



COMMONWEALTH *of* LEARNING

Commonwealth Educational Media Centre for Asia (CEMCA)

Life Skills for Engineers Level I

MOOC

Course Materials



Massive Open Online Course
on
Life Skills for Engineers Level I
Course Materials



Commonwealth Educational Media Centre for Asia
New Delhi

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About the Course

In the age of complexity and turbulence, resulting from unpredictable factors coming together, one must develop the capability to think, strategize, plan, execute & lead successfully. Globalization, digital technology and a new demographic are colluding to create a new environment of complexity and are demanding new ways of thinking. Inculcating & imbibing Life skills in addition to engineering knowledge is essential, desirable & vital in addressing current and future challenges. Engineering is not just about designing, planning, implementing, executing and measuring the impact of various technologies. A good engineer needs to be a perfect amalgamation of the knowledge in his discipline and life skills. Life skills bring tremendous refinement in professionals' and engineers' behaviour; prepare them for the change and the way to approach their professional work, job market and finally their life. Inculcating Life skills can make youth, students and engineers more positive in their attitude and will bring overall wellbeing to them.

The youth, students and engineers will find this Massive Open Online Course (MOOC) on Life Skills more informative and engaging. It will run over six to seven weeks for each Level and requires approximately three to five hours of time each week. Designed to accommodate learners' busy schedules, the course offers flexibility with options for learning the content. The learner will learn from readings, videos, discussions with co-learners and instructors, meaningful exercises, quizzes and short assignments. Certification is available for those who wish to complete all required exercises and quizzes.

Course Objectives

- To develop communication competence in prospective engineers.
- To enable them to convey thoughts and ideas with clarity and focus.
- To develop report writing skills.
- To equip them to face interview & Group Discussion.
- To inculcate critical thinking process.
- To prepare them on problem solving skills.
- To provide symbolic, verbal, and graphical interpretations of statements in a problem description.
- To understand team dynamics & effectiveness.
- To create an awareness on Engineering Ethics and Human Values.
- To instil Moral and Social Values, Loyalty and also to learn to appreciate the rights of others.
- To learn leadership qualities and practice them.

Introductory Video: <https://www.youtube.com/watch?v=qAsALeMAXbo>

Who should attend this Course

This course is open to All but will bring greater benefits to engineering students and in-service engineers.

Course Duration: Level 1: Six Weeks

Course Structure Level I

Module I: Effective Communication Skills for Engineers - 1 (Basic-LSRW & Non-Verbal Skills)

Module II: Effective Communication Skills for Engineers - 2 (Job Application, Oral Presentation Skills)

Module III: Thinking Critically - 1

Module IV: Importance of Ethics in engineering profession 1 - Introduction & evolution

Module V: Building Leadership Capabilities in Engineers - An introduction

Module VI: Effective Leadership - Models, Traits and Qualities

Certification

Qualifying learners will be given certificates based on their involvement and performance. Participation certificate and Competency certificate will be issued by Commonwealth Educational Media Centre for Asia (CEMCA) and University of Hyderabad (UoH).

Criteria for Certificates

The learner will be awarded either a Participation Certificate or a Competency Certificate at the end of the course based on his/her active involvement and participation. Certificates are awarded on the basis of:

1. Attendance: Calculated on the basis of the number of videos watched or audios heard or PDFs downloaded. Videos, audios and PDF's are easily accessible from the course platform.
2. Performance: Calculated on the basis of marks secured in quizzes and assignments.

Criteria for Participation Certificate

Should score a minimum of 50% in Attendance and at least 40% in one of the quizzes & assignments.

Criteria for Competency Certificate

Should score a minimum of 70% in each category, i.e., Attendance and Performance.

The learner's attendance will be counted only if learners access the videos and audios on the Course Platform.

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Week One

Module 1: Effective Communication Skills for Engineers- 1 (Basic- LSRW & Non-Verbal Skills)

Instructor's Name- Prof. C. Muralikrishna



Manas R Panigrahi

Module One

Lesson one: Introduction to Communication

(LSRW Skills)

Video url: <https://www.youtube.com/watch?v=k53y5xwm2S4>

Video Length: 08:16

Hello dear learners, I am Professor C. Muralikrishna. I teach and research in the Department of English Osmania University, Hyderabad. I am the instructor here and I welcome you all to learn and participate in week 1 module 1 of this massive online open course MOOC on life skills for engineers. To begin with let me tell you a little bit about the module. I shall be discussing in module 1 which will be spread over 6 lectures introductory aspects relating to communication including and not just limited to LSRW skills- listening, speaking, reading, writing skills and also nonverbal communication while emphasizing on the need to overcome some common barriers to communication. As some of you would have known at the end of the week and module 1, you are advised to attempt an evaluation quiz comprising 25 questions. Among the many takeaways, let me assure you that this module will be of great help to you all in understanding and internalizing the dynamics of day-to-day communication in English. When I said internalization I mean this entire process of absorbing and imbibing the aspects relating to communication. With these words I wish you all a very enjoyable and productive learning time. I shall now move on to lecture 1.

Lecture 1 is titled Introduction to Communication- LSRW skills. Communication is a complex process of give-and-take with innumerable intricacies and dimensions to it. When we say complex process, we don't mean complicated process; what we mean here is- it has got many layers attached to it -when all these layers are activated properly in an appropriate measure, then you have the final outcome of effective presentation. That is what we mean when we say intricacies and dimensions to it. It is also seen as a set of competencies and it is taught and learned as a package generally involving training in all these skills pertaining to listening speaking reading and writing. It is also applicable, these skills, to any language learning not just the language in this context that is English. Listening, reading are generally seen as receptive skills and speaking, writing are considered as productive skills- logically so because- when you are listening and when you are reading something you are receiving from a speaker who is speaking -as a listener you are receiving and when you are reading something you are receiving something from the author who has it in that text. So in that sense you are at the receiving end of the communication process; that's why reading and listening are considered as receptive skills. On the other hand speaking and writing - they involve lot of more of outward exhibition of expression; that's why they are called productive skills; you produce something through speech the way I am trying to say words

and communicate to you the way I am trying to write and tell you a few things so these are considered as productive skills. Now these four skills LSRW-listening speaking reading writing; together they constitute the verbal component of communication; now when I say verbal component I mean component that involves the use of language, the use of words, the use of phrases the use of sentences. But there is a huge terrain which constitutes towards the success of communication- which is- nonverbal and effective human communication involves a lot more than just proficiency in these four skills; so more than the verbal language, communication needs a lot of nonverbal input; now what do you understand by nonverbal input- firstly it involves appropriate body language; when you say something even when you're listening to somebody your body language communicates many things you need to be sensitive to what you're suggesting through your postures, through your gaze, through your facial expressions- nonverbal communication also means right kind of intonation- is your tone monotonous, is it just flat or does it have some kind of high, low pitch. so good intonation is a blend of high and low pitches- so right intonation- because intonation also conveys many things and an open attitude thirdly, a good open positive attitude is a big plus in making your communication effective and willingness on our part to give and take; you need to give information you need to take information; only when you're open and positive, you get a good feedback and nonverbal communication also involves having empathy- you need to possess this quality of going into the shoes of the listener and trying to understand his or her problem to have empathy- it's not sympathy alone- is not enough sufficient- you need to empathize; actually experience the pain or the pleasure of the person who you are talking to and also a capacity to look at situations from varied perspectives; every situation can be understood from multiple perspectives; so you should be sensitive; you should be aware of these many perspectives that exists in a situation; so all these together comprise the significant nonverbal communication- the nonverbal component of effective communication. Given these nonverbal factors, verbal language becomes just a platform to promote communication. We spend so much of energy and so much of concentration all these LSRW skills, but that actually comprises platform much of the communication is at the nonverbal or domain. In fact people have, experts have come up with percentages. Most experts now are agreed on the following: seven per cent of your communication is a verbal component and 93 percent of your communication is a nonverbal component- this is the contributing ratio that they have come to a consensus to- in any instance of effective and successful human communication these factors have to be borne in mind, you cannot neglect the nonverbal communication; you also of course cannot neglect the 7% LSRW skills. You may in your spare time go to these web links and read the content for your further enhancement. These links have been detailed here- links relating to skills you need- ethos teaching English and others and benefit more from these.

Thank you, learners.

Module One

Lesson two: Chain of Communication

Video url: <https://www.youtube.com/watch?v=zCnVtefegzc>

Video Length: 08:07

Hello welcome today two lecture 2. The title of this lecture 2 is called the chain of communication. A complicated process in itself, communication takes place all around us all the time. In fact we all spend around 70% of our time receiving or sending messages. Essentially it involves the sender or the communicator and the receiver. So 70% of the time that's what the experts say we spend our waking hours trying to communicate with others and also trying to understand others so this is a huge change that is involved in this process of communication we take things for granted, but there is this person who is actually sending the message to the person who is receiving the message and then there is a feedback mechanism from receiver to sender and again from sender to receiver because it's not just words but also the body is speaking the mind is speaking and attitude is speaking. So there is a chain involved in this. It is sent in a certain medium through encoded messages. When we say medium we talk about spoken medium or written medium, but the chain is there whether its written medium or spoken medium. The receiver in turn decodes the message. He decodes this medium called language - spoken language or written language decodes it and understands it and sends back the reactions to the sender in the form of feedback so this is a very important link between the sender and the giver of the feedback, without a proper feedback there is a tendency for the communication to break down. The beauty of the whole process however lies in the nature of communication itself. Language, be it any form in any form as a potential to mean many things at the same time because so many multiple factors are involved in the chain of communication that ambiguity is possible. It keeps happening all the time. People misunderstand or people don't intend to say something but they end up hurting the sentiments or feeling of the others because either the word order is not correct or the body language is not appropriate. So even though you are not intending the attitude might be positive but the words you are using the body language you are using may be offensive. So it can mean many things in a situation so one has to keep disambiguity making it clear what the messages is. Thus the sender sends a message but the receiver is free to make meaning of the communication depending on so many factors primarily the mode of transmission, how you are sending the communication, the kind of encoding and of course more importantly his own state of mind while receiving the message. The listener or the reader when he is trying to understand whatever is being expressed how we process the information how you understand much depends on his state of mind. If somebody is already in a negative mind set then a very well intension message also can be misunderstood by the listener and an open attitude will always help in getting the picture close and neither too willing to be positive nor will being very blind and closed help in this chain of communication. Here in this particular slide you can see the image showing segments of human communication you have the source, the sender here is encoding a message through a channel written channel open channel is basically the language the verbal part and of course the nonverbal part he will encode the message and then at the receiver's end he is decoding and is also sending back his response - you see the feedback loop here and this

entire thing between the source that sender and receiver the audience there is this field of experience. It also includes noise. The person who is trying to understand the message has two sort of separate the noise from the meaningful sound that are coming through the speaker's mouth. So noise is a big distraction there but that is part of the field of experience. So this image makes it very clear. It's not very complicated. I have also written the source from where this image has been taken- one of the Google links there. You can explore this link more in detail. Here is a beautiful quote from person called Leo Buscaglia. I read the quote: Two often we underestimate the power of a touch, a smile, a kind word, a listening ear, and honest compliment for the smallest act of caring all of which have potential to turn your life around. If you read this closely and reread it you'll understand the significance of vital importance of nonverbal body language that it would that goes a long way in making your communication positive and effective. The power of a touch, body language - touching, patting on the shoulder, shaking hands - these are gestures of great warmth, appreciation. A smile, people say smile is the best dress you can have; without a smile all your costly dresses are also not so effective, you need to wear your smile as often as possible. A kind word, a kind and a sincere word helps loosen up and make the presentation more successful and effective. A listening ear, in the previous slide we spoke about empathy. Empathy is a by-product of somebody who has a very good listening ear you need to be willing to listen; you cannot pretend to be listening. You only end up hearing some sound, but actually should be able to listen and empathize with the person. An honest compliment also is a big plus... people... Mark Twain once said "I can live for one year happily on one sincere compliment that I received." So you can see the power of a compliment. You need to be positive where there is a need to appreciate you should appreciate people, you should not try and ignore that. All these form part of your nonverbal communication. It's a beautiful quote by Leo there" so I thought I should share this with you. Keep reading the quote you will get many more layers of meanings. That is the best part of communication. And these are classic quotes. And then in your spare time, I suggest you may go to these links 1, 2, 3, 4... the same links which also talk about more in detail about different aspects of communication.

Thank you learners!

Module One

Lesson three: Elements of Human Communication

Video url: <https://www.youtube.com/watch?v=oQjBpCzYYyk>

Video Length: 05:53

Hello learners. Welcome to day 3 lecture 3 title of today's lecture is 'Elements of human communication.' A very interesting component elements of human communication. This is a process which is significant and is not a dull and a passive process. It is a very dynamic and active process comprising several important elements and what are these elements. As we have seen in the first two lectures communication process is very intricate, multi-layered, dynamic and very important medium of interaction between people. So it has got a few vital elements. What are these?

Firstly, Initiation - communication begins when the source initiates statement. Somebody has to initiate with the statement or with a gesture and then it gets initiated. Then there is Feedback - once the receiver receives he or she has to give feedback. The response of the receiver that is sent back to the source forms the feedback. Then you have the channel. Channel connects the source that is a speaker and the receiver. Then you have the very important situation as a factor. Situation is a place or setting in which a communicator event occurs. This determines largely, what kind of a language, what kind of an attitude you assume depending on situation you keep varying these. Then, we also have Purpose. Every communicative event has a purpose behind consists of the intention of the source or the speaker that is a communicative aim of the speaker. Then, the attitudes in world. Both the sender as well as the receiver their attitude matter very much. The Speaker and the listener carry with them certain ideologies, certain world-views, beliefs, likes, dislikes and aptitudes. Ideologies how they have been conditioned during their development from a child to an adult, from an adult to an elderly person and what are their likes and dislikes. All these form part of their attitude development. This is a vital factor. Then of course, we cannot discount this, this is the knowledge element. Speaker has to possess adequate knowledge of the message that is to be transmitted. This is where some people flounder, some people make the mistake. That's why very often you find some people are very articulate. They don't seem to say anything much in terms of substance. It clearly shows that that they lack the domain of the subject in question. Then of course, if you have knowledge you also have to have expression. Expression consists of the ability to transmit or communicate through verbal and nonverbal medium. Fluency of expression, clarity of expression and intelligibility. Now, what is this intelligibility? Fluency you all know, Clarity clearness and intelligibility of expression pave the way to effective communication. Here, intelligibility means when you say something or when you speak out something the listener should be able to find it very clear and he should find it easy to understand you. There people who are knowledgeable who know the language but somehow the delivery is so improper that they don't they are not intelligible, so intelligibility also has to be taken care of. The other vital factors of course language you have been saying this like I was just told you there are people who can be articulate about nothing they have language, there are people who have domain knowledge but they don't have language, so language

is one of the most important elements of the human communication process. To know the syntax, the vocabulary, the appropriate words and also how words are pronounced all these form part of language.

