what we are trying to say, this in the interest of the students certain processes need to be followed. Only you need to follow a process, but at every stage the decisions related to academic aspects of the course or learning aspects of the course are still in the hands of the instructor. This needs to be clearly understood. This course does not; is not suggesting that the whole thing should be done only in one particular way.

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**TALG**

- This course aims at enabling the teachers in higher education programs to facilitate their students to become good graduates
- The course will be offered as four Modules:
  - Outcome Based Education
  - Course Design
  - Instruction
  - Accreditation
- Each module constitutes one credit
- Each module is offered as 20 units of about half-hour video lectures
- Each Unit will have a set of exercises and
- an assignment every week

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The slide features a video inset of a man with glasses and a light-colored shirt, speaking. The text is presented in a clear, black font on a white background.

This course aims at enabling teachers in higher education programs to facilitate their students to become good graduates. You will also observe from now on the language slightly changes. Because what has been going on is mostly teacher centric; teacher decides what to be taught, in what process it is to be taught and the way that he feels that students will understand better. But still that entire process, what the teacher should be doing in the class, is teacher centric?

Whereas, learner centric framework requires, that all the time you talk about what should the learner be able to do, has he been able to do that, has he learnt it, how do I measure to what extent the learner has learnt? So, the entire language, entire view becomes learner centric. This is the fundamental shift from the earlier methods of teaching and learning.

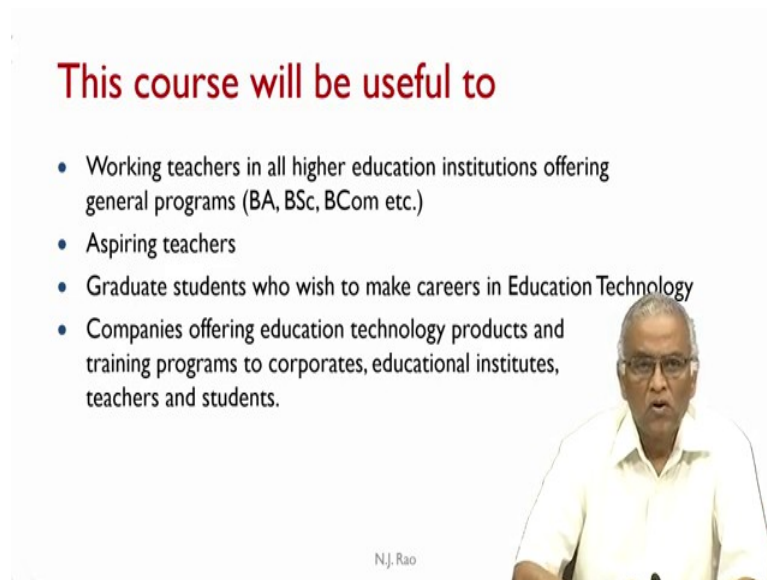
Now, this course will be offered as 4 modules, we will be now looking at only the module 1 as of now. The first one is related to outcome based education. The next one is how do I design a course in the context of outcome based education framework. Then having designed the course, how do I conduct my instruction? We will define each term separately.

Then finally, the fourth module deals with the accreditation processes of NAAC. How do we conduct a course, how should an institute or a department conduct itself so that they can score higher marks; that means, I am doing better as per the NAAC accreditation framework.

The way these modules are designed, each module constitutes equivalent of 1 credit, that is officially defined that way. Each module is offered as 20 units of about half hour video lectures. When you are in this module, you will be listening to or you will be viewing about 20 units each of half hour duration. Each unit will have a set of exercises at the end of unit.

These need not be submitted. An assignment is given every week. Let us assume 5 units constitute 1 week of teaching and learning. Then at the end of 1 week you will have some assignments that need to be submitted. And, they will be evaluated by the processes defined by the NPTEL program.

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**This course will be useful to**

- Working teachers in all higher education institutions offering general programs (BA, BSc, BCom etc.)
- Aspiring teachers
- Graduate students who wish to make careers in Education Technology
- Companies offering education technology products and training programs to corporates, educational institutes, teachers and students.

