

Teaching and Learning in General programs (TALG)
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Lecture – 17
Tagging Course Outcomes

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MIUI7: Tagging the Course Outcomes

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Greetings and welcome to unit 17 of a module 1. We will continue with writing course outcomes.

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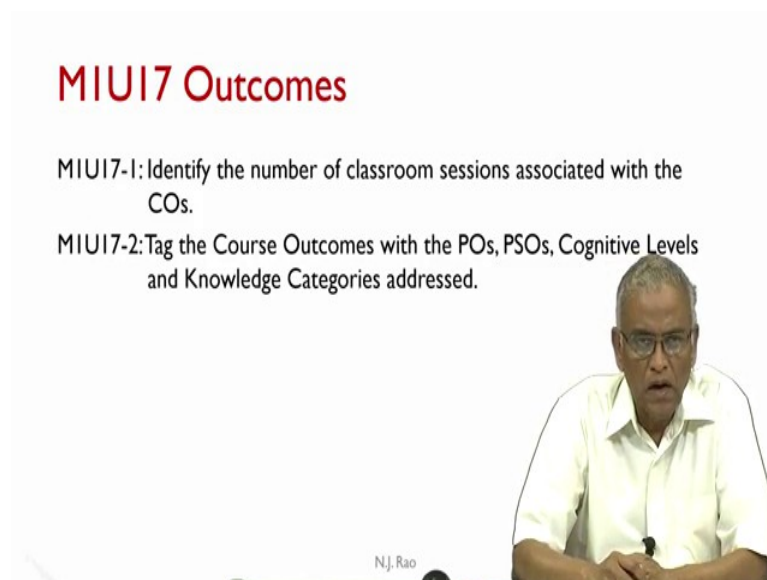
Recap

- Understood writing of Course Outcome statements ensuring their quality and relevance.

In the earlier unit we understood writing the course outcome statements ensuring their quality and relevance. First thing is 6 to 8 course outcomes, which should address the course completely; you cannot address the course only partially. They should address the course completely, should be reasonably distributed, the quality and relevance are ensured by following do's and do not's and also checking the outcome against the list that is provided - check list. Having written that, we have further activities to do and that is what we will do in this unit.

Identify the number of classroom sessions associated with the CO.

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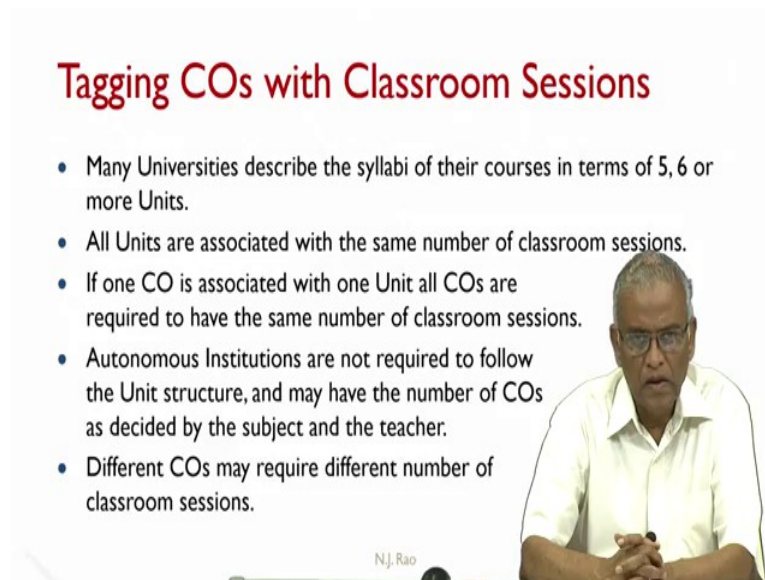
MIUI7 Outcomes

- MIUI7-1: Identify the number of classroom sessions associated with the COs.
- MIUI7-2: Tag the Course Outcomes with the POs, PSOs, Cognitive Levels and Knowledge Categories addressed.

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And tag the course outcomes with POs, PSOs, cognitive level and knowledge categories addressed.