Then you have intellectualism. Now communication is sustained and it becomes effective only in an intellectual ambience. I underline this Ambience that is the speaker and the listener have to express and understand views calmly mark these words calmly, rationally, reflectively, precisely and efficiently. That's why you will never have effective communication in an atmosphere of noise, in an atmosphere of ill-will, fighting. Their language becomes not a means of communication but a source of confrontation. So an intellectual climate is very much essential. What we mean by Ambience here is that most of the climate, the surroundings should be calm, it should be rational, it should be very contemplate to reflect to precise and efficient. Only then good quality communication can be sustained. Here again in your spare time you need to go to this web links and reinforce whatever you have been listening to me and further your knowledge and thank you very much. We will meet again for the next lecture.

Thank you!

Module One

Lesson four: Common Barriers to Effective Communication

Video url: https://www.youtube.com/watch?v=iFMFXyICK_I

Video Length: 12:22

Hello learners welcome to day four lecture 4, the topic for today's lecture four is common barriers to effective communication. Till so far we have seen what the factors that promote good communication are. Having these factors in your favour still your communication can go wrong if you don't take care of certain barriers which crop up either with your knowledge or with outside your knowledge. Now let us see what are these barriers to communication; to begin with the use of jargon -let me underline the word jargon ; over complicated, unfamiliar and/or technical terms are generally the barriers; to go on using too much of technical knowledge because you are very good at the domain knowledge or unfamiliar or old-fashioned terms or complicated ornate words then they mar, they spoil the intelligibility of the communication that itself is a big barrier now; there are some other barriers other than this- let us see what these are. There are emotional barriers and taboos; now what are these I have already underlined this just pay attention to this I marked a tic, there are some people who may find it difficult to express their emotions and some topics may be completely off-limits or taboo; certain topics don't bring out the expressive power in people like those topics could be too personal to be discussed in public domain; too injurious when you recall them- it harms them in the recall so they don't want to talk about it and there are certain taboo topics -don't want to talk about topics which are not acceptable in respectable society so you avoid this; so these are barriers you need to take care of; emotional barriers; you have to overcome emotional barriers if you need that you should do it; taboos- of course a language community will always determine what is acceptable and is not acceptable what is a taboo, then you have to clearly follow the rules governing that particular speech community; a second as a kind of an extension of this taboo or difficult topics may include but are not limited to politics- like if you're talking about present-day government or opposition's it might irritate some people; it might break down the communication; you can - topic also could be a religion- people get very emotional when it comes to matters of political leaders ; so these are best not spoken in public sphere and disabilities- mental and physical disabilities... people don't like to be told that they have certain visibilities- they are talking to somebody who has a disability- these are certain problems which have to be kept in mind- also sexuality and sex -don't talk about topics like these are unacceptable in decent context; racism-he is from the black community -she's from the white community- they are the Red Indians- the Native Americans ;constantly talking about racism you can talk about racism if you are talking about anthropology or as a subject but you cannot bring in everyday communication - you will be giving a wrong image to the listener that you are racist that you are very obsessed with these narrow definitions and they don't like to communicate with you; it's as simple as that and any opinion that may seem as politically and socially inappropriate so it's up to us to decide it is up to you to decide what is acceptable in a community, what is unacceptable in a certain context and avoid or take up

those topics; lack of attention, lack of interest, presence of distractions or irrelevance to the receiver- suppose, I am saying something and if you find that this is very irrelevant to you I'm just giving you a of an example but in my experience I found that this topic interests many people but it affects everybody in case you don't find this is relevant it becomes a barrier to communication; will stop understanding what I am saying similarly if you don't have proper attention power, you are very distracted then I can't even though I try hard it will continue to be a problem and if there are distractions around- certain music is going on; somebody is dancing in the background; somebody is quarrelling -these are distractions which spoil our focus or honey bees are flying all over -these are restrictions which can mar communication. Next factor /barrier is difference in perception and viewpoint. As we said earlier in our initial lectures the truth is something the statements are something but there are many perspectives to a topic so if there are constant very solid likes and dislikes; differences between the speaker and the listener then communication will come to a standstill. If nobody wants to understand the other person's point of view, then it becomes a hindrance or a barrier ; then of course physical disabilities vary; it's common sensical factor... somebody has a hearing problem or a speech difficulty on account of intrinsic or extrinsic factor. When you say intrinsic let me underline this we mean by birth or by accident something happens and they are not able to speak properly or hear properly; so these are the factors which have to be borne in mind; physical barriers to nonverbal communication we have said so much about nonverbal communication suppose you are not able to see me speak like it happens in telephone communication one of the shortcomings or the limitations of telephone communication is that you don't get to see the body language, the nonverbal communication of the speaker, you just hear this voice where which conveys the tone or the words but in a face-to-face personal communication, if you are not able to see the speaker on account some cloth or some tree or somebody constantly moving that will be a problem- not able to see the nonverbal gestures posture and general body language can make communication less effective. phone calls, text messages and other communication methods that rely on technology or are very often less effective than face-to-face communication for this reason that they can't see your body language which is such a major player in communicating effectively. Let me go on to the next slide-language differences and difficulty in understanding unfamiliar accents; if I go for two days to America and come back and try to speak like an American my friends my people who normally I interact well they'll stop understanding my pronunciation; this is affected pronunciation or sometimes there are linguistic or dialectal differences. I might speak one variety of Telugu or Hindi or Marathi or Oriya because of the geography from where I come and you might be speaking a different dialect that might also create problems of communication. so pronunciation if it is very complicated you stop understanding the person so that is what we mean by unfamiliar accents and unfamiliar dialects and unfamiliar languages; well further down we have expectations and prejudices which may lead to false assumptions or stereotyping. Now, I underline already false assumptions and stereotypes. If you stereotype people like all whites are very exploitative; if I go with that kind of a conditioning then I'll stop being positive to white people; if I say all South Indians are like this all North Indians are like this then I am already stereotyping -this is not a very positive feature in fact it's a very negative feature for effective communication. So stereotyping has to be avoided. I cannot have false assumptions and expectations and prejudices suppose one person you meet and he happens to be one from one community then you think these people from this community speak very fluently with that assumption you go and you actually find that this person is not speaking very fluently then you are disappointed; so if you go with prejudices you are bound to be taken aback you are bound to be

disappointed with the outcome; go with an open mind into a conversation situation; people often hear what they expect to hear rather than what is actually said and jump to incorrect conclusions. If you are already prejudiced, if you are predisposed to listening to a certain thing from the other person then you don't actually go by the words or the message that is giving but you jump to conclusions which might again cause misunderstandings or lack of clarity. Next point under barriers is the norms of social interaction vary greatly in different cultures so do the way in which emotions are expressed for example the concept of personal space varies between cultures and between different social settings; here what I would like to tell is there are cultural differences - diversity is part and parcel of every country, worldwide across communities so you need to respect diversity and that kind of a positive respecting attitude helps you interact better in the social context and because cultural variations are there, there are people who greet with folded hands and say Namaskar, there are people who shake your hands for a greeting, people from Arab and Persian backgrounds they put their arms on the chest and that is their way of doing Salaam so you need to understand you cannot insist on shaking hands with somebody who does not believe or somebody who believes in a namashkar; so cultural differences have to be understood ,hence a skilled communicator must be aware of these barriers and try to reduce their impact by continually checking understanding and by offering appropriate feedback and let me come to the conclusion note what are the do's that what are the certain precautions that you need to take to overcome these barriers; understanding the needs perceptions and expectations of your audience before communicating with them, empathizing with the worldview of the receiver negative and angry sounding tone should be avoided ,adopting a more personal and effective voice and tone is always helpful, use an appropriate form and style of communication encode your message well with a spoken encoding or written encoding -that message has to be encoded properly listen and read carefully for better comprehension be precise and to-the-point avoid information overload or loading with information also hampers communicative effectiveness; be open frank and positive; appreciate and understand cultural differences and I repeated some of these links which you should go to and further your understanding about the topic and thank you very much.

Module One

Lesson five: Non-Verbal Communication: Body Language

Video url: <https://www.youtube.com/watch?v=ziiJOXLlIk>

Video Length: 09:55

Hello learners, welcome to lecture 5 of day 5 today. This is a very important part of nonverbal communication, that is, body language. Body language, you can say, is about 80% of nonverbal, the other being your tone and your attitude. Because this is so physical, one can see it, it plays a vital role in communicating what is going on in your mind, what is your message. So the first point which I would bring to your notice is that body language is another very important factor one has to keep in mind while communicating. Very little of our communication in everyday matters takes place through actual words. It's very paradoxical, but if you come to analyse much of our communication, the weight of our communication takes place through body language. Even as you observe me, I am using my hand moment; I'm trying to look at you. My words also play a role but not as much as my gestures and my attitude and my physical moments. Most important body language manifestations are the gestures, the tone and the facial expression. Let me clarify -- I have included attitude and tone also as part of body language. In the earlier days there was a difference between body language and attitude. They did not include that as part of the body language communication. But for a good communicator assessing the body language or the person you are speaking to is of immense importance. Needless to say, we need to keep telling ourselves that it's important to understand to the listeners' body language when you are talking to them -- are they in a position to appreciate what you are talking or are they already tuned off, just trying to pretend that they are listening, but actually lost interest. You get these clues through their gestures, through their eye movements, through their distracted behaviour. It is an important feedback to also decide how one's message has been accepted, and also determine whether it is the right time to convey the message at all. If you are a good observer of the listener's body language you can actually tell yourself whether to continue speaking to the person or stop speaking. If you can read the message that he has lost interest, you can actually stop talking about that topic to the person so it helps you, it helps the listener. Nobody is losing anything there. If anything, you've gained time for both of you. Now let me give you some sample messages that your body is communicating now -- If I'm folding my hands like this (arms folded around) this can signify defensive attitude -- "*I am NOT trying to say that you are right, I am trying to say that I have always been right*" it could mean "*I don't want to know- I know everything- I am an expert*", or "*I feel vulnerable as you talk to me*". It can also mean that "*I feel that you might influence me*". So this arms folding can just show that you are trying to be very defensive, protective about yourself. If the fists are clenched like this, in addition, it suggests holding back of emotion or information. If you're clenching your fists like this, you are suppressing some information. Then finger on the lips while speaking like this can show incongruence of thought or speech when your actual words match what is going on in mind you don't need to put to cover your mouth; only when there is a mismatch between what is there in the mind and what you end up

saying, then there is a tendency to cover your lips with the finger looking away like this while someone is speaking or rubbing the eyes like this. This definitely suggests that you are avoiding that person. That person, if he is intelligent and smart will understand that I'm trying to avoid him and he can stop interacting with me. Sitting posture also tells many things. It can signify the attitude of the speaker. Reversing the chair and sitting leaning over the back can indicate power and control. When you think that you are one big king or a queen you have a tendency to reverse the chair and sit or lean back royally. It shows power and control. Another example: Slumping, with arms folded and clasped on the lap can convey dejection or submissiveness – "*we are too weak*". It's a different kind of a body language. There are photographs for every one of these emotions -- leaning back on the chair, with legs crossed and hands behind the back signify authority. Like this -- put your hands behind and sit like this "*I don't need to fear you at all*" -- that's the message you are telling the person -- "*I am not afraid of you*". While it is necessary to consider body language as an important clue in the communicative process, one should also remember that it is largely situational. Now, here is nothing sacrosanct in the images that we have discussed. Much of it can be different depending on the situation. It's not just the person, the body of the person is also speaking to the listener. Trying to understand the body language in a situation also can influence the meaning. Meaning is now in tandem with the other factors what we have discussed. All this will hold good, not isolated body moments.

Some more examples -- I have given three figures here – The lady with the finger on the upper lip, there's a man who's trying to rub his eyes and there's a lady there who's trying to put the pencil in the mouth. Now quickly I'll run through this -- rubbing the nose, rubbing or touching the nose slightly during a conversation, might be a sign of rejection or a gesture of doubt. Rubbing the eye, shutting the eye with the finger or rubbing the eyes during a conversation could mean that the person is in doubt or is trying to deceive the other person. Putting something in the mouth -- this is done in many ways -- a person might bite his nails -- actually biting nails can also indicate nervousness. In English they say nail biting moment, during a nail biting finish of a match everybody becomes nervous towards the end of the match because you don't know which side is going to win or lose, and you are supporting one team there. So one becomes nervous, puts pencils pens or even the arms or spectacles like this in the mouth. All these are also seen as moments that show the need for reactions in a way that person actually wants you to like him or wants to be given reassurance by the listeners. They can show anything from nervousness, indecisiveness, not able to decide, to a decision delaying tactic. Somebody who's trying to delay matters can also be utilizing some of these movements. Now, I've also given from this website some colour photos of people as some more examples. You see the two people talking here. The one person with folded hands is being defensive. The lady is trying to explain but he's with this hands folded. It looks a bit defensive there is the other person who is sitting there. He looks very arrogant his posture is very proud, arrogant. There is another person who is simply annoyed, angry with somebody. There is one person who is irritated. Look at the expression on his face. There is a person who is actually very happy -- the smiling face. Although he's also folding hands he's got a very big smile and generally appears very cheerful. Then you have the other person who is very confused. Then this lady here again with folded hands but very worried. So we find that body communicates, mind communicates, attitude communicates. We need to be alive to these facts of communication. I would like you to go to a very important link here on body language. Lots of information is available here. You may go to this source for furthering your

knowledge about body language and you can actually go deeper into this subject because it's a very rewarding kind of a subject.

Thank You learners!

Module One

Lesson six: Creativity and Negotiation in Communication

Video url: <https://www.youtube.com/watch?v=XtWoSuDQ6gs>

Video Length: 08:42

Hello learners, welcome to lecture 6 of day 6. The topic for today's lecture is creativity, negotiation and communication-- another very vital subject. In the earlier lectures we have seen the importance of verbal and nonverbal communication and body language. All those will come into play when you also try to bring in creativity and effective negotiation and communication. One reason why these two (negotiation and creativity) are made part of effective communication and also considered as soft skills today is because of what most students are going through. They have so much of creativity in them in terms of talent. But they are not able to utilize these creative talents because they are preoccupied with domain subjects. Creativity helps somebody express their art their creative talents like singing or dancing; creativity can also be evident in day to day activities, in cooking and driving to school or driving to work place. There is not a single place in our field of activities where in you cannot bring creativity. Every activity of ours can become creative if we are aware of the utility, the charm behind being creative in one's life. Now, let me bring this idea in the context of communication. One can bring in creativity in communication in so many ways. When we talk of creativity in communication what do we mean? We mean the sum of these following -- the capacity to read hidden messages (what people call reading between the lines and reading beyond the lines). Sometimes communication works in subtle ways that the actual words don't reveal. You need to read between lines. This is a super fine skill; this is a creative skill which comes through practice, with lot of exposure and you need to build up that creative dimension in your communication. But there are certain basis which you need to read between lines, read for hidden messages. The other point is to express concern and sympathy in your day-to-day communication. If you are expressing concern with the other person's problems, suffering or difficulties, if you are sympathetic to what we said earlier in the previous lesson, be empathetic, then that is also a manifestation of the creative side of your personality. You need to show concern; you need to show sympathy and empathy.