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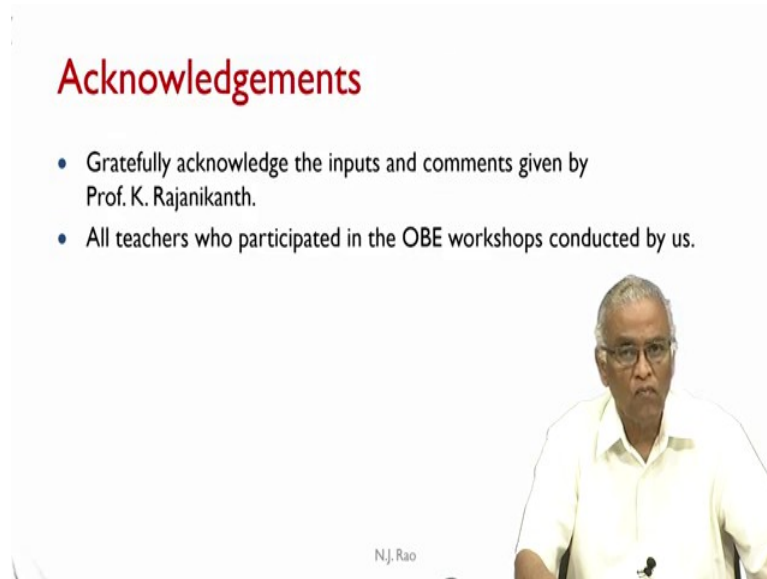
This course will be useful to working teachers in all higher education institutions offering general programs.

We can count something like 40 lakh teachers who will be teaching at BA, BSc, BCom and similar 3 year degree programs across the country. Potentially 40 lakh teachers are the audience for this program/for this module.

Aspiring teachers who want to enter into teaching profession can understand it better, they can understand what their profession means as of today. Graduate students who wish to make careers in education technology. There are some programs where students do take a degree in education or also in education technology. These days quite a bit of instruction is going on in corporate world or in the business world.

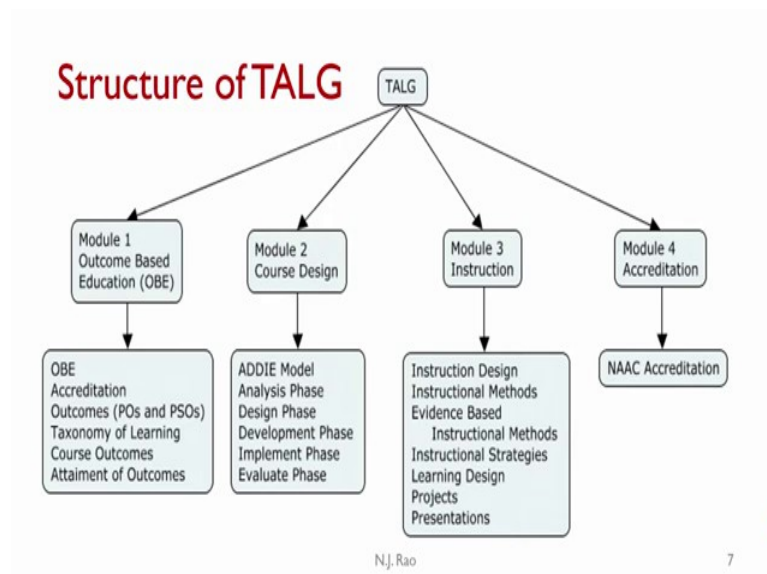
There are several companies that have come into existence who will be designing short programs for the working staff of their own organisations. Companies offering education technology products and training programs to corporates, teachers and students. So, all these are potentially the audience for this course.

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I would like to gratefully acknowledge the inputs and comments given by Professor K Rajanikanth with whom I have been working for a very very long time, and with whom also we conduct the Faculty Development Programs in the area of OBE. I also would like to thank all the teachers who participated may be 30-40 programs we conducted on OBE workshops. They have given lots of their inputs, and we learned quite a bit and we would like to particularly acknowledge their contributions in developing this course.

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Now, let us look at the structure of the TALG. The module 1 is related to outcome based

education. Module 2 is related to course design, module 3 talks about instruction, and module 4 accreditation.

And, here if you look at this course; this course is mainly related to this particular module. We talk about OBE; what is accreditation, what are these outcomes, how do we choose them, and then there is what we call taxonomy of learning, and how do you write course outcomes, and how do you measure the attainment of these outcomes from an accreditation prospective?. This is the structure of TALG.

Now, what happens when the module 2 and module 3 get 4 also get ready? For all of them the module one will become a prerequisite. I may be able to handle this module without going through course design, but still module 1 becomes a prerequisite for these. Same way module 4 the minimum requirement is module 1, whether they go through these 2 are not. These 3 modules will be added at a later stage. This is the structure of TALG.