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Tagging COs with Classroom Sessions

- Many Universities describe the syllabi of their courses in terms of 5, 6 or more Units.
- All Units are associated with the same number of classroom sessions.
- If one CO is associated with one Unit all COs are required to have the same number of classroom sessions.
- Autonomous Institutions are not required to follow the Unit structure, and may have the number of COs as decided by the subject and the teacher.
- Different COs may require different number of classroom sessions.

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Many universities describe their syllabi of the courses in terms of 5, 6 or more units. All units are associated with the same number of classroom sessions. But when you are looking it from course outcome point of view, all COs need not be of the same scope in terms of classroom sessions.


If you are associating one CO with one unit then you have the same number of classroom sessions for all the units. One should not be doing especially autonomous institutions are not required to follow the unit structure and may have the number of COs as decided by the subject and the teacher. Different COs may require different number of class room sessions. One can say the number of classroom sessions roughly represent the scope of that CO.

If I am explaining a CO within about one hour or an hour, then the scope is limited. If I am taking something like 8 to 10 classroom sessions to explain one CO; it is not the same as half hour session. That means, the scope of that particular CO is very large. So, that scope is indicated by roughly associating the number of classroom sessions that one takes to address that particular CO.

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Tagging COs with Cognitive Levels

- As stated earlier a CO statement starts with an action verb from one of the cognitive levels, and occasionally by two action verbs from two cognitive levels.
- The action verb enables you to tag a CO with the Cognitive Level. Use the acronyms **R** - Remember, **U** - Understand, **Ap** - Apply, **An** - Analyse, **E** - Evaluate and **C** - Create.
- As there are no sharp demarcation lines between some cognitive levels, there is a possibility of one Action Verb representing two different Cognitive Levels. Use judgment in such cases.



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And now what we want is to tag each CO with certain characteristics. First thing is CO statement should start with an action verb from one of the cognitive levels and occasionally by 2 action verbs from 2 cognitive levels (remember it is occasionally not to the matter of course). The action verb enables you to tag CO with the cognitive level. Use these acronyms: R for Remember, U for Understand, Ap for Apply, An for Analyse, E for Evaluate and C for Create.

For example if you write a CO with an action verb taken from the analyse group then you can tag that CO with “An”. As there are no sharp demarcation lines between some cognitive levels there is a possibility of 1 action verb representing 2 different cognitive levels and you just have to use the judgement. For example identify is an action verb. It can come under understand, it can also come under analyse. So, you should use your judgement in such case.

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Tagging COs with Knowledge Categories

- As mentioned earlier, a CO statement will include one or more categories of knowledge.
- CO statement itself may not explicitly indicate all the concerned knowledge categories. Some knowledge categories may be implicitly addressed. The instructor needs to decide these categories based on the proposed design of instruction and assessment.

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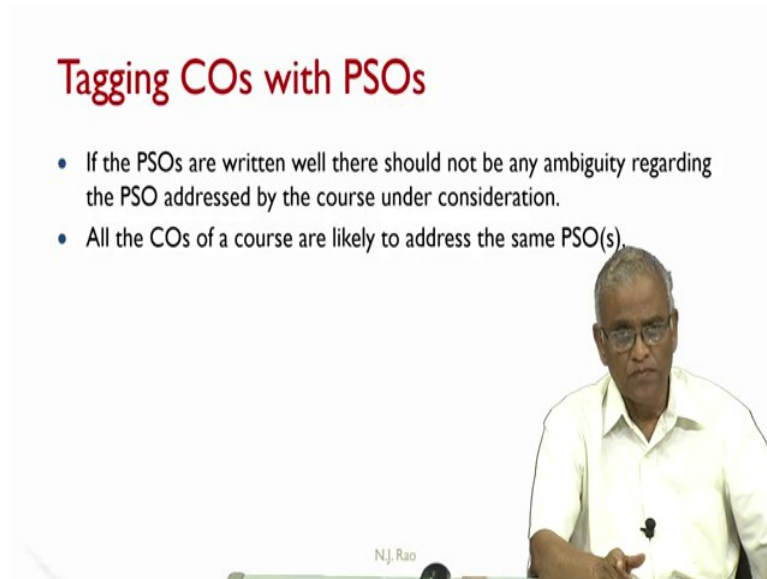
A CO statement can include one or more categories of knowledge. So, you enumerate all the knowledge elements and this in turn will be followed by (as optionally) the conditions under which this action should be performed and also the criteria of acceptance of the performance.