The other way of creative expression is to see a link not seen before. Let me give you an example here -- There was once this public government slogan which was kept in the traffic near the crossroads. It said, "Alcohol kills you slowly" in other words, what they were trying to say is, "don't drink liquor. Alcohol kills you" and next day some mischief makers who were actually creative twisted the linguistic expression they gave a reply there "We are not in a hurry". So a totally unexpected response was given there. There are umpteen number of ways in which you can be creative in language and in communication. The other way is to infer the unsaid info, to undo, sort of read something that is inferential and not openly said, and uncover possible consequences or even to tailor a response that can alter a communication situation to one's advantage. All of you must have heard about this great writer -- British writer George Bernard Shaw. He was by then very

famous. A big fan of his, a lady, goes there and tries to meet him in his office in his in his London office. She says, "Sir I've come here and I'm a big fan of yours" she happened to be a very beautiful lady and, by the way, Bernard Shaw was known for his bad looks. This lady, this fan of his was a very good-looking lady so she goes there after talking for some time she says "what if we marry each other, I'm sure our kids will get my looks and your brains". Immediately Shaw listened to it and said "what if the other way happened-- if the kids got my looks and your brains?" So in a way he was trying to say that she was not being intelligent although she looked so. This is the way you immediately reply to a situation -- you see the unseen link there in communication. and tailor a response that can alter a communication situation to one's advantage.

Now having said that, let me move on to negotiation. How is negotiation to be undertaken to make your communication effective? Often we judge situations decide our role in the context and react in the way we consider appropriate. A very important skill that is used subtly in all communication situations is negotiation. To be able to negotiate during communications one has to be first conscious of one's role and also see how others perceive it. I think it was John F Kennedy former President of the United States of America who said "Never ever fear to negotiate". You should not fear to negotiate but he also said at the same time "Never negotiate out of fear". When you're already afraid don't negotiate, but you should not shy away from negotiating. So right from our first day of our life till our last on this planet, we are always negotiating with people about different things. This is followed by each of us participating, demarcating areas of operation and negotiating space, deciding whether and how much to empower the other person. In an interaction you should know how much of openness how much of power one can give to the other person.

Parts of negotiation—

The next stage is one where the exchange is decided. The terms and conditions here is largely the outcome or the follow-up of the first two factors. Now, what are the factors that play an important role while negotiating successfully? Let us look into this first one and be conscious of the way you and your participants have positioned yourselves, the factors that each is looking for in the communication situation. The second one is, it helps often if the participants are fair and are willing to commit themselves. A communication situation built on a sense of fairness and trust can result in strong satisfying lasting relationships. So in all matters of negotiation a sense of fairness and trust is very important. Thirdly, we often conclude that our win depends on somebody's loss and we work towards a win-lose situation. This is not desirable. Why should we always do things or with a view to winning and defeating the other person? Effective communication situations often built around win-win situations. In negotiations or in the context of communication when you're negotiating with other party you try to take care of their interests and your interest as well that's the ideal way of negotiating. The situation allows both parties to benefit or empower themselves either materially or emotionally.

I have also given a very good link here it's called Situational Communication- Characteristics of Successful Effective Win-Win Negotiators and Good Life Coaching a lot of material is offered by these links; you may benefit from this.

Thank you learners.



Week Two

Module 2: Effective Communication Skills for
Engineers- 2 (Job Application, Oral
Presentation Skills)

Instructor's Name- Prof. C. Muralikrishna



Manas R Panigrahi

Module Two

Lesson one: Constituents of Job Application Letter

Video url: <https://www.youtube.com/watch?v=pfBHH6r0Uk>

Video Length: 12:19

Hello learners as you know I am professor C Muralikrishna from Department of English. I am coming again for the second week module on life-skills for engineers. This will be basically a module dealing with job application letter and oral presentation skills. The first week if you remember we had discussed in detail aspects relating to communication skills, verbal, nonverbal communication, attitude, negotiation and creativity. So from there on we move to the writing part of communication or it is generally agreed that these are very important formats of writing and letter writing is one of them in that we will look into job application letter, then from there we move on to the presentation skills. so this will also be spread over 6 lectures relating to as I said job applications, dynamics underlying oral presentation skills and as in the first week at the end of the second week and module 2 you are advised to attempt an evaluation quiz comprising 25 questions. The takeaways- I am sure this module would be of great help to you all in understanding and internalizing the nitty-gritty of these profession related skills. I wish you all a very enjoyable and productive learning time. Now we start with day 1 lecture 1- the title of this lecture one is constituents of job application letter --a very practical topic; from here on actually almost all types of letters have certain things in common or we have taken this as one of the areas of study because of its wide benefit to a wide base of learners. A job application letter is an important format of written communication which helps you immensely in your job getting prospects- how you write your job application letter will determine whether you will be called for the interview, for the selection process or not whether you like it or not this is true sometimes candidates are not called for the job because they have written a horrible or hopeless job application letter ...so the employer or the prospective employers would not really like to see or understand the prospective job holder. However a badly written job application letter does not get a favourable response from the prospective employers. To write an effective and impressive job application letter you must follow certain guidelines. What are some of these guidelines? First point I have numbered them start your letter by adding your contact information at the top. You should make it as easy as possible for your prospective employer to contact you and know who you are, make sure your document is aligned to the left; include the current date then separated by a space and your contact information as follows name, address, phone number, email address, personal website if you have one and if you have the LinkedIn profile you add that also there. The second point after you include your information you need to include the name of the employer to whom you are applying for the job his or her title and name of the company and address by including the contact information of the company to which you are applying- you are actually showing that you have taken time to write a specific letter or application to this company and you have done your research- that actually is a plus point in your favour. Third point- address your letter to the person whom you are writing to. To begin your letter you want to be formal and start with the proper

address. Write an engaging first paragraph open with a strong declarative statement that informs your reader that you are excited to be applying for the position at the company -be short and specific with what attracted you to the job, what is it about the company that you like- give an example of the likable quality of the company. Fourth point- state where you found the position to which you are applying, how you came to know of this, before applying do some research and see if you know anyone at the company. If you don't have a contact, the company still be sure to include where you found the application such as a wire, job site, the company's website or newspaper and such other sources; 5 -explain why hiring you by the employer you are actually going to help or you are actually going to benefit the employer -this is a very important aspect to the letter- immediately you impress upon them that you as a candidate prospect to employer will make a difference to the company; 6 briefly summarize your strengths your qualifications and relate the job qualifications to two or three of her abilities and experiences that show why you are very suitable for the role. Refer to a CV that is curriculum vitae or resume and your skills section for more explanations of your qualifications and skills; then describe something about yourself that is not on your resume, that you have not actually spelled out in your resume or in your CV in one or two sentences. Express how the company has impacted you personally- so in another way- directly you are also giving a compliment to the company when you say that you have been attracted by this company or organization. Next briefly summarize why you are a very suitable candidate for the job in one sentence. Ending your letter of application on the right note is a very important part of your letter as it can help you land the interview. Very often, most job applications letters are just thrown in dustbin because they are not impressive. So it's a chance to make an impact and be called for the interview and be considered the prospective candidate. Next invite the hiring manager to contact you, inform your reader that you would love the opportunity to speak further about the position and provide your contact information again; then when it comes to the concluding part- signing off what we normally call as signing off you can sign off; that is you can end by the use of yours sincerely. Look at the way Your sincerely is written. Many Indians students and even practicing employees- they make an error here; if you are writing Sincerely Yours as in the American style the letter S is capitalized and why is small case or just say best these days it's acceptable to say best as a accommodating term for best wishes best greetings or best wishes you can always explain this way you show respect write your name underneath after you sign off write your full name on the last line and include a signature so all in all what are the good characteristics of any good letter especially a job application letter. Letter has to be courteous and considerate and underlining these terms courteous means polite considerate of the achievements of the company of the other person it has to be precise and clear precision and clarity it has to be complete and it has to be brief and I says languages also concerned syntax the words that you used it has to be acceptable I remember a long time back we heard of a boy who wrote a letter it was a friendly letter he wrote to one of his uncle's or aunts and he said hello I am well here I hope you are in the same well he said which is actually it leads to a lot of a kind of a humorous situation he wanted to say that you are also in the same condition so he didn't know the right language so it's important to use the right words the right idioms the right phrases I enclose here a sample template of a job application letter all the parts which we have discussed are here you have the current date name street address and then yours and then the employers here then the salutation dear mister dear mrs. dear miss now miss is also used for ladies misses also is used for ladies what is the difference when you use mrs you are actually you are communicating the fact that the lady in question the lady in context is married but when you say Ms miss you are actually you don't disclose her marital status it is equivalent of mr. when you say mister you don't know whether

the guy is married or not similarly when you say MS you don't know the marital status of the lady so these days it's increasingly preferred last name of the hiring manager to whomsoever it may concern sir madam I am writing to you to communicate my interest in the title here in this position currently available at the company's name I believe that I am excellent candidate for this position state your reason for being a good candidate for the position in the job description for the position that a two see consultants posted. There were some requirements that appealed to me. I have just written an example here the a-to-z list the job requirements that you can connect to a background experience- here in between you write a paragraph or two to briefly outline your background and how it matches the job requirements for the position to which you are applying. Then, towards the end... I am sure that after you have received my application and resume you will realize that I possess an excellent skill set which goes with your requirements perfectly. If you have any further questions or require additional documentation please do contact me thank you for your consideration respectfully your signature and your full name so that's the template which is normally followed in a job application later. Then I also in the next slide would like you to go to these links wikiHow letter of application sample, then there is a good website targetstudy.com- lots of information relating to this not only job application letter, but other forms of letters are also discussed. Kindly go through them.

Thank you learners!

Module Two

Lesson two: Oral Presentation Skills

Video url: <https://www.youtube.com/watch?v=yr2xljaAVt4>

Video Length: 09:49

Hello learners; welcome to the lecture 2 day 2. This lecture 2 is titled as oral presentation skills- whatever you speak and which is not written. There are so many aspects to oral presentation skills. We are going to discuss these aspects in this particular lecture, but before I say any further I would like to share with you what Peggy Nunan has said about speech. Cadence, Rhythm, imagery, sweet speech reminds us that words, like children, have power to make dance the dullest bean bag of a heart. So what this quote is trying to say is a well-made speech is as pleasant and as moving as a good poem where there is Cadence, rhythm, also imagery - there is also that kind of a sweep - it reminds us that words, like children, have power to make the even the dullest person make stand on his feet and dance.

Effective oral presentation skills form a very important aspect of our communication skills. it can make or Mar a communication situation. For an effective presentation one has to choose one's style that suits one's personality and fits the situation. A speaker should decide on his own style based on his assessment of his personality to carefully select and prepare a presentation material. A presentation style can either be formal or informal. By formal we mean very formal serious settings; informal is casual settings. During a formal presentation one has to take care of many important things which are like this- first is dressing appropriately- the first impression one makes on one's audience is always very vital- the things that you should keep in mind are researching your audience. For dressing appropriately you should know who the audience is - by researching your audience- you mean what kind of background they come from; is it common kind of a group or is it mixed group - what we normally call as a heterogeneous group-that information is very useful to you as a speaker when dressing appropriately to the occasion. Organizations may have a dress code and people generally like people who look like them. So adopt a outfit and be in tune with your audience; you should not wear something that is strikingly different from what is uniformly worn by the audience. So somewhere identification with the same kind of dress code can also bring in better rapport between the speaker and the listeners. Never let your appearance overpower your message. Also don't be unduly concerned about your appearance. A little attention to dress and appearance is important- like you cannot be entirely dirty, you have to be neat. But the main purpose is giving them the message, giving the presentation should be the top priority; remember that the audience has come to hear you, hear what you say ; in a matter of judging the audience during a presentation, one has to carefully gauge the audience by judging the audience- their level of knowledge, general aptitude of the people who are listening to you, finding out as much as possible about the person you are going to address will help you picture the talk in the right manner. This information can be about the audience's age, profession, specialization and other related matters. This have to be the determining factors in designing the top and deciding this time your one has also to consider

whether its large or small. All these are parameters by which you analyse audience, their background, idea about their average age always help you to strike the right level of communication presentation that is suitable for a group of 5 or 6 for example has to be different from a presentation that is meant for a group of 20 or 30. Third important aspect is using the right style and language- a presentation definitely cannot be informal and casual but at the same time it cannot be put in extremely formal stuff or frozen language -so some kind of a balance is necessary; should be very casual and light, it should also not be very very stiff, very very serious. Golden medium -a golden mean as they say; a middle ground is always better; stumbling for words and speaking haltingly will bore an audience- you need to develop fluency and good command over Language; also learn to use it for your maximum advantage- audience would like to listen to the speaker who has a confident delivery and is in control of the situation, developing a positive attitude while speaking will go a long way in increasing the confidence level. This is a very vital. Let me explain this, we should alter our attitude- many people there get irritated when it comes to the responsibility of speaking to an audience, but you have to change your mindset; we have to be more positive about this chance this opportunity to speak to a public to an audience and in all presentations the 'you approach' can be very helpful; the audience feels a sense of involvement if addressed directly. So when I say you should remember this I am actually exemplifying that 'you approach' if you remember if you recall I also have been the following the 'you approach' while giving these lessons -that I am trying to take with you. Next is word or choose your word order in a way that you present the relevant information clearly and distinctly instead of saying for example Britishers, mughals and Afghans and Aryans were all invaders in India, it is better to say Britishers were invaders, so were the Mughals, the Afghans, and Aryans. word order or technically we call it Syntax; you cannot say I went to the market to sell a piece of land along with my wife/ what is the problem there and I definitely don't intend to sell my wife/ so I went along with my wife to the market to sell my piece of land/ so you need to take care of ambiguity, double meaning ; definitely remember that the most important information comes in the front or near the front; then we also have something very important - signposting you need to give some clue words by which you are telling audience that we are now in the middle of the argument -we are going to reach the conclusion; certain gambits; language gambits that you use sometimes-you know where you are proceeding. Signposting suggests the direction in which you are moving; this will also help you plan and actually signify and categorize the message that is to come. At the end of this session I would like you to go to these links where there is lot of discussion about presentation. I've also given one link by Ken Robinson -he spoke very well about creativity in this particular YouTube video; you must observe this -how he has made a presentation and the other presentation techniques are discussed by the other links.