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## Course Outcomes (TALG)

At the end of this course (four modules) the students (practicing and aspiring teachers) should be able to

### Module 1

- CO1. Understand the nature of Outcome Based Education, and Outcomes of a higher education general programs.
- CO2. Understand the Anderson-Bloom Taxonomy, and the three domains (Cognitive, Affective and Psychomotor) of learning.
- CO3. Write outcomes of a course in a general program that address a subset of Program Outcomes and Program Specific Outcomes chosen by the Institute and the Department offering the program.

Now, let us understand the TALG at a little more detailed level. As we said there are 4 modules students for this course are practising and aspiring teachers. At the end of this course they should be able to let us say at the end of module 1 understand the nature of outcome based education and outcomes of a higher education general programs.

Now, here we are using the word general programs. General programs that is not really

we have not found it as a standard word in any particular place, because all professional programs; like you have nursing, medicine, dentist, or you have chartered accountancy, engineering, these are all professional courses.

And, we did not want to call them as non professional courses. These are also in some sense also professional courses, but because graduates of these programs are not necessarily going to once one type of profession and that is why we call them as general programs.

So, please accept this terminology when we say general programs. So, that is the first outcome of this is “Understand the nature of outcome based education, and outcomes of higher education general programs”. And, next outcome of this is “Understand the Anderson bloom taxonomy and the 3 domains of learning”. This we will elaborate this is what in our view every teacher, at whatever level undergraduate or postgraduate level need to be familiar with to really have a discourse among themselves regarding teaching and learning. You require certain terminology and certain common terms to talk to each other with respect to understanding learn.

And, then next outcome is “Write outcomes of a course in a general program that address is subset of Program Outcomes and Program Specific Outcomes chosen by the institute and the department offering the program”. What it means is - Program Outcomes for general programs are written by the either the university or an autonomous institution. Program Specific Outcomes are written by the board of studies of a particular department offering the program.

So, what happens is the either the board of studies along with the help of the particular instructors, they will write the outcomes of a course. That is what and how to write that what kind of structuring they are going to follow will be presented with respect to this particular outcome CO 3.



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## Course Outcomes (2)

### Module 2

CO4. Design a course in a general program in the Instructional System Design framework of ADDIE. (Analyse, Design, Develop, Implement and Evaluate).

CO5. Design assessment that is in good alignment with course outcomes.

### Module 3

CO6. Design instruction following Merrill's principles for attaining the course outcomes and competencies ensuring good alignment among course outcomes, assessment and instruction.

### Module 4

CO7. Prepare for NAAC accreditation at the institution level.

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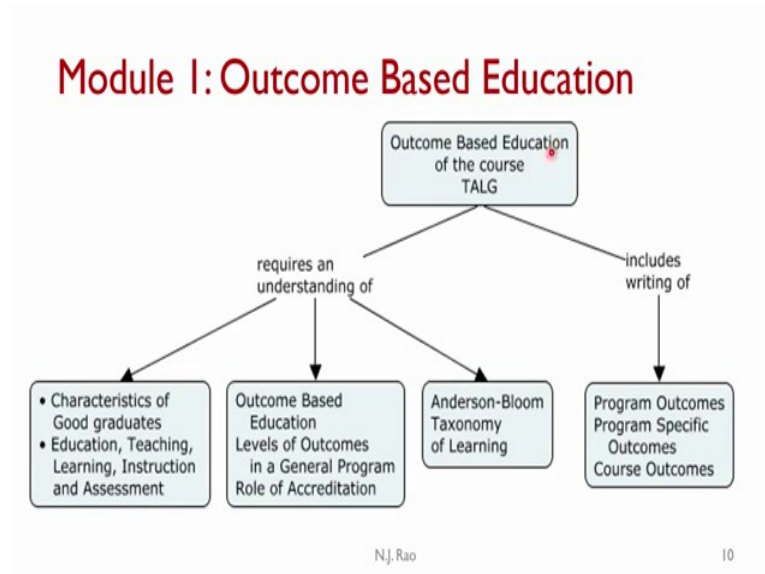
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Now, let us look at module 2 which we will not be dealing in the case of module 1, but to present the whole course CO 4 deals with designing a course in general program in the instructions system design framework of ADDIE. ADDIE is Acronym for Analyse Design Develop Implement and Evaluate. This is the framework we will not be elaborating in this, but how to design a course in the framework of ADDIE. And, the next one CO5 the very critical issue design assessment that is in good alignment with the course outcomes.