For example, if you are writing an outcome for a laboratory exercise, to what accuracy you would like to measure something, that accuracy will come as criteria. So, wherever there is an outcome related to laboratory work involved, one should attempt to have those conditions as well as criteria of acceptance.

Sometimes the CO statement may not explicitly indicate all the concern knowledge categories. The way you write may not imply all the knowledge categories you are interested and some of them are implicitly addressed and instructor needs to decide these categories based on proposed design of the instruction and assessment.

So, how many categories of knowledge that you want to include is left to the teacher and his understanding of the scope and activities related to attaining that particular CO.

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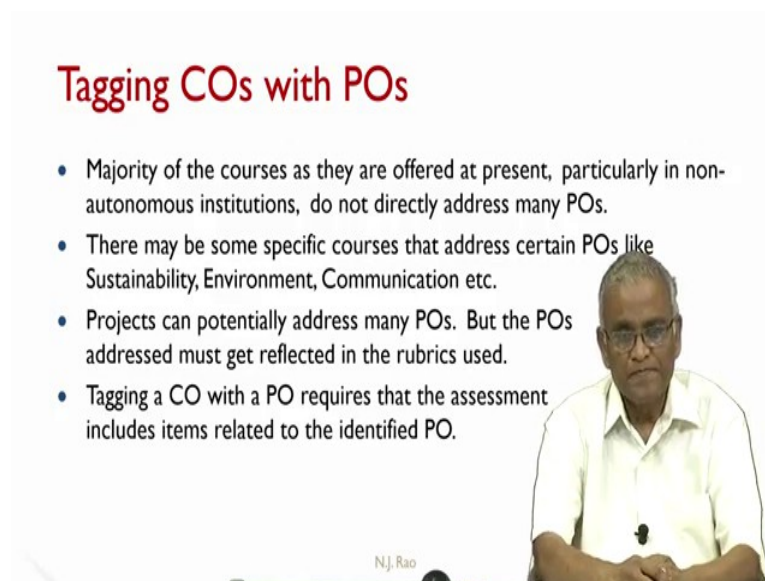
The image shows a video frame of a presentation. The main content is a slide with the title "Tagging COs with PSOs" in red text. Below the title, there are two bullet points: "• If the PSOs are written well there should not be any ambiguity regarding the PSO addressed by the course under consideration." and "• All the COs of a course are likely to address the same PSO(s)". In the bottom right corner of the video frame, a man with glasses and a white shirt is visible, identified as "N.J. Rao".

PSOs are Program Specific Outcomes, let us say you have BSc in Geology; what exactly the student are expected to learn are expressed through 2 to 4 program specific outcomes statements.

Your course should also address one of the PSO. If it does not address any of the PSO, the PSOs have nothing to do with this particular course. Either the course is wrongly put in it or the PSOs were written not appropriately. So, one has to go back and rewrite the PSOs especially if the COs of core courses are not addressing those PSOs.

If PSOs are written well, there should not be any ambiguity regarding the PSO addressed by the course under consideration. Generally if they are written even well or otherwise, (unless you want to make it in a some complicated way, which is, still justifiable) all the COs of a course are likely to address the same PSO. Occasionally depending on how you write, it may address multiple PSOs. So, by and large you can say COs of a course will address one particular PSO.

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Tagging COs with POs

- Majority of the courses as they are offered at present, particularly in non-autonomous institutions, do not directly address many POs.
- There may be some specific courses that address certain POs like Sustainability, Environment, Communication etc.
- Projects can potentially address many POs. But the POs addressed must get reflected in the rubrics used.
- Tagging a CO with a PO requires that the assessment includes items related to the identified PO.

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Your entire program is described in terms of certain POs where for our presentation we chose 6 POs and these POs are program non-specific that means they are applicable to all. We have identified for this particular module, 6 POs, the university may rewrite according to their needs. These POs are discipline non specific; a course in BA in English literature and a BSc course in geology will have the same POs in one university or in one institution.