Thank you!

Module Two

Lesson three: Signposting

Video url: <https://www.youtube.com/watch?v=HiYAZ94X2uA>

Video Length: 06:33

Hello learners welcome to lecture three -on the day three - this is a take-off from where we ended lecture two- that is signposting. This particular lesson will actually give many useful gambits or the gambits i was referring to in my previous lesson for different functions during your presentation. What are the different language patterns different gambits that you can use- let me write this I have this word GAMBIT S. Gambits are useful language patterns which you use normally. Many people who come across as less effective is because they don't know the right linkers to use when they are shifting from one phase of their presentation to the other. Now when it comes to openings how do you open your presentations- many people have problem opening their presentations- of course you can always open with an anecdote, with a joke, with an incident but what are the language patterns ; how are you going to actually use language; so I've listed some of these gambits here for instance I am here today to report – and the present - when I say - I mean blank you can fill up the context I am here today to report - and to present – then you can also say the same thing differently my purpose today is – my main aim this morning is blank or - the title of my presentation is like the way I have used to indicate the title of my lecture my topic today is blank/ now from openings when you come to organization there are whole lot of gambits that you can use you can say I have divided my presentation into these many sections or the first point I wish to make is – or the first part of my presentation will deal with - or firstly - or can says secondly I want to finally, I would like to talk about; in conclusion; let me summarize my speech; to conclude so these are some of the widely used effective ways of organizing signposts by which you show where you are exactly; what you are trying to say; what stage you are ; then how do you draw attention to the audience ; to the particular issue at hand. Gambits like as you will notice or as you can see I would like to draw your attention to you will note that we have discussed this earlier then how do you link one idea to the other one sentence to the other this kind of a shift from one idea to the other people find it difficult for lack of these gambits. knowledge of this gambits examples are as I said earlier as I mentioned earlier we shall move on to - or later I will be talking about - in addition to for this reason or on the other hand to look at some of the other options some advantages and disadvantages in this proposition are - if this is one side of the picture the other side is this if we look at the picture holistically we find it - holistic elements completely from all round perspective and how do you change subject to important ways are moving on to the question . let me now turn to this topic then how do you emphasize that is emphasizing - what we have to realize is this or what I find most interesting is this or what I am getting at is so and so then how do you introduce evidence to show evidence example if you look at -let me show you that this is it let me explain that ; then coming to making recommendations how do you recommend a certain course of action to your audience examples are I strongly urge that all of you should visit these links to further your knowledge that is one way you ought to visit these websites which are listed at the end of the lectures to reinforce

whatever you have been learning in this module I recommend that you visit these web links I think you all should visit these web links so these are the different ways and how do you sum up your presentation simply you can say let me now sum up/ to summarize my main points/ to recapitulate is a short form for recapture it is recap you can also say it for a quick recap because it's slightly longish word. People use a short form for a quick recap this any collection of the points and then you summarize then at the end of this lecture.

Again I have given you these links which I had given earlier; you will find more about presentation skills in these links Thank You learners.

Module Two

Lesson four: The Content of Presentations

Video url: <https://www.youtube.com/watch?v=Q5gK4-Yo2ik>

Video Length: 08:14

Hello dear learners welcome now to lecture 4 from the day four. The title of lecture 4 is 'the content of presentations' - what should presentations consist of; how they should be organized. First point, which I have highlighted here, is during a presentation it is also important to prepare the presentation material with care; yesterday we introduced this topic in the previous lecture; we go slightly deeper into the topic. So what are the other important points here - first is researching the subject, the topic on which you are speaking- you need to do some research on this.

It's important here to be clear about the objectives of the presentation; about the audience you are presenting to; then comes selecting the content once the information has been gathered; it is necessary to filter out the essential points- one has to group the ideas under separate headings; classify the information depending on the available time; keep the matter strictly to the point not a word extra not a word less but to the point.

Then comes, planning for the talk. To get the message effectively across, one has to carefully draw out a presentation layout or what we call as a presentation plan, a well-planned presentation is always a well-received one. The beginning of a presentation; the next subtopic during a presentation; one is always sure of the first few minutes of the audience's attention what we normally call as attention span. So we have to cash on this very fertile time when the attention of your audience is at a high point. One therefore has to be careful about the beginning; make an impression that will hold the attention of the people- one can always start with a good quotation like "all that glitters is not gold", something like that "the rose by any name smells as sweet" "sweet are the uses of adversity"; "we have heard enough of Engineering we should now engineer our inner lives". These are some of the popular quotations that that will enable you to catch the attention of the audience; it should be a question- which is the recent thing that you lost and that has upset you/ you can begin like a question what was the most hilarious moment or was the most hilarious moment you experienced of late in the last one week so immediately you're sure the tension can also start with a dialog or even an anecdote. By anecdote I mean an incident that where you are a participant that you experienced or you can tell a popular parable or a fable or a story some people prefer to start their presentation with a joke an; unusual definition or a startling statement or statistics also can be very effective. Some people begin with statistics and catch the attention- they give startling statistics -they crack a wonderful joke which actually encapsulates what is happening in the present times. These are the different ways you can always say. Last week when I was traveling by train people were talking about weather and there was this person who didn't know what to say about the weather ...so some incident, some episode you can begin with- then coming to the middle of the presentation after making an impressive beginning one has to be able to deliver the contents

effectively ; content should be well-structured logically connected and effectively lead towards a specific goal to sustain the interest of the audience it is important here include examples and personal experiences. It shall make the material more authentic and interesting like in the beginning to reinforce the value of your middle part of your presentation you can here also you can bring in some vital experiences which you went through and then structurally you come to the end of the way a presentation ends is again very important.

Primarily this is what the audience will remember of the presentation -as how you end your presentation is normally carried back by the audience to their respective places; it's important therefore to give a presentation the right conclusion that will make a lasting impact on the listeners / for instance you can always say nothing is permanent in this world except change - so something to think about .." don't ever major on minor things- don't small insignificant things you don't have to worry much. Coming to the point which I just mentioned a few minutes before that is attention curve / this is a very important term which is being used these days by experts and communication psychologists - what exactly do we mean by attention curve / the attention of the audience during a presentation generally goes through in a true kind of a graph I'll write your graph because I seem to be there's a repetition here it starts on a high the attention drops a little first and drops more steeply later again towards the end and further up for the last few minutes when they get through your signpost when the audience knows that you are concluding their attention increases in between they have a tendency to become lax.

Some of the ways the audience can be kept interested have been listed here so if you know the psychology behind audience the attention graph you will also bring in interesting things when you suspect that their attention is dropping one look into the points where the attention curve drops and consider ways of varying the texture - by texture we mean quality of a matter- if your presentation has been largely speech bring in an audio-visual slide or have an interactive session that will ensure participation - you can involve the audience in a question answer session- you can elicit comments on a particular statement that you have made keep the sections short and ensure that every section ends on a high ; get the audience involved -decide what you want them to remember and stress on it and at the end of this particular lecture I would recommend that you go to these website ; the links that I have given to sort of learn more about the content of your presentations.

Thank you.

Module Two

Lesson five: Factors Aiding Effective Presentation

Video url: <https://www.youtube.com/watch?v=hGiDOUWya44>

Video Length: 11:38

Hello dear students. Welcome to Day 5, Lecture 5. The topic for today's discussion is 'Factors Aiding Effective Presentation'. In the previous lesson, Lesson 4, we started discussing the different aspects of oral presentation skills. And in this lesson we are going to look at factors which actually scale up your presentation quality. We are going to look at these, some of these aids that go into improving your presentation qualitatively. In this slide you see the first point, use of audio-visual aids. People generally talk of audio-visual aids, but most of the aids and technology under this category is underutilized. At the same time we have to keep in mind, that technology is never a substitute for a teacher in the classroom, for a supervisor in the research lab. And also technology is not a substitute for 'n' number of students who are sitting in front of the teacher. Nevertheless having said that, technology should be optimally utilized. So in that context we are going to discuss a few more things.

If you look at this first point. During a presentation, audio-visual aids help ensure the attention of the listeners. If you are only listening to the teacher in the classroom or the lecture hall, attention span is very minimal, but if you bring in the visual aids, the audio aids then it will enhance their attention span. It creates the necessary shift of attention. I am underlining that. And even increases interaction between the presenter and the audience. The audio-visual clue there triggers a lot of unexpected responses. People who come into the lecture hall deciding not to say anything, just to be passive speakers. The moment an audio-visual is presented, they suddenly come up with interactive queries and clarifications. So it does something. And as a presenter, if you are at the helm of affairs you need to use these audio-visual factors.

Now second point which I would like to mark out here is eye contact. Whether with technology or without technology, more so with technology, you should ensure eye contact. Because there is a tendency for the audience to see, keep seeing the gadgets, the mikes, the equipment and the speakers, whatever gadgets are there. And, it's a challenge; it's a fine challenge for the presenter to keep the eye contact in spite of all these aids. Eye contact forms one of the most essential means of maintaining a rapport with the audience. As you all know to build, strike a balance, to build a rapport; eye contact is very essential. This enables receiving feedback and holding attention. Let me move to the next slide. This should be actually 3 or 4. Third one is body movement. During a presentation the body movements too have to be carefully monitored. They should neither show lack of confidence, nor be very aggressive. Assertive attitude with the right facial expression, posture is ideal. Now you need to strike a balance between assertion and aggression. Very often if you are not trained properly, you tend to become very aggressive in your body language. And if you are, are to hide that sometimes lack of confidence, they become aggressive, or sometimes if you are not well

informed, you become very very submissive. So both should be avoided and a balance has to be struck.

The right facial expressions have to be maintained. A smiling face, cheerful face and a good posture will go a long way. Also, movement of the body. If I am constantly shifting my body from right to left, left to right. Then it hinders, the way I am doing now, this hinders concentration of the audience. So as much as possible balance out your weight, when you are standing on both the feet properly. So posture assumes lot of significance. Then I come to space. Depending on the situation and context of presentation, the presenter has to constantly negotiate the space between himself or herself and the audience. There is a space what we call as a field of action. Yesterday in one of the lectures it was mentioned that preferably he or she should avoid the public space and use more of the social space. Rather than be static at one spot, the presenter should be able to move and negotiate the points as well as the space with ease. Right now I am facing the camera there and addressing you but in a class, in a presentation I have the freedom to move. So while maintaining the eye contact, I need to use the social space making it more interactive. So along with the audio-visual aids, if you are also interacting with, some kind of a walking around, moving towards the benches, that makes a lot of impact.

Next we have the kind of words or phrases that you use. The choice of words and phrasing can be very important in a presentation. Some of the general principles underlying this are, I have listed down here. Don't use abstract or vague words. In our anxiety to sound very scholarly; sometimes we use high sounding, ornate words, which are very unfamiliar to people. And they are also sometimes, you should not, there is a tendency to use abstract words and phrases. That should be avoided. Next use active rather than passive sentences. If you remember your lessons in English, voice; passive voice, active voice. Active voice sounds more acceptable to the audience. So you need to construct your sentences in the active voice mode. Like instead of saying, 'he gave a cup of tea to his brother'. That is better way of saying rather than saying 'his brother was given a cup of tea by him'. The passive voice. So you need to be very concerned about that. Cut out jargons and clichéd phrases. Clichéd phrases, jargon; jargon, too much of technical, highly technically dense kind of a jargon. That should be avoided. A little jargon terminology is okay. Much dependent on the kind of field, the subject you are talking about. Clichéd phrases like 'engineering runs in his blood' or 'where there is a will, there is a way'. That's of course a proverb. But there are phrases which have been used for many years. Try and avoid those. You can use very interesting, appropriate, idiomatic phrases and proverbs.

And like in one of the lessons preceding this we have spoken about the 'you' approach. So you have to adopt the 'you' approach. I am also right now using the 'you' approach. Wherever possible replace the third person with a second person. Instead of saying he or she, better to say you. Bring in personal examples and experiences wherever you can. That makes it lot more interesting. Keep the main points as near the beginning of the sentence as possible. Main points should always come in the beginning of the sentence or the paragraph or the particular section you are talking. Talk of the way you position yourself and indicate with linkers the way you are moving within the structure of the lecture or presentation. Reuse of linkers, which in the previous lesson we were discussing. So choosing the appropriate linkers on the other hand rather than, these are very important.

Then, the use of visual aids. I would like to begin this section by saying 'a room hung with pictures is a room hung with thoughts'. Look at this saying. So beautifully said. A room which is hung with pictures is actually a room hung with our thoughts. Beautiful way of exemplifying, saying what pictures can do to the audience. The images that you stick around. You must have all noticed that the use of pictures or visual aids is always helpful in terms of memory. When you see, you remember it longer, rather than what you have listened to. It helps in retaining one's attention and also promotes understanding. In a presentation similarly, the use of visual aids makes a better effect on the audience. They help us remember the contents better, and assimilate the matter more effectively. Sometimes visual aids save presentation time and also make the presenter's work easier. So one can always rely on the efficacy of slides, images, pictures, the use of the visual aids. And save on one's own time and also enhance the retention part of the audience.

And lastly I have listed out some links here. Some of them I am deliberately repeating because it is a kind of an unending source of knowledge relating to presentation skills. And I have also deliberately repeated Ken Robinson's presentation here, because it exemplifies, he is a good thorough presenter. And the topic of presentation in this particular slide creativity is of immense value to practicing engineers, doctors, students, or from all sections. So please go to this in your free time and interact with among yourselves and with us later on.

Thank You.

Module Two

Lesson six: Visual Aids for Oral Presentation

Video url: <https://www.youtube.com/watch?v=zEY8elqekys>

Video Length: 14:56

Hello dear learners! Welcome to lecture 6. The title of this particular lecture is related to the title of the earlier lesson. This is called visual aids for oral presentation. Well actually it's an extension of that. So we are going into detail what exactly can be your modes, what exactly are the different types of visual aids you can use and what are the commonly used visual aids.