How do you design your assessment? We will talk about this assessment issues in a later part. And, then module 3 where we are talking of instruction, we are going to present design instruction following Merrill's principles for attaining the course outcomes and competencies ensuring good alignment among course outcomes, assessment and instruction. The entire module is dedicated to the instruction.

Module 4 addresses directly prepare for NAAC accreditation at the institute. Now, NAAC has defined whole set of criteria and one needs to prepare for it; that means, all faculty will have to participate along with what they have a unit called IQAC - a Quality Assurance Centre of the institute and work with that to prepare the required documentation that is needed for NAAC accreditation ok? So, broadly these are the 4 modules that will that will be part of this course, as I said we will only be looking at module 1 in this.

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Now, this is presented; now coming to the module 1 itself Outcome Based Education. OBE as in short that we are going to use OBE of TALG requires an understanding of what are the characteristics of good graduates. This after all we are not teaching only 1 course, when it comes to a BA or BSC program, at the end he is going to become a graduate and what are the characteristics of a good graduate, we will try to understand that. And, then these are the words that we all use, but these are also somewhat in the education field these are very specific technical words.

So, we will try to explain understand these words education, teaching, learning, instruction and assessment. All are what do we call core elements of teaching and learning. And, then we look at Outcome Based Education formally and then levels of outcomes in a general program that is where we will introduce the words program Outcomes, Program Specific Outcomes and Course Outcomes.

And, then what is the role of accreditation? Then, we spend lot of time in understanding the taxonomy of learning. Right now, it is known as Anderson-Bloom Taxonomy that is the one we follow here, though there are several taxonomies. In India and many of the western countries we are now following this taxonomy. In fact, UGC in it is recent document directly names that we need to follow Anderson-Bloom taxonomy. And, this module requires writing of program Outcomes, Program Specific Outcomes and Course Outcomes. The outputs the learner will produce at the end of this module will be all these

3. That is the description of the module 1.

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**What do Graduates do?**

- Unlike graduates of professional programs, graduates of general programs choose widely different career paths.

They may choose to

- Go for Higher Education
- Become Researchers
- Provide Research Services
- Become Teachers
- Become Administrators
- Become Entrepreneurs
- Go to professional programs (MBA for example) or services (IAS, IPS, IRS etc.)

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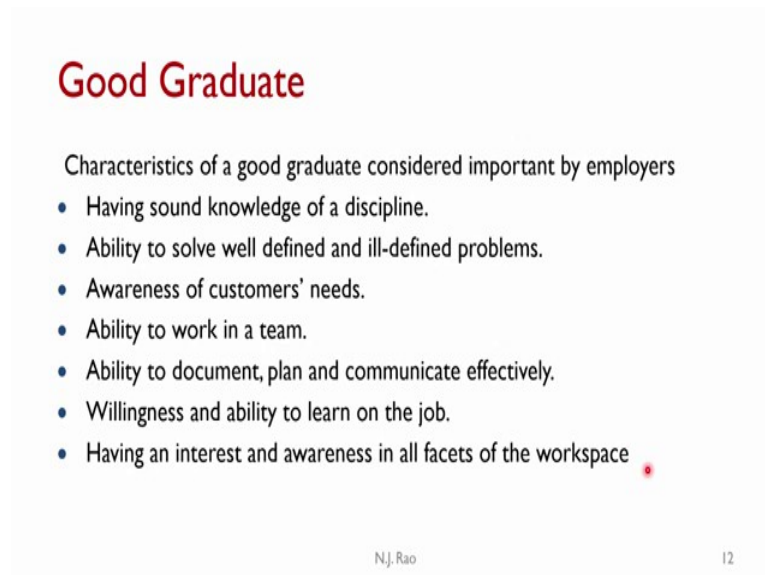
Now, we come to what do graduates do? It is not like; let say in the case of medicine practically may be 99 percent of the graduates of medicine will become doctors. When it comes to engineering it may not be 99 percent, but 80 percent will take a profession that is broadly related to engineering. Whether it is in what do we call specifically at in to a specific engineering area or may be like slightly peripheral like management, marketing that kind of thing.

Whereas such a thing is not possible with respect to general programs; many people use a just go complete a degree just say for general education that is it, they may pursue any kind of career they may choose. So, the percentage of people who would go specifically to higher level programs in the discipline where they took the degree may not be more than 20 percent. Though, that is not an exact figure, but an indicative figure.