The teachers should familiarize themselves with these POs and completely internalize. Because these attributes are stated by POs have to be attained by all the students of the program. There is no exception to that having selected that. When I write my CO which PO I am addressing? Either directly or indirectly I should be able to comment on that.

One should not be over ambitious; that means, my course addresses all the 6 POs or you cannot take a position my course does not address any of the POs there, then in that case this course will have nothing to do with the attainment of POs and PSOs.

There is another issue, for example, sustainability environment and communication take this 3. These 3 are associated with the 3 different POs. I may have a course officially put in, for example, UGC requires that every program should have a course on environment and also sometimes sustainability and also there is a compulsory course on communication.

What may happen is I say as it is required by the curriculum these issues are already addressed by PO and my course will have nothing to do with those POs or I can say communication is important to my particular subject even though it is addressed by other course I am going to have some elements of this communication incorporated into my course.

Taking that, you should be careful which POs your course are going to address. You cannot completely take them off nor you should be over ambitious to put too many POs into that, but the moment you say that I am addressing that particular PO, there that particular PO should get reflected in the rubrics used for measuring the attainment.

For example: let us take communication, no marks are at all given to the communication skills of the student, then that PO is only given on the piece of paper, but not actually measured. To tag a CO with a PO, requires that the assessment includes items related to the identified PO.

So, this is going to be a little tough process, but once you do for a course is not required to keep on spending time. So, generally when you are writing COs with proper addressing of POs and PSOs it is generally one time affair hence should be careful about it. To that extent we strongly recommend that you spend considerable time to make sure about what POs and PSOs you are addressing.

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Tagging COs with POs (2)

- A CO of a course can potentially address a number of POs. However, it may not possible to conduct instruction and assessment to address all the identified POs within the available time and resources.
- Assessment items, related to some POs cannot be easily designed, and even if designed cannot be used in centrally conducted and evaluated examinations.
- A Department can arrange for some activities outside the curriculum to address some POs. However, the scope and distribution of these activities need to be carefully planned by the Department.

While a CO of a course can potentially address a large number of POs, but you may not have the required time and resources to ensure that happens because the time available to you remains the same for whatever number of working weeks you have in your semester.

There is another issue. Even if I associate a particular PO with the CO, the assessment related to that cannot be easily designed sometimes and even if you are able to design it cannot be used centrally conducted and evaluated examinations as more than 90 percent of the colleges in India are affiliated to some university. So, it is centrally conducted exam in most of the times and in such you cannot design assessment related to some POs. that should be remembered.

A department can also arrange some activities outside the curriculum to address some POs, but that is easier said than done, the scope and distribution of these activities need to be carefully planned by the department.

As you can see the outcome based education demands that many things are planned and should be monitored at the department level. A course does not exclusively belong to a teacher, especially core course. The core courses are really the responsibility of the entire department. that should be remembered otherwise which POs you are planning to address not address should be decide centrally rather than individual views or conveniences.

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Course: Developmental Biology

Credits: 3:0:0 Course Outcomes: At the end of the course the student should be able to

	Course Outcome	POs/ PSO _s	CL	KC	Class Sessions
CO1	Understand the structural and functional features of human reproductive system.	PO1, PSO3	U	C	5
CO2	Understand the type of eggs based on the amount, distribution and position of yolk	PO1, PO5, PSO3	U	C	6
CO3	Compare the early developmental process of egg up to gastrula stage	PO1, PO3, PSO3	U	C	6
CO4	Illustrate the development of 18 hr, 24 hr, 33 hr, and 48 hr chick embryo and development of extraembryonic membranes	PO3, PSO3	U	F, C	4
CO5	Understand aspects of human development including pregnancy, parturition, birth control, infertility, developmental defects and miscarriage	PO3, PO5, PSO3	U	F, C	8

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Example of a course: this is actually designed by some faculty members who are offering the course on Developmental Biology you may agree or disagree with that that is a different issue, but the structure of this is how all of you need to design your course outcomes and tag them appropriately.