So first slide here some of the commonly used visual aids are the flip charts, overhead projector what we call as OHP let me write this and PowerPoint presentations pp PowerPoint presentation slides so commonly used. People have this tendency to think that flip charts are no longer used but even now some of the leading trainers use flip charts. It's convenient in a way at the same time you know it saves all the time even if there is no power there is a problem with the gadget; flip charts are independent of all those variables. Now let us see what exactly are they? Flip charts are blank or prepared sheets of charts that are put up during a presentation as visual aids. They can be charts which are blank or already pre-written. So if you want to make it interactive and involve the students. In these blank charts you can ask them to come and write something, you can draw something out on the blank charts. If there is a diagram or sequence of pictures to be projected you can have a pre-prepared flip chart as I said sequence of images you would like to show. Sometimes flip charts can also be used if you need audience participation like bring in a blank one and ask them to come and write something. Like a blackboard but more mobile, more versatile. It can be used to generate ideas or quickly record the responses that can be later organized and ordered. Some of the guidelines while using the flip chart are: 1) Diagrams on the flip chart have to be clear and attractive. Colours are more effective when used on white rather than coloured paper so on white background use colour pencils that makes an effective presentation. 2) Matter on the flip chart has to be visible so I need to write big so that all the participants' people have to see that. So spacing between diagrams should be carefully arranged. These are very small but very important details. Nitty gritty of these are important. 3) If possible do not crowd more than one diagram in a single chart have separate charts for each diagram. If there are many charts carry an appropriate box where all the charts can be kept. Always keep a spare pen in your pocket because sometimes pens can dry up. So you should not be caught clueless and you can't borrow. Nobody would from the audience unlikely that they are carrying a spare pen which is in colour. So this is how it looks flip chart let me write here. This is a flip chart stand and you can actually rotate and sort of keep using many sheets as possible, pull it from this side and it goes backside so you can have as many sheets as possible.

Next, we come to OHP overhead projector. The OHP like the flip chart can be used in two ways, it can either be prepared in advance or written during the presentation as an alternative to using the flip chart like the writing in the flip chart the transparency sheet, this is a very important sheet has to

be carefully prepared. Some of the factors to be kept in mind while making an OH presentation are:

- 1) use transparencies to show only the important points.
- 2) Do not crowd the transparency sheet with too many points on a single sheet.
- 3) Do not switch on the light until the slide is in position, and switch it off before you move it away. It's important because it consumes a lot of power and it's very bright. Lights should be switched off and on at the right time.
- 4) Line up the OHP before you start the presentation and keep it in the right position. You need to arrange that take some time but once you ensure that then you can start presenting your transparencies.
- 5) Control the lighting effectively make sure that it is not too bright or dim.

1) Rehearse thoroughly so that you get used to placing and removing the slides or the transparencies without any awkward moment.

2) Take care not to stand between the projected picture and the audience.

3) Take care to see that you use the right colours that are bright and aid clarity.

4) Organize the information you have to give under main heads and sub heads. Remember the organization you give will help organize the matter in the participants mind. How you organize has a telling effect on how the participant in his mind processes the information. So whether it is flip chart or OHP or any other visual aid you need to organize information clearly with lot of spacing in between. This is an image of a OHP, you see the transparency sheets are put here right here and from this the there's a light here and the image goes here it gets reflected onto the wall. So when this image is being reflected people should not stand here in between and audiences here. So it's a very innovative thing. Not after the advent of PowerPoint slide coming in LCD technology this has slightly gone on the minimal mode but it is still a useful instrument or aid.

Now we move on to the latest PowerPoint presentations. Most people are using this. Right now this presentation is being done by PP presentation. People these days sort of in a jocular fashion say many presentations if they are badly prepared, they say there is only power there are no points or if you have points you need power also. It's a play on the word but PP presentations are going to stay here. Let's see what exactly they are:

- i) PP presentations today are the most frequently used for presentation.
- ii) Powerpoints operate through slides and they have to be prepared very carefully.
- iii) Sometimes they can make or mar presentation. They can make or spoil a presentation. They lessen the flexibility of a presentation. But the impact they have can create a lot of interest bring in variety and life into presentation. Lot of versatile presentation it can be if one knows if you know how to use a PowerPoint slide you can bring in the audio-visual you can bring in the writing bringing wonderful images because it's resolution of the image the writing is very clear and it's it has got a big impact on the listeners and the viewers if they go wrong the slides however the effect can be anything between mild confusion to total catastrophe or disturbance so they have to be used carefully with lot of planning and expertise so planning and expertise generally are essential for all presentations more so for PowerPoint presentations. Some of the factors one has to keep in mind while doing PowerPoint slides are ensure that the slides are an integral part of the Presentation. It should not be very separate from what you are presenting. It has to integrate well. Space these slides intelligently so that they come in at regular intervals, but more frequently towards the end. This is a very good technique /strategy bringing the slides more at the end. But in the beginning space them with lot of margin. This will keep the interest alive. Think and plan of the most important point you want your audience to take back with them. Identify the slide or slides you must include and ensure that they are striking enough to remain in the mind. Very important point, you should pre identify one or two slides which you can actually show them again. The slides which you think they should take back with them, very important slides containing some important content there. Missing an important

slide is as dangerous as including unnecessary ones. If you include unnecessary ones it creates clumsiness at the same time if you miss out an important slide also you are underutilizing the impact and LCD Presentation, the PowerPoint presentation can create. LCD is the instrument through which PowerPoint presentations are made Functional. LCD is a short form for liquid crystal display... liquid, crystal, Display. So this is... I'll show the picture of the LCD projector. This is what we use to convey our PowerPoint presentations. So plan out every slide carefully and thoughtfully. As much as possible, avoid a verbal slide that will have whole Statements. This can spoil the Readability. So what they can read in a paper that kind of material should be avoided. They should preferably be bulleted points, spaced out, just important three or four points, that will have a better impact. Do not put into a slide what you will say. All people listen at more or less the same Speed, but read at different speeds. This is a very technical difference here. People listen more or less at the same speed when it comes to listening so that is to the speaker's advantage but reading is always at different speeds. So don't repeat whatever you have said again on the slide to keep the audience together. Thus it is necessary that they hear things together rather than read. So this is a point to be borne very well in Mind, follow a simple principle, make your writing big enough and obvious because you always have the font size at your command. You can always keep the letters big, keep the matter, words, charts, drawing simple and clear. Use the colours very carefully; always coloured backgrounds are not more effective than plain white ones, like in this slide. Also try to integrate the colours meaningfully. Every colour has significance and understand it before using it. This particular slide has a white background against that we have used some dark fonts. The size of the font is also big enough. So if you follow a basic principle like this your writing is conveyed, your images are conveyed quickly. This is the image of an LCD projector which is the instrument through which you your PowerPoint presentations are enabled and finally to remember points - a picture is worth a thousand words. So as much as possible without overdoing it, balancing it out, use pictures because they are far more effective than 10,000 words, like when you saw LCD projector you knew what it is. Pictures save time, they bring in variety, they add impact, they remain in memory long after words have left. This is again an image of a typical presentation. Oh you, this obviously, this is a PowerPoint screen. So there is a PowerPoint that is somewhere in the rooftop here, from there it is being projected onto the screen and I recommend these websites. Some of them again deliberately for more information on this.

Finally, before I end this lecture, let me tell you. Some of these presentation skills and earlier lessons, some of them, these soft skills are really important skills. They are often compared to the landing and the take-off of a plane. The pleasantness, the safety of your communication depends on how well you land, how well you take off and if these skills are also compared to a piece of leather very soft but very full of tenacity and flexibility. So acquire these skills and make yourself more effective in your oral and written presentations.

Thank you learners!



Week Three

Module 3: Thinking Critically- 1

Instructor's Name- Prof. Sunita Mishra



Manas R Panigrahi

Module Three

Lesson one: Introduction

Video url: <https://www.youtube.com/watch?v=xpObXRP-BCg>

Video Length: 13:38

Welcome everybody, I am Professor Sunita Mishra from the Centre for English Language Studies, University of Hyderabad. I would like to introduce myself briefly. I teach at the Centre for English Language Studies at the University of Hyderabad and primarily I am engaged with teaching the masters and the research students working in the area of English language studies. As part of English language studies we do a lot of work in teaching linguistics, the methods of English language teaching and sometimes even go on to the history of English the history of English language in India. Apart from this, I also teach the undergraduate students and these are students across disciplines. Apart from the teaching, I love to do a lot of reading. I love to do a little bit of painting. I also love to listen to old Hindi, and I watch a lot of films.

Today, I am here as the instructor for this module titled *Thinking Critically*. I welcome you all to participate in the week 3 module 3 of this massive online open course on life skills for engineers. Let me briefly introduce the course to you. Critical thinking is not new to any of us. All of us do it as part of our everyday life, many times a day. Let's compare it to the skill of walking running or even talking. We all know how to walk, run or talk naturally. We are born with these skills. Whether taught or not, we will start doing it eventually. But to be able to walk like a champion, to be able to run like a champion, or to be able to talk like an orator we might have to train a little. That is why, to be very good at thinking skills, to be able to work like a professional in the area of critical thinking, to be able to use it whenever necessary, we might have to train a little at critical thinking skills. Probably, that is what this course will help you to do. It will help us use our thinking skills appropriately, wherever necessary. In this module, I shall be dealing with the following –

In the first part of the module I'll be talking about the basic concepts and the different frameworks which have conceptualized or framed the thinking skills. Different kinds of frameworks have been used for talking about thinking skills, for conceptualizing thinking skills and here we shall talk about the few popular frameworks and the ones which have been used extensively in the field of education. Secondly, we will be talking about the different aspects of thinking skills -- what are the different factors that make up the concept, the idea and the capacity called thinking skills. Finally, I'll be going on to a tool to do critical thinking, that is, *mind mapping* -- a very interesting tool which can help you do not only critical thinking but many other things associated with your daily life and academics as well. After this, we shall be talking about critical thinking skills for engineers, look at the basic features involved in doing critical thinking in the field of engineering -- not very different from what we do otherwise, but specifically we'll try to apply these to the field of engineering. And finally, I have got two case studies for you and we will see how these critical thinking skills can be used in these specific cases which we are going to discuss.

Let me also talk to you about a little about the evaluation scheme for this course. I'll be throwing the module open for interactive forum. And once after we discuss the first assignment we will have an open forum and after that we can discuss the case studies, one at a time. We can even have a forum on mind mapping and we can discuss how it can best be done. I can even take questions on whether you have been able to do it successfully. The module will be followed by a quiz where we will be giving you 25 multiple-choice questions of two marks each. By the time you complete this Module, I hope you'll be more conscious of your use of thinking skills. You'll be able to identify when you will use them how you should use them. This I'm sure will encourage you to use it more often in your personal and professional life.

Hope you enjoy doing the module.

We've come to the next part of the first lecture where I'll be talking to you about the concept of critical thinking. I'd like to give you a quotation which is used very often, which thinks of critical thinking as the awakening of the intellect to the study of itself. Very interesting -- the awakening of the intellect to the study of itself. Awakening here would mean something like becoming aware, becoming conscious, thinking about thinking or even doing what is otherwise called meta thinking. Thinking can be defined as a process of conceptualizing, as a process of applying, as a process of analysing, and as a process of synthesizing available information and arriving at new information. Let us look at each of these components a little bit in detail. Conceptualizing can be looked at as contriving an idea, inventing an idea, formulating an idea, thinking of a new kind of idea, a plan. It can be looked at as pertaining to the use of this idea, using an idea in certain kinds of fields, relating the idea to certain other kinds of fields, analysing, dissecting, exploring, probing into an idea, trying to see why the idea is constituted in this specific way, how it has been constituted and what are the implications of its constitution in this specific way. Synthesizing is a very interesting concept. Have you heard of something which says $2 + 2$ is not 4 but 22? Synthesizing is something like that.

It says that we can sometimes blend ideas giving rise to much more innovative and bigger ideas. We can bring together different kinds of ideas creating a new kind of combination. We can blend very different kinds of things -- apparently things which look not blendable at all and yet come up with things which are interesting, new and mind-boggling. To carry out this process, you need information, and for insight you need more information. And that is how we have to gather information. How do we gather information? We gather information through observation, we gather information through experience, we gather information through reflection, and finally we gather information through reasoning. Now I would like you to think of it this way -- observation, experience, reflection and reasoning are not very different processes they are in fact parts of the same process. Sometimes they're simultaneous, sometimes they overlap. They're just different ways of looking at information. Observation basically involves watching, studying, seeing. For example, if you are looking at birds coming into an area at one point in the year, looking at how many birds are coming at what time of the year? Observing them, seeing how they're coming in, will form part of your observation. Experience forms part of going through a certain thought, going through a certain feeling, going through a certain experience. We might call it living it, coming in contact with it. Going back to the example I gave earlier about migration, about the process of birds coming into an area at a certain time, it might mean going through the experience of watching the birds coming in, going through the experience of watching them build their nests, going through the experience of you counting them, looking at them, seeing them nestled etc., can count as experience.

Reflection can mean deliberation, consideration or thinking. Again, going back to the example of birds, one might start thinking of why they come in at a particular time in the year. One may start considering why is it that a particular breed of birds comes into a certain place. One might start thinking also why is it that they need to build their nests at this time of the year. What do they eat? How do they hatch? Etc. Finally, when we come to reasoning, we have to do a little bit of interpreting. We have to analyse, and we also have to reckon with various aspects of the problem. We might want to analyse why is it that they need to come why is it that they need to change their habitat why is it that then to behave in a certain way at a certain time in the year? How do they find their way? How do they find their way back? Etc. All this might form part of reasoning.

If the migratory behaviour of birds is one kind of information gathering, another kind of information gathering can be something as simple as trying to observe when we get an allergy. I suddenly become allergic; I suddenly start sneezing at certain times. When do I sneeze? Do I sneeze when there is more breeze? Or do I sneeze when there is more dust? Do I sneeze when there is a lot of cloud around me? When I sneeze here becomes part of observation. Experience can be what kind of feeling, what kind of bodily or physical sensation do I get when I encounter certain things like dust dirt or maybe clouds or water? These would form part of experience. How do I gather information through experience? Reflection comes in when I try to connect certain things. Will I remember that on a certain day I did start sneezing uncontrollably when I had done a certain thing? Or, maybe, someday I started feeling very uneasy when I ate a certain item. That forms part of reflection. This also is a part of collecting, gathering material. And finally, I would have to reason out. I would have to finally conclude that yes, probably this is causing me an allergy. Probably these conditions are becoming allergic. This also is a kind of information that I'm gathering. So observation, experiencing, reflecting and analysing are parts of the same process. Part of the process of gathering information which in turn will help us think critically which, in turn, will help us think logically.

Now with this, I would like to end my first lecture. In the second part of the lecture I'll be focusing on some the important aspects of critical thinking skills. I shall be going in a little into the history of critical thinking skills and I shall be talking about a few examples of critical thinking skills. In this lecture basically I have introduced the concept and have taken you through the main aspects of what are called the thinking skills.

Thank you.