So, what happens, what to the graduates do? They may choose to go for higher education only some of them as I said not more than 20 to 30 percent. And, after going for higher education they may become researchers or after a BSc or a BSc or BA or MA or MSc, they may provide some research services in like lab assistants or technical officers in a research laboratory and so on and some of them very small number will become also teachers.

And, quite a few of them will become will take some kind of an administrative job; in a private company or a government organisation, large number of them do that and a small member depending on the family background and their own what do you call their wish or their interest they may become entrepreneurs. And, still a small member of them, go to professional programs like MBA. For example, any degree holder can go for a MBA program or to services right competitive exams and join services like IAS, IPS, IRS etcetera. Of course, that will be very small member.

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## Good Graduate

Characteristics of a good graduate considered important by employers

- Having sound knowledge of a discipline.
- Ability to solve well defined and ill-defined problems.
- Awareness of customers' needs.
- Ability to work in a team.
- Ability to document, plan and communicate effectively.
- Willingness and ability to learn on the job.
- Having an interest and awareness in all facets of the workspace

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Now, this is we looked at what graduates are likely do, but now what are the characteristics of a good graduate; generally, considered important by employers. As a graduate if you go for a job interview; what are the things that the employer is looking for? This is just a kind of a survey not necessarily an exhaustive list, but indicative one. First you should have sound knowledge of a discipline, wherever that he graduated. If he has done BA in economics, he must know the economics discipline.

Even the job actually is not related to the let us say in this case economics. The job does not require directly the knowledge of economics, but what happens when you learn a discipline properly; there are a whole lot of things that you will acquire, looking at. For example, how do you draw conclusions, what do you think are the assumptions, in coming to a conclusion and to what extent they are valid? The whole lot of processes that processes that will be involved in learning that discipline; they will always be useful in

the any job that you do, that is the reason why having a sound knowledge in a discipline, even though you know fully well, that I am not going to do a job in that discipline related to that discipline ok.

And, ability to solve a well-defined or ill-defined problems, in real world sometimes we get well defined problems and mostly we get ill-defined problems. So, how do you handle an ill defined problem? And, in any job you are dealing with some customers with you, even if you are an you are working in an office and handling a one particular processing of the you have some customers; customers who have submitted with whether within the same office or outside the office. So, they become your customers.

So, you need to understand the needs of the customer that is one common requirement for any job. And, then no job is ever done individually. No single person is runs a one company kind of thing or runs one office, there is always a team of people. Maybe organised in a hierarchical fashion, but you one needs to work in a team, ability to work in a team is extremely important in today's world, we will elaborate that a little later.

And, then in what whatever type of job that you do, you need to be able to write something down on a piece of paper and share it with others, and also you should able to plan and communicate effectively. If, you cannot communicate effectively with your own team members or your customers, you cannot do your job right or you may be causing more harm to others than providing a service.

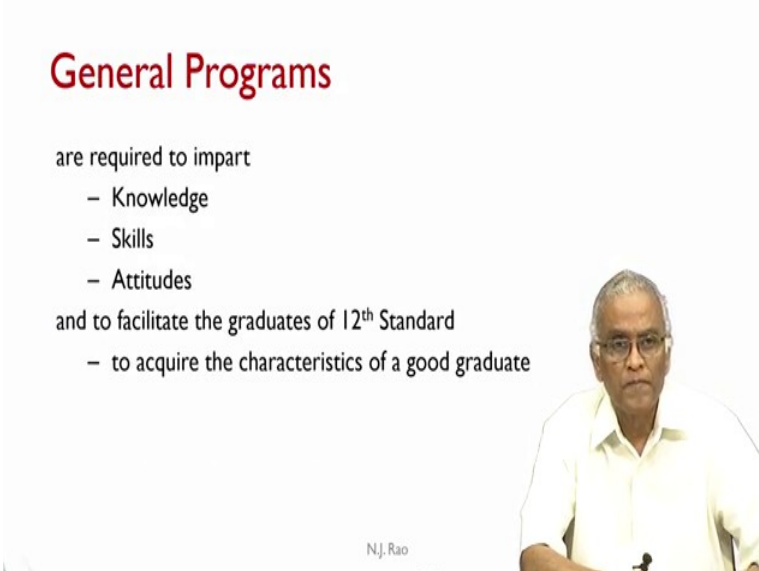
And, then especially in today's world as the technology is changing very fast as all of you know, that today even office jobs are dominantly dependent on the information and communication technology and with that the very processes that you are doing also keep changing all the time. So, one of the requirements is you cannot consider your degrees the terminal degree and you do not have learn anything. So, one should be willing to learn and learn by yourself all the time on the job.