It is a 3:0:0 credits course, and how many lecture classroom sessions can you have that depends on the number of teaching weeks that you have. Teaching weeks - our survey shows it could be 14, 15 or even 16, but it should never be more than 16. Though in some places people automatically take 18 weeks or 90 days as the working days, but you cannot have all the working days only for the classroom instruction.

Something will have to be left for internal evaluations and end semester exam, preparatory things and so on. So, the maximum is 16 and normal it is about 14 to 15. So, here we take 15 weeks as the norm; that means, for a 3 credit course you are taking 3 lecture 3 classroom sessions per week then the total number of classroom session should be 45.

If you want to make it 16 weeks then it is 48. Please remember that the scope of each CO should be adjusted so that you should not exceed the total number of classroom sessions. Here as we said we took it is 45 and also the numbers of classroom sessions are not necessarily uniform across all COs.

In the first page it itself we have seen the CO5 takes 8 class room sessions in the view of the teacher and CO4 takes only 4 sessions. They can differ from one CO to the other. Then take the first one, “understand the structural and functional features of human reproductive system”. Now, the word understand itself very clearly says it belongs to cognitive level- CL and we put U as a label for that tag for that.

And then the knowledge categories it is mainly conceptual - “Functional features of human reproductive system”. If you want you can also add the earlier category namely Factual knowledge. So, one can say this knowledge category can involve Factual and conceptual. Then comes POs and PSOs. So, the designer of this course considers it addresses PO1. PO1 is related to dominantly critical thinking; that is, thinking dimension is addressed through this CO.

Developmental Biology is part of PSO3 (PSO3 is one PSO). So, PSO3 is marked. Come to CO2 –“understand the type of x based on the amount distribution and position of yolk”. It includes PO1 and PO5 as well. So, another PO is included and here you have cognitive level understand and knowledge category conceptual and class sessions are 6.

Correspondingly one has to tag like this. You are supposed to have written course outcomes of your course as a part of the earlier unit having written that you can go through another iteration by tagging those course outcomes.

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Course: Developmental Biology (2)

	Course Outcome	POs/ PSOs	CL	KC	Class Sessions
CO6	Describe the prenatal diagnostic techniques.	PO1, PO3, PSO3	U	F	3
CO7	Explain the scope of IVF, embryo transfer and stem cell research, and the ethical values involved in their practice.	PO3, PSO3	U	C	5
CO8	Enumerate the different types of placenta and its functions in mammals.	PO1, PSO3	U	C	3
CO9	Understand the mechanism of embryonic cell differentiation and gene action leading to differential potency of cells	PO1, PO5, PSO3	U	C	5
Total Hours of instruction					45

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Now, completing that there are 9 course outcomes, 9 is slightly higher, but as I said there is no hard and fast rule to say exactly one member. So, here this teacher decided to have 9. So, that it is it clarifies for him as well as to the students what exactly are the outcomes. As we can see the total hours of instruction finally, add up to 45. So, the assumption is we have a 15 teaching weeks in a semester effectively. So, PSO3 is Common for all and then the axial POs addressed differ from one course outcome to the other. So, that is how in a tabular form like this you have to write your course outcomes.

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Exercise

- Tag the Course Outcomes you developed with POs, PSOs, Cognitive Level, Knowledge Categories and number of Class and/or Laboratory Sessions, and present it in the table format indicated.

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

	Course Outcome	POs/ PSOs	CL	KC	Class Sessions
CO1					
Total Hours of instruction					

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Exercise - tag the course outcomes you developed in the earlier unit with POs, PSOs, cognitive level, knowledge categories and number of class hours. If there is a laboratory associated with that you are integrating the laboratory with the theory course then next to class sessions you can add one more column laboratory hours or some course may have field activity- field hours you can add that and you can add the number of hours separately. So, this is the format in which you can write your COs and we would appreciate if you share your output with the instructor at this mail address.

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MIUI8: Attainment of COs

- Compute the attainment of Course Outcomes and close the Quality Loop around COs

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And in the next unit we will try to compute the attainment of course outcomes and how to close the quality loop around the COs.

Thank you very much for your attention.