Module Three

Lesson two: Paradigms in Critical Thinking

Video url: https://www.youtube.com/watch?v=sxkt9xG_Qvk

Video Length: 20:00

Hello everybody, welcome to the second lecture on *critical thinking*. The previous lecture, as we have seen, was basically concerned with introducing the idea. I had tried to give you a summary of the main aspects of critical thinking skills and I also tried to tell you how you can develop your critical thinking skills through gathering information, through analysing and through reasoning. In this part of the lecture I shall be talking to you a little about the history of critical thinking skills and about the two paradigms which have looked at critical thinking skills differently. The first concept I am going to deal with is the history of critical thinking skills. I would title this lecture as critical thinking history and paradigms of thinking. Critical thinking, I think, is as old as human history. Man always has done critical thinking. Think, for example, of the basic tools that were made by man for hunting. Think, for example, the way fire was discovered or think of how agriculture was discovered. How much of critical thinking must have been necessary to start these procedures? Maybe, observations were made over a period of time, experiments were made, people tried to find out how to sow a seed how to grow crop how best to harvest it how best to store it etcetera. And before that even, think how fire must have come to be. How the necessity of cooking was thought of and how it was derived eventually that eating cooked food was better than eating raw. And even before that, think of how tools would have been developed keeping in mind how best we can kill animals, how best things can be thought, how best fruits can be got from the trees and how best they can be processed for eating and human consumption. I am sure all of this needed massive amount of thinking skills, massive amount of critical thinking skills. In the present day, though, critical thinking has become very popular since the mid-20th century. And I would like you people who are the budding critical thinkers to link this concept and the mid-20th century with the coming in of globalization. Think of the new market, think of the way of thinking. The way of organizing trade the way of doing things massively changed at the beginning of the globalization and hence a new kind of skill became very necessary and that was critical thinking skills. It was marketed like many other things. Hence, the importance of critical thinking skill in the present day. As defined by the National Council for excellence in critical thinking (this council was set up in 1987). Critical thinking was defined like this:

It was the intellectually disciplined process of and skilfully conceptualizing, applying, analysing, synthesizing and/or evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions, clarity, accuracy, precision, consistency, relevance sound evidence good reasons depth, breath and fairness.

In short, these were the essential components of what was thought of, what was defined, what was concretized as critical thinking skills by the National Council for excellence in critical thinking in 1987.

Can you compare some of these elements with what we had done before what we had seen previously as part of critical thinking skills? We did think of conceptualizing. Remember, we did think of applying it to certain concepts. We did think of analysing and we also thought of synthesizing what is new here. What we have not dealt with previously is the art of clarity, accuracy, precision, consistency, relevance and sound evidence. Sound evidence would mean good evidence, relevant evidence, valid evidence, reliable evidence. Good reasons, depth, breath and fairness are some very important aspects of critical thinking skills. Fairness is crucial because unless critical thinking is fair, unless critical thinking is ethical, it can have consequences that are devastating. We will be dealing with some of these a little later. Now, all these qualities, these items, these elements of critical thinking skills involve making assumptions, drawing conclusions, understanding implications, accounting for diverse and varying viewpoints and perspectives. All these are elements which can account for diverse and varying viewpoints and perspectives. If these are some of the basics of critical thinking skills, we'll look at a few of the paradigms which were developed for doing critical thinking.

One of the earliest available paradigms is that of Edward Glasser. He came up with his paradigm in 1941. That, I think, is one of the earliest paradigms which were thought of on critical thinking skills but look at the way he defines critical thinking. Glasser talks of it as an attitude of being disposed -- disposed means an attitude of being inclined to, an attitude of wanting to, an attitude of being disposed -- to consider in a thoughtful way the problems and the subjects that come within the range of one's experience. For him, it is kind of a capacity to be able to thoughtfully think of the experiences, thoughtfully analyse the experiences that come your way, within your own experience -- maybe, day to day experiences. Secondly, critical thinking skill is defined here as knowledge of the methods of logical enquiry and reasoning. The first capacity is being disposed to being inclined to do thinking, being inclined to have critical thinking skills. And once you are inclined, the second factor that comes in is knowing how to do it. The methods of logical enquiry, the methods of logical reasoning. Again, go back to my previous lecture when I was talking about the importance of training to do critical thinking skills. Once you like to do critical thinking or once you are inclined to do critical thinking it will also become necessary for you to train to do critical thinking properly. Hence, you also take care of the methods, the way to do logical reasoning, the way to do critical thinking. And finally, the point which comes in is applying the methods you learn, the methods you know. What we have to take into account is how to apply the methods we have learnt in our day-to-day experience. Now Glasser looks at it as an ability to recognize problems, find workable means of negotiating these problems. For Glasser, it is also important to gather important information pertaining to these problems -- recognized stated and unstated problems -- comprehend data effectively and evaluate arguments. In short, he saw it as a way of recognizing the existence of logical relationships between propositions, drawing warranted conclusions and generalizations and finally putting to test the conclusions and the generalizations. Now, as I was telling you, for Glasser it was not a skill to be learned exclusively but an attitude which has to be developed gradually. He thought of it also as a personal quality, as way of thinking. For him, it was not linked to any specific discipline. It was a general quality of the individual. It was a general quality of thinking; it was a general way of perceiving things. Again I would like you to remember that Glasser had come up with his way of thinking in 1941. Remember, that was before the Second World War had ended, that was before the whole globalization process started, that was before the open market came into being. You don't find in Glasser that is why a very strong inclination to make it into a skill which has to be

taught trained and disseminated. He thinks of it instead as a quality which is there. A good quality which one should have and he looks at it as a way, as a process in which one can develop it and apply it to different things.

The next paradigm I would like to discuss is Bloom's taxonomy. Now, Benjamin Bloom in 1950s had come up with a taxonomy which is called the *Taxonomy of Higher Order Thinking Skills*. Benjamin Bloom was a psychologist and educator and he talks of the different processes in the mind which are there, which can be developed which can be taught for better thinking better knowing and better understanding. Bloom thinks of the taxonomy like this -- the first part of the taxonomy is Bloom's paradigm. Now Harold Bloom was a person who was talking about the different kinds of mental processes involved in thinking skills. This paradigm was revised in the mid-90s but after revising this is what came up -- He talked about remembering, understanding, applying, analysing, evaluating and creating as the different aspects of the thinking skills which leads to what he called higher-order thinking skills. He divided thinking skills into two -- higher-order thinking skills and lower order thinking skills. The higher-order thinking skills are generally referred to as the HOTS. Bloom's taxonomy was created, Bloom talked about it in 1956 and he was basically the chairperson of a committee which talked about these different aspects of thinking skills. But this is one of the very significant taxonomies of thinking skills because since then it has been used extensively very widely in the field of education and training. As I have told you before, in the 20th century with the opening of the market, with the redefining of the whole concept of trade, with the redefining of the concept of education, with training becoming such an important aspect of Education and learning, thinking skills - higher-order thinking skills also gained a lot of importance. Now in this altered state, this was one of the paradigms which was employed very extensively very popularly to teach people how to do critical thinking. Now it is a common way used to analyse evaluate concepts, to look at processes procedures and principles. It is also used in the field of knowledge, it is used to define categorize attitudes and also used extensively to categorize and rate skills. One of the very major aspects of Bloom's taxonomy is that the whole concept is hierarchical in nature and this means that *remembering* is supposed to be lower in order than *analysing*, *understanding* is lower in order than *creating*, and it is also assumed that one moves up the ladder, that is, one starts with the lower order of thinking skills and then moves up gradually into the higher order of thinking skills. Now interestingly, this order of thinking skills has also been thought of according to the different kinds of knowledge processes. Like, we have knowledge types; like, for example, we have facts, we have concepts, we have processes, we have procedures, and finally we have principles. And you have the skill of remembering, you have the skill of understanding, applying, analysing, evaluating and creating. Now depending on these two axis, it has been used extensively to show how facts as part of remembering would basically be listing, facts as part of understanding would be paraphrasing, facts as part of applying would mean classifying, ordering. Facts as part of analysing would mean outlining, as part of evaluating would mean ranking, and as part of creating, it would mean categorizing facts into different paradigms. Similarly, concepts. It would mean recalling as part of remembering, explaining, showing or illustrating, contrasting, comparing, criticizing or modifying as part of creating. Processes -- there is a very little difference between process and procedure. Procedure is basically the exact method which has to be followed in carrying something out, whereas process is a larger concept. Process would mean the bigger picture, the overall concept. Now, if it is a process, remembering would involve outlining, understanding would involve making an estimate, and hence all the processes we have talked about all the procedures we have talked

about-- like be it designing beat explaining beat stating or beat categorizing-- are very strongly linked with one another and maybe it is very difficult to even say that they are hierarchically ordered. They occur more or less at the same time they occur in different combinations. Different kinds of processes and procedures require different kinds of skills and hence I would not really agree with Benjamin bloom and the followers of Benjamin Bloom that these categories of thinking can be ordered hierarchically and we can think of some of these as lower order of thinking skills and place some others as higher order of thinking skills.

Now, one more point I would like to make in this essay is, different ways of living also involves different ways of thinking. For example, think of the Buddhist way of dialogue making that would involve remembering to a very large extent but the process of remembering also involves evaluating and analysing , for example. The way of teaching and learning which was followed by Socrates again is a very intensely dialogic kind of learning or thinking that involved analysing in a very strong way, but this analysis was not different from application either, which again was not different from the process of understanding. On the whole, therefore, we can find -- we see that at different points in history, in different cultures all these concepts have been used differently, effectively, by different people and at different points of time we find that they have been combined very effectively to promote learning in different ways.

Now, I think we'll end the second lecture with this. Today, we have seen the history and the different paradigms of thinking skills and I have tried to talk to you about two paradigms -- one is that of Edward Glasser and the second one is that of Benjamin Bloom. Very important paradigms that have been used very extensively in the field of training. In the next lecture of this module, we shall be looking at a few more paradigms. Thank you.

Module Three

Lesson three: Some more aspects of Critical Thinking

Video url: <https://www.youtube.com/watch?v=DSAfOYAi-5M>

Video Length: 17:06

Hello everybody!! Welcome to the third lecture in this. In the previous two lectures we have been introduced to the concept of critical thinking, we have seen the different aspects of critical thinking, we have even looked at one or two paradigms of critical thinking. In this lecture we are going to continue looking at some more aspects of critical thinking. In the previous lecture we had looked at Benjamin Bloom's critical thinking and Edward Glasser's concept of critical thinking. This lecture will be looking at some more aspects of critical thinking and the critical thinking we find in the paradigm of Bruce Williams. Now, look at this. We might have done everything, we might have done all kinds of critical thinking possible, but we might arrive at the wrong conclusion and the result of jumping to wrong conclusions -- a fracture is the least damage that can be caused sometimes. Very dangerous. It can have serious complication. Be careful, be extremely careful about the conclusions we sometimes draw as a result of critical thinking. And, also be ready to critic yourself always even after a conclusion is wrong.

Aspects of critical thinking-

We have seen have till now that critical thinking is an important ingredient in almost all our activities, be it academic or non- academic. In this slide today I would try to look at a few activities of critical thinking which are also not considered to be strictly academic. For example, a chef might use it to modify an existing menu or create new dish. I think cooking involves one of the most acute forms of critical thinking that can be found around. A chef has to take care of the taste of people, the nature of the available ingredients in a certain place, the cooking methods available to him or her and finally, also the most important factor is how best it can be served, how best it can be made likable to people. Sometimes critical thinking also might be used by a cricketer. In fact, the game of cricket I think uses critical thinking in a very intensive way.. A cricket player might use it sometimes to judge an incoming ball or strategize a throw, to mislead a batsman. And you find this all the time happening in the cricket field. A painter might sometimes do critical thinking while creating concepts on the canvas. We might have to take into count the kinds of colours that can be used, we might have to take into count the kind of concepts that one wants to project on the canvas and how best it can be shown. Those of you are done a little painting will know that water colour, the use of water colours involves kind of logistics which is very different if you are using pastels or if you are using oil colour. Similarly, the canvas on which you are painting also requires us to take up different combinations to work on them differently and, most important is the kind of concept you want to evoke on the canvas, the kind of mood you would like to extend, you would try to reflect on the

canvas. All this again would need extreme amount of critical thinking, shaping the concept, gathering information, generating new kinds of insights and finally transferring it on to the canvas, transferring your thoughts on to the canvas, transferring your emotions on to the canvas, lot of critical thinking it involves. Finally, a scientist might use critical thinking to analyse the existing theories, propose new ways of looking at information, offer new solution etc. Now of all these categories I have spoken about till now I think it the scientist's work which is being accepted, recognized, and legitimized as critical thinking. But in this lecture let us rest on the fact that critical thinking is used in many other fields legitimately as well. In fact, if you have done any cooking, converting a leftover curry of the previous day into something palatable, edible, likeable, lot of critical thinking is required. Managing a small crisis which has come up at home, knowing the people involved, finding out ways of dealing with the problem, coming up with solutions and making more solutions work for you in that particular context again, lot of critical thinking is required. Do not underestimate the critical thinking that is put in by you, by the people around you on a day to day basis. Another important factor you must always remember while indulging or involving in critical thinking is that different cultures use and value different kinds of critical thinking, differently. Critical thinking is not a universal value existing out there in a vacuum. Critical thinking is appropriated, used by different cultures differently depending on the socio cultural background, the historical background a culture has different kinds of thinking evolved. And what the culture considers critical thinking might differ and when you are doing critical thinking you will have to take that culture in to count, you will have to respect the kind of critical thinking available in that culture and draw your conclusions accordingly. Now, I briefly talked about Bruce William's matrix of critical thinking. Matrix is basically a plan, a paradigm within which critical thinking is done. I will dwell a little bit on Bruce Williams matrix because I find it a very convenient, find it holistic convenient and very user-friendly matrix which can help us do critical thinking, help us conduct critical thinking in various fields. He divides it in the following way - He talks about understanding of information as one area of critical thinking, understanding of information which involves – comparing, contrasting, classifying and ranking; connecting and explaining and analysing. All this is related to what was earlier talked about in Benjamin Bloom's paradigm as facts. What will you do with facts? You compare and you contrast facts, you classify facts, you connect facts with one another, try to explain why they are connected in a certain way, you analyse why facts are the way they are. Why you are analysing it, classifying it, categorising it, in a certain way -- very important aspect of critical thinking. The second aspect of critical thinking which Bruce Williams is talking about is generating insights. The important factors over here is - evaluating or judging, visualizing or imaging; finding relationships; inferring and making analogies. Making analogies is something which very crucial, very important for every kind of critical thinking. Making analogies is basically involved in finding similarities, finding patterns, trying to see why a number of things happen together, simultaneously at the same time in a similar way and trying to understand what is the logic behind the formation of that kind of a pattern. Now, generating insights basically also involves evaluating, trying to see which kind of information is important in this situation, what kind of judgement is important in this situation. From the information available one should also be able to image, visualise, create an image of what can be done with this kind of information, how can it be categorized, what is the implication of categorizing of something in a certain way, infer meanings, infer categories, infer further meanings from it. Finally, the last category that can be talked about in the matrix is discerning implications. Discerning implications would mean finding implications in what you have earlier judged, evaluated, made analogies with. Now part of discerning implications would be applying the kinds of analogies that you have already arrived at,

applying the thoughts of insights which you have already arrived at, create new modes of thinking, functioning, doing things differently. Innovate, invent, generalise, sequence, predict and transfer your findings, your insights from one paradigm to the other. Very important here is the concept of prediction if you have understood an idea properly, if you understood the facts properly and if you have been able to categorise the facts in a proper, in an appropriate way, if you have found the logic behind the facts which are present as such you would also be able to predict effectively, see what next can happen, given another set of facts how will the behaviour of things be? Will it be same, Will it be different? If same, why, if different, why? Very important part of critical thinking skills are, are you able to predict if once you have arrived at one kind of conclusion, if once you have evaluated one set of information will you be able to predict what would happen next? Would you be able to transfer this knowledge into another context? Would you be able to generalize it? Will you be able to sequence it differently? Will you able to see what can happen in another situation, in a similar situation, etc.?