So, learning; ability to learn on your own is a lifetime requirement. And, generally a good graduate should have interest and awareness in all facets of the work space that your involved.

What ever job do there is a work space all the issues related to your job, you have a hierarchy; yours is may be a branch office in a bigger corporate, what whatever that you

have? One needs to understand or awareness, of all the facets of the work space even this kind of knowledge is necessary to protect your job. Suddenly the technology is changed and your job may become irrelevant and if it is a private job you may find yourself on the street. So, one needs to have a interest and awareness in all facets of work space.

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**General Programs**

are required to impart

- Knowledge
- Skills
- Attitudes

and to facilitate the graduates of 12<sup>th</sup> Standard

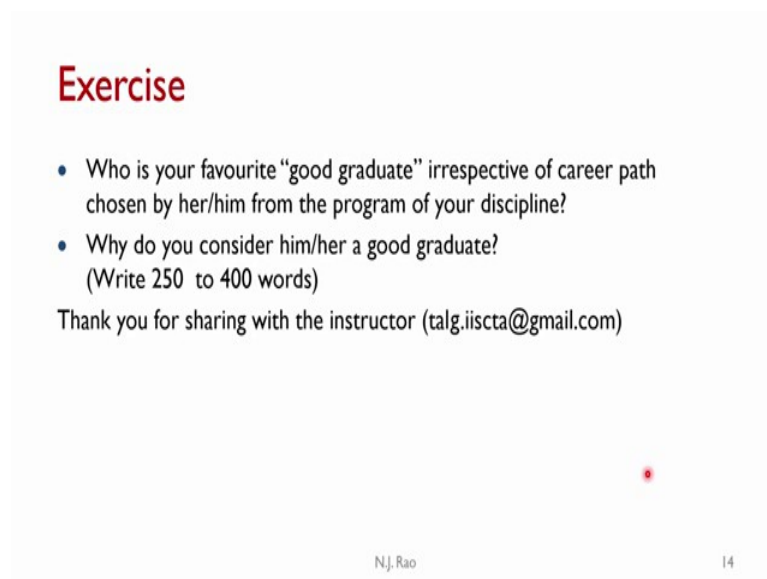
- to acquire the characteristics of a good graduate

N.J. Rao

The slide features a photograph of N.J. Rao, a man with glasses wearing a light-colored shirt, positioned in the lower right corner. The text is centered on the left side of the slide.

Now, we come to the specific any general programme is required to impart some knowledge, skills and attitudes ok? They are required to impart and to whom do you impart? To the graduates of 12 standard. So, that they acquire the characteristics of a good graduate, that is the purpose of any general program. Obviously, you provide some knowledge in a particular discipline, that is a choice the student makes what discipline you would like to go, but the programs impart knowledge skills, attitudes, to 12th what do you call graduates of 12th standard to acquire the characteristics of a good graduate, that is broadly the purpose of any general program.

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**Exercise**

- Who is your favourite “good graduate” irrespective of career path chosen by her/him from the program of your discipline?
- Why do you consider him/her a good graduate?  
(Write 250 to 400 words)

Thank you for sharing with the instructor (talg.iiscta@gmail.com)

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Now, what we would like you to do is an exercise this is a freelance in it is not a kind of assignment kind of thing which will be kind of marked, this is for your to understand what is the good graduate? Who is your favourite good graduate with respect to the career path chosen by her or him from the program of your discipline? Let us say we are a teacher of chemistry department.

Now, you can look at a good graduate from chemistry BA, BSc program, they may go to higher education may not go to post-graduate or research, but still is a good graduate. Do you have any one person like that? And I after identifying can you write in a few words why do you consider him or her a good graduate. And, will thank you if you share that whatever you write as why do you consider them good graduate, it will be good input to us, if you share with the instructor at this particular email. And, then we are going to follow this in the next unit.

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We look at the words education and teaching as we already said we are going to look at the familiar words - education, teaching, learning, instruction and assessment. So, we will be specifically focusing in the next unit on the activities education and teaching.

Thank you very much for your attention.