Now, interesting. I was talking about the game of cricket a while ago. Let us now see what happens in a game of cricket. I am sure many of you are interested and I have tried to look at the game of Cricket once a while, I've never played it though, and try to see what can be happening, what probably happens when a game of cricket is going on. If a team is constantly losing the game the captain might go through the following stages of critical thinking. That is what I've tried to bring it in this video. First of all, the captain might try to understand the information: Compare and contrast, the trend of failure and victory. Sort the players in the winning and the losing games, analyse the order in which the players played. The captain would have to see which are the games they have won, which are the games they have lost. Who are the people involved in the winning games, who are the people involved in the losing games? See in what order the players played and try and find out if there was something common in all the games they won and in all the games they lost. After collecting all this information the captain might want to generate insights, try and think which bowling or which batting order won well. Analyse the kinds of turfs and infer if it had any impact on the performance. Connect which player played well in what condition. Here this also one has to go beyond just the facts present, one has to also involve ones imagination, one has to focus on things which are not available and think probably this player is doing well in this kind of a turf, probably, this game is doing better in this situation probably this kind of batting order is doing better and we are able to win more. Generate insights into the game and finally the captain would also have to discern implication. Find out what the implications are. If a particular order of players are doing well in a certain kind of a turf, in a certain kind of a situation, what are the implications of this? Can the same order be replicated in another situation or is the situation so different that you will have to drastically change this order. To do this sometimes one might even have to take risks and say— "Okay, this does not look like logical but probably this would be logical, this would be the logical step and I will make this drastic change and probably this will work. Let me remind you taking risk is very important aspect of critical thinking. If you have to generate insights, if you have to predict something, there will be an element of risk involved in it, and you have to take it if have to do some amount of critical thinking.

Look at this here. What does it tell you? The poor bird the small bird over here had taken all the precautions. Maybe, made all the calculations, maybe made all the correct predictions also like it will be able to take the food away and jump from that place into a safer place right on time. But what

happens finally? It says, "The risk I took was calculated. I did calculate the pros and cons properly but man, I am bad at math". I didn't realize that this bird would swoop in at this point in time, so very aggressively and be there right in front of me like aggressive fate over there which I cannot do anything about. So, no matter how much caution you take there might be a problem. There might be a situation which you did not calculate. There will be situation which you did not see in advance, which you did not imagine would happen. What happens at such a time? The best thing is use your EQ. EQ is a short form of Emotional Quotient. We believe these days that intelligence quotient is not enough, it is not enough to be intelligent only, it is not enough to be able to draw conclusions and know what is happening or draw inferences only. If there is a failure, if there is unpredictability, if something has happened which you did not foresee would happen, how do you react in such a situation. That probably is what decides your future. Whether you are able to take the stress? Whether you are able to take the risk and whether you are able to take the responsibility of the consequence, positive or negative. So in a situation like the small bird situation the only thing that will help you is your EQ and EQ is something you will need not only in this situation but every situation which needs any amount generalizing, predicting, looking at the future, taking the risk etc.

So in this lecture today we have looked at basically Bruce Williams matrix of critical thinking skills and I have briefly tried to, in a certain sense, summarise all the different aspects of critical thinking we have done before. This I have done specifically because these skills are rather fluid in nature. They come and they go. So one needs to go on talking about it again and again, repeat it sometimes, see how they can be used in different situations, for it to settle down in your mind.

Hope you enjoyed doing this lecture, listening to this lecture. In the next lecture we'll be talking at a couple of, one tool specifically, the tool of the 'Mind Map' which will help you a lot in doing critical thinking effectively.

Thank you.

Module Three

Lesson four: Mind Mapping: A way to do Critical Thinking

Video url: <https://www.youtube.com/watch?v=WeSy7Wfa1qA>

Video Length: 17:49

Hello everybody, welcome to lecture 4 in this module on critical thinking. In the last lecture I told you that lecture four will be devoted to a tool you can use for critical thinking, a tool which I call mind mapping. Mind mapping is a concept which very closely follows the working of the brain. Mind mapping follows basically the process of what is called radiant thinking. Now radiant thinking works something like that. Have you seen a pebble being thrown into a pond? It falls at one place and the ripples start moving from the middle outside; from the centre to the boundaries. Now it works something like this probably. Yeah, you keep moving from here, from one point to the other. This is an image of radiant thinking which was made by one of the thinkers. Now this is a way we start thinking from the centre outwards. It is called the process of radiant thinking. Yeah. Now, have you ever seen the neural structure of the brain? How does it look? If you look at it you might compare it to a cobweb; you might say it looks like a cluster which has been just put together. This cluster never goes in straight lines; this cluster never operates from the left to the right or the right to the left; it does not go from the top to the bottom either. So, many people say that this whole process of reading which we have devised, this whole process of writing which we have devised for ourselves -- writing from the left to the right or the right to the left, from top to the bottom on a white page, writing in the blank page with black ink is a process which basically can make the brain go to sleep.

I'll show you a picture of how the brain looks -- Do you see it here, this is a very basic, a very basic picture of the neural structure of the brain. Now, this bulging roundish kind of a place over here can be called the cell nucleus. And here you have the thought impulse. The electromagnetic impulse gets fired in this nucleus and subsequently it travels along these lines. It travels along these lines which are called dendrites. As you see, the dendrites are not straight. They move along these feather-like structures, tree-like structures and the thought impulse, the electro-magnetic impulse keeps moving from one dendrite to the other. Significant over here is the fact that the dendrites can move in any direction the brain wants. Like the thought impulse can move in this direction, and go in here. Or it can even go in another direction, move in from here and take a different trajectory altogether. A closer look at this kind of a structure will tell us that these dendrites are connected by what are called the synaptic fluid. They are not linked with one another; they are not stuck to one another. There is a tiny gap through which the electromagnetic impulse jumps from one to the other. If you look at this also closely you will find that they are not linked with one another. Can you see the gap over here in between the two dendrites? The electrochemical impulse comes from somewhere here. It travels along the dendrite, comes to this point and takes a jump from here to here, and moves along this way. At every point in time, every second thousands of nerve impulses get fired in this cell nucleus and they start traveling from inside to outside. Now a significant fact over here is, if you

notice, clearly none of these are in a straight line. So we find that a thought or an electrochemical impulse moves from neuron to neuron, through the synaptic process. Every neuron gets messages from thousands of neurons and passes on thousands of messages in turn almost simultaneously. Now significantly, the path along which the impulse travels, the brain gets used to. There is resistance along every path. So if you are thinking a thought very frequently the path also gets cleared, so automatically the thought keeps moving in a certain direction because the electromagnetic resistance along that path is the least. So if you want to alter your process of thinking, you want to think differently, you want to drastically change the way you feel or you think about something, you have to deliberately think differently. It is not easy to think so it is not easy to change the direction in which the electromagnetic resistance is. It's easy to flow in the direction where the electromagnetic resistance has already become less. But to think a new thought one has to break the habit, one has to break the pattern, one has to create new kinds of electromagnetic paths which one can think about, which one can travel in.

Mind mapping is a concept which was for the first time talked about by psychologists and an educational consultant called Tony Buzan. According to him, a mind map is a brilliant way to organize thoughts and recall any information. He says, a mind map can basically be used as a graphic technique, a wonderful graphic technique of representing ideas on any topic. It can be used to gather existing ideas. It can be used to connect existing ideas, it can be used to understand complicated systems and finally it can be used to create new ideas.

Now we'll very briefly see why it becomes such a convenient process, such a convenient method of working. First of all, it works along with the brain. It works the way the brain works. It works in lines which are not straight. It works through colours, it moves in a way which allows us to move from association to association. Now, association making is another very important factor, another very important principle which operates in the functioning of the brain and a mind map allows us to make associations freely and not have to structure it at every point. A mind map is like following the brain's usual normal way of functioning because it imitates the process of radiant thinking. It moves from Centre outside. It moves through the process of association making. It works better through images, through pictures. Have you heard the saying, "a picture is worth a thousand words"? The moment you show a picture you are crystallizing channelizing bringing in a lot more than just words can do. And a mind map allows us to think through pictures, peg the thoughts to pictures and see where it can move from that point. This enables us to make connections, make relations, make associations which can become very important for generating insights while making a mind map while thinking a new thought. Again, a mind map moves along lines that the brain is used to make associations; it generally follows the path of least electromagnetic resistance. This is what we have been talking about but for innovative thinking, for what is called lateral thinking one has to break this path of least electromagnetic resistance and move on to new ways of thinking and functioning. Can we do a mind map today? Let us see how we can do it. The best way to do it is to start with a main idea. Probably I'll draw it for you over here but before we draw it I would request you all to go to this link and listen to a talk on YouTube, a talk by Tony Buzan on how a mind map can be done and how it can be interesting to do. I will be drawing a lot from his talk and I'll briefly be trying to see how we can create a mind map on paper. Now, to make a mind map the most important thing is have a plain piece of paper, a piece of paper placed not in the portrait mode but the landscape mode. We need space to move laterally, so put the image in the middle, put a picture, put the basic idea you have in the form of a picture and from inside always move outside. It is better if you can

make the lines thicker and then thinner. Thicker and then thinner. I am not able to do that correctly over here -- see how the lines can move from inside to outside and then create your sub-points. This is very important if you are trying to make the main points. The most rudimentary thing in a reading passage, you have the main idea of the reading passage in the centre. Even as you are reading you start putting the main points along these lines and even as you come across the sub points you start putting the sub points along these lines over here like this. Tony Buzan will tell you it is very important for you to put one thought along every line. Every line should be pegged to one thought only because that thought will help you branch out into many other thoughts gradually. The most important thing is you can even make associations freely. Suppose you find this idea is in some ways related to the idea over here, connect it. You are free to connect it the way you can move out in branches and sub-branches creating new thoughts creating new associations creating new images. Look at this now start with the main idea, create images wherever possible, branch out to sub ideas -- the ideas here move from the centre to the fringes that is what we have done. Remember we kept moving from the centre to the fringes. Here every idea leads to a spray of associations. And each of this again becomes the source of another spray of associated ideas. Tony Buzan also says, work along curved lines, ideally have one word as a peg in every line. Finally he also says, work with different colours. The brain works better with colours. Have you heard about the right and the left side of the brain? If the right side is primarily responsible for logical thought, the left side is responsible for creative thought. If the right side works with words better, the left side would work with pictures, associations, better colours, better. Try a simple thing --if you are feeling bored, you do not want to study, you find it difficult to concentrate, pick up a bunch of colour papers, pick up a bunch of colour pens and start working. Start doing a mind map of whatever you are reading. Immediately you will feel your brain coming live, giving you more ideas, taking you to new associations, bringing in more thoughts which you never thought was possible before. Try this simple technique it might help you a lot.

Now look at this picture of the mind map, a picture which I have taken from the internet. Again some basic principles of mind mapping are present over here. Keep moving, do not stop. Keep drawing empty lines whenever you don't find ideas it's very important to keep empty lines because sometimes if there is a pattern in which there are empty slots the brain itself tries to complete those empty slots. Heard of something called the Gestalt? Now it is again important when you are making a mind map not to judge because you might think an idea is not important but whenever an idea comes to your mind, it is important for you to put it down, pen it. Keep it. You might discard it later doesn't matter but do not judge on the spot. Whatever idea that comes into your mind put on the paper. Make associations, add branches, add categories, make subcategories think fast, try to capture the explosion of ideas. You know how fast the brain thinks? And sometimes the way of writing from right to left or left to right does not allow us to catch the bursts of ideas which come from time to time in our brain. A mind map is a very convenient way, a very effective tool to capture these bursts of ideas. So let the mind map capture your ideas, make the associations, lead you from one to the other. Later you can decide how much of it you want and how much of it you do not want.

In mind mapping, one very important factor is relatedness. Critical thinking is majorly relating data around, and this can best be done with the help of a mind map. It can help you perceive relationships, it can help you create connectedness it can also finally lead you to critical thinking. It can help you figure changing relationships, it can help you figure new patterns and finally make new

associations. Forge better associations, and finally make new ideas. Mind maps are the meta language of the human race so start mind mapping today see how best you can organize your ideas, bring your ideas together with the help of a mind map. I'm sure you'll enjoy doing it.

Look at this picture do you think Einstein did not succeed in what he was doing because he chose to work in straight lines? Maybe he would have been able to do that --

So would that make my second cousin once removed the great aunt of my first cousin twice removed? No wait it can't be right.

Only an Indian mind can solve this kind of a complex theory and that also we might solve it better if we can make association making through mind mapping. And probably that is why he thought relativity was easier than doing that kind of an association. I have a small assignment for you after this. The assignment is there on your screen -- Imagine a system that would help mute people convey messages to people around who cannot understand the sign language. Can you put this in the form of a mind map? Probably I would like you to come on to the forum with a rough mind map, take a scanned copy of it and put it. Let's see how you people do it. Maybe I can give you some feedback .You can follow some of the principles which are already there in this slide and we can discuss this for further in the forum.

Thank you. I hope all of you start doing a make a mind map make mind mapping a habit while reading or thinking.

Thank you.

Module Three

Lesson five: Critical Thinking in the Field of Engineering

Video url: <https://www.youtube.com/watch?v=Da-CDrAfpQw>

Video Length: 13:23

Hello, welcome everybody, welcome to the fifth lecture in this module on critical thinking. You remember that in the last lecture I had spoken to you about mind mapping and even shown you how to do a small mind map and explained how mind mapping is very much similar to the operation of the brain and that is why it helps us think creatively, think critically. In this lecture today, we shall be talking about critical thinking in the field of engineering. Now, before I begin this, I would like us to briefly go back to one topic which would be very much essential in the present in today's lecture. That is, reflexive thinking. I did mention it briefly in the last lecture but did not dwell much on it. I thought I should briefly tell you a little about reflexive thinking. Reflexive thinking is a kind of thinking, is a quality of thinking which is very important in what these days is called qualitative research. Now, it involves understanding, it involves thinking about one's own thinking process. It involves the process of understanding ones feeling, acknowledging the baggage of assumptions and ideological bias one might have. Now, this is one very important point which we all have to take into account, we all have to give a lot of importance too, as critical thinkers, that is, acknowledging the baggage of assumptions and ideological bias one might have. I would like, you all to think, contemplate, and tell, maybe, in the forum, we can discuss about it, about what an ideological baggage is. Would you agree with me if I tell you that every action of ours, every decision we take has an ideology behind it. Would you agree with me if I tell you that you go to the supermarket, and buy a certain kind of food, whether you choose organic food or you choose processed food, you go to a book shop and there are two editions of the same book—one, a very glossy good looking well printed international edition and one not very good looking Indian edition, you are making an ideological choice at that point. If you are buying clothes in a shop, you are making a big ideological choice. Every and each choice has an ideological assumption behind it. Each of these choices has a certain belief structure behind it. Now, if all these small actions of ours involve ideological choices, involve assumptions, how can critical thinking not involve assumptions, how can critical thinking not involve ideological choices? That is where I would like you to think about the choices we have to make when, for example, we are building a dam, a choice we have to make when we are trying to build a kind of structure. What are the implications this has for everybody? What are the implications it has for us as a nation? What are the implication it has for the different sections of the nation? Do we agree? Do we not agree? Then once we are conscious of our biases, reflexive thinking means one has to understand how it involves, how it influences our judgements and our analysis. How it influences the conclusion we make about certain things and may be again finally we go back to our thinking, we go back to our feeling and reconsider and rethink what we have been thinking. Now, I would like you to come back to the field of Engineering. Critical thinking in the field of Engineering, and we'll see how in so many different ways reflective thinking becomes a part of

critical thinking in the field of Engineering. But before you begin, have a look at this, it says “Cheers to all the people who can change their minds when presented with information that contradicts their beliefs”. Would you think that there are very few such people? Would you think it is very difficult to change our mind eventually even when you are presented with facts and arguments? But if you want to be a critical thinker probably, one has to. You have to try change your beliefs. But still, cheers to the few people who can change and cheers to all of you will probably change once you go through this course. Now, critical thinking in the field of engineering involves the following - evaluating a data, it involves recognizing contradictions, it involves analysing assumptions, analysing concepts and it also involves evaluating different points of view. Evaluating a data involves judging, weighing facts and seeing what would be right or wrong. Analysing assumptions means analysing concepts like as I mentioned before, the concept of thinking of a dam the concept of making a cooling system probably, the concept of making bio degradable plates with which one can eat. How do you analyse such assumptions? How do you weigh such assumptions? How do you judge such assumption? Sometimes in the assumptions we might even find contradictions. Contradictions basically come in the form of different points of view. Contradictions also come in the form of ideological contradictions. I'm sure all of you are familiar what kind of contradictions we have when, for example, you think of building a dam. If it is engineering marvel for group of people, it is agricultural success for another group but for the third group it means losing their place of home, losing their home, losing their land, losing their culture which has been built over a period of decade, two decade and 3 decades etc. And one has to function in the midst of these ideological choices; one has to make certain choices at one point of time, at every point of time, in fact. And decide finally that which is for the general good. But I would give you a word of caution -- what is general good sometimes can become very difficult to understand, decipher and even unearth. The final thing which is important for critical thinking in the field of Engineering is evaluating points of view. And that is what I mentioned last. How valid is my point of view? How many people are benefitting from my point of view? The people who are being harmed, how great is their harm. The people who are being benefitted, how much is their benefit? Is the benefit worth causing the harm? These are the things one has to evaluate. And these very integrally form part of what we have seen earlier as reflexive thinking.

R. W. Paul and Elder L. have pointed out 8 factors which are very important for critical thinking for engineer. They say, *“Whenever we think we think for a purpose within a point of view, based on assumptions, leading to implications or consequences. We use data, we use facts and experiences and make inferences and judgement”*. I would like you to think of these 8 factors as the corner stones of critical thinking in the field of engineering. Let's briefly examine, look at these points. The purpose -- one has to think why a certain project is being developed, who are the beneficiaries of this project, who wants this project to be developed, who are the beneficiaries is it viable financially, is their enough of technology available to build it, is it viable etc. One has to also consider the points of view. The point of view which you have or which you have been given at the point of designing this project, is that the only point of view available or there are other point of views also? I will narrate a very interesting incident at this point. There was an incident in Rajasthan which has been reported in one of the text books. There was an engineer who suddenly thought, he was building a factory and he thought that for the workers, not for the workers, for the people in the nearby villages he has to make water available at their homes, and he set up the plant, and he made the water available, and suddenly pipe lines were put and water started coming to homes. After all it

was over, he gets up expecting a huge reception. And he finds huge protests over there, women protesting. And he thought he was building these pipe lines to help the women. To make sure that they do not have to go very far to fetch water. And there were these groups of women protesting telling him, “who asked you to build this. Did you take our point of view into account before you built this? This was only time we had to go out with friends, to relax, to have some fun, to talk with our friends. And now by bringing water to our houses you had taken away that little bit of time that we had for ourselves also”. The whole project had to be stopped at that point. This has been mentioned in a text book which talks of how sometimes we make policies without considering whether the people for whom it is being made are being really benefitted or not, what are the points of view, are there alternative viewpoints also which we may not have thought of. One has to be very careful of these factors while making decisions. And these also involve making assumptions. We make assumptions about what is useful. But are we also thinking of the environmental risks it contains? Are we thinking of the marketability factors? Are we thinking of whether a certain kind of project, innovation, a gadget, is seriously making a dent, hampering, making an impact on the socio-cultural system we have lived in? One has to take those considerations also into account while doing some project. And finally, one has to think in terms of the available information. Is it free of bias? Is there any other source of information available which you have not tapped? We have to think in terms of the concepts which are used in the designing. Is there enough awareness of the competing model? Are you taking the best model which is best suited for that system? What are the implications of building this? And finally what are the inferences that can be done that can be made about the financial and technological necessities of the people we are doing the project for. As I have been talking, you would notice that apart from the technical factors, apart from the engineering factors, in a field like this one has to take into account very seriously the ethical points. One has to have intellectual humility and understand that even if you think that something is important, somebody else may not think it is important. And if it is meant for the person who does not think it is important you have to yield at that point, give way and say if it is not important for you this will not be done. One has to also keep in mind the varied priorities and see how whatever is being done can be channelled differently, deployed alternatively, or may be not made at all.

Now these are the important things which form the part of critical thinking, the crux of critical thinking in the field of engineering. In the next lecture I will try to bring to you 2 case studies and we will try and see how these different factors become operative in real life when certain project has to be taken up, when certain very important innovations which impact the life of many are made. Hope you liked lecture. Hope you have understood the important factors which will be very crucial as engineers to take into account while thinking of projects, and I also hope you will appreciate the next two case studies we will take up in the next lecture.

Thank you.

Module Three

Lesson six: Critical Thinking in Engineering- Case Studies

Video url: <https://www.youtube.com/watch?v=os2w-ZVfst>

Video Length: 13:05

Hello and welcome to the sixth and the last lecture of this module on critical thinking. Before we start the lecture, I would like you to look at this picture. What do you make of it? The picture has been divided into three – information, knowledge, and wisdom. Please contact me at the forum and let us make something of this picture. How does it feed into critical thinking? Do you think there is a lot of critical thinking involved in it? I would request you to go back to all the points I have discussed. See how this picture fits into the different paradigms of critical thinking. Now, as I had told you in the previous lecture, this lecture will be discussing two case studies very briefly. Maybe, you can read more about them. I have given you the link to these case studies. You can find them in the internet and read. The first case study pertains to a person called Sam Pitroda. Heard of him? His name is Satya Nadella Gangaram Pitroda. He was a person who brought about the telecom revolution in India in the 1980's, early 1980's. All of you are so used to an STD booth. Even STD booths are outdated these days. You all have mobile phones with you. When we were students, we had a lot of use of the STD boots and the PCOs. Now, do you know who the person who made this possible in India was? It was Sam Pitroda .He was basically a telecom engineer, the man behind the India's telecom revolution. He single-handedly almost transformed the complete telecom scenario in India. His focus was primarily on the rural telecom. He helped in digitizing the whole telecom industry and made sure that it was telephone accessibility, not telephone density which was the focus in the innovation. How did he begin this? I bring here a small extract from an interview which he had given in the television. Sam Pitroda says,

Once I was in India and staying in a hotel. Interestingly, I saw a few people taking out a funeral of dead phones. I was intrigued that phones did not work in India. I tried to call my wife back at Chicago but the phone did not work I told myself with a little bit of ignorance and a lot of arrogance that I will fix this. If I would have known about the India that I know today, I would not have tried it. Ignorance is a great asset. I told them, we need to digitize our technology and for that we don't need to buy it from another country. We have enough talent in our own country.

What is very interesting for me here is the statement that, with a little bit of ignorance and a lot of arrogance he decided to take up this project of revolutionizing the telecom industry. Will you agree that a little bit of ignorance is necessary at times to take up something that is very risky and sometimes one needs to also have the arrogance, the confidence to say 'yes' to it? That is exactly what helped Sam Pitroda to do this job. Now look at the various questions that were very important for Sam Pitroda at that point. Do you think Sam Pitroda's decision was impulsive? He says, one morning he could not access the phone. One morning he could not talk to people and that is when

he decided that a telecom revolution has to be taken up. Do you think it was impulsive, or was it the outcome of quick and convincing reasoning? What do you think was the reasons for which he decided to do this? What kind of data did he have, technical and social, to take up a decision like this? To take up a project of this magnitude? And what are the implications he would have considered before starting the project? Suppose I asked you to go back to the point we had done before, the points which are necessary for critical thinking skills in the field of engineering? That is, the purpose of what is done, who is doing it, why? For what purpose? The different points of views which have to be considered, the socio-cultural factors, the thinking of utility, the different assumptions which are there behind taking a decision, the assumptions about the usefulness, the assumptions about the risks, the assumptions about the utility, the available information we have about whether people needed information, whether we have the talent sources, information, whether we have the technology available and finally the different concepts involved, the inferences which are being made. Can we look at Sam Pitroda's project from this perspective? Do you think there were contradictions in this project which he took up? Do you think he made assumptions which were right? What are your views what are your feelings about the telecom revolution that has happened in India? How do you translate whatever he has told in this slide over here into the whole process of critical thinking? Let us know about it. We can discuss a little more about this in the forum.

The other case study I want to take up over here is about a Norwegian city called Rjukan. The pronunciation is /rookan/ because the Norwegian language pronounces /ju/ as /oo/. This is the second case study, which is about a small city in between a valley of Norway which is called Rjukan. The pronunciation is /rookan/ because in the Norwegian language /ju/ translates to double 'o'. Now this is a town which was basically set up for workers to live in. It was set up by an engineer, an industrialist who wanted to capture the electricity and set up a hydroelectricity plant which was meant to generate electricity from a hundred meter waterfall in the hills. Now unfortunately, this was a place which had most of the amenities which are necessary but which stayed in the shadow for almost half the year. So right from September, mid-September till March beginning, the town would be in shadow. And gradually people would realize that they would have to move further and further away to get a patch of the sun, to enjoy a little bit of sunlight. Now if you have lived ever without sunlight you know it can be extremely depressing, extremely sad to live in a place which has no sunlight. Now, there was one person called Martin Anderson and he took it on himself to change the scenario. And high on the mountain, 450 metres above the town, he put three large solar powered computer-controlled mirrors which reflected the sunlight down into the city and bathed the market-place of the city in sunlight. Now this is what the small report says:

In the Norwegian town of Rjukan a valley shone for the first time in autumn when Martin Anderson managed to reflect the sunlight from the hills with the help of three large solar powered mirrors. The mirrors are computer-controlled, they track the movement of the Sun on the hills across the sky and reflect its rays down the market square of town.

If you want to read the entire article, very interesting article with lovely pictures, you have it down here in the link. Go to the Internet you can access it very easily. Now this was not an easy decision to take. There were people who opposed this view. This was not an easy task to do. Also, like for example, Martin Henderson said, in the municipal office there was not a stamping pad which said -- Money to be given for making mirrors which will reflect the sunlight down into the city. He again had

to decide how much of the city had to be lit. There was a choice of lighting up a larger space with diffused sunlight or a smaller space with focused light. And he decided to choose the marketplace where people would generally come and sit. The elderly would come and chat, people would get their toddlers to bathe in the Sun. That is a place where people generally sit and relax. So he decided to light up that small patch in this whole city to have sunlight. There were other objections also, like for example, some people thought the money which was being spent on this could have been spent on building a home for the elderly. The recurring cost which this would have might become very difficult for the place, for the city to meet in the coming years. Not that they were not right. They are different viewpoints. But Martin Anderson had a viewpoint also. He made certain assumptions about the needs of people, about the basic need which people have for a little sunlight in their lives. And he decided to go ahead with the project. Now what do you think about the purpose which Martin Anderson had when he made this project? What do you think about his point of view, and the points of view of others regarding this project? What do you think about the assumptions, the concepts, the available information and the inferences? Now think of these factors and again come to me in the forum. Let us discuss this case study also and see how critical thinking would have operated to make this project successful.

Before we finish, I would like you to have a very close look at this picture which says, *So, we want you to think critically, while you think about thinking critically.*

First, a tongue-twister probably but something which is very important. You are doing critical thinking but are you thinking about critical thinking itself critically? Are you conscious about the assumptions behind critical thinking? Are you conscious about the ideological consequences of critical thinking? Have to, because that is critical thinking on critical thinking.

I would like to briefly summarize what we have done in all the six lectures. I have basically introduced you to the concept of critical thinking, I have told you about the different aspects, the important aspects of critical thinking. I have taken you to mind-mapping, a very important tool to promote critical thinking and finally, we have done a little on critical thinking for engineers. Here, I have tried to give you these two case studies and given you the basic factors of critical thinking which are important in engineering. In the following discussions we will have in the forum, I hope you will be able to understand, generate more ideas, give us all more ideas about what you think about these case studies and whether critical thinking was used and how it was used.

Thank you all. Hope you enjoyed doing this module. Hope to receive some feedback also about how you like the different aspects which have gone into this.



Week Four

Module 4: Importance of Ethics in engineering profession- Introduction & Evolution

Instructor's Name- Prof. I. Ramabrahmam
& Mr. A. Viswanath



Manas R Panigrahi

Module Four

Lesson one: Introduction to Ethics

Video url: <https://www.youtube.com/watch?v=grkmyAbrdTo>

Video Length: 18:08

We welcome you to the MOOC on Life Skills for Engineers. It is divided into six themes and handled by Mr. A. Viswanath and me. I am Ramabrahmam and I teach Political Science at the University of Hyderabad. The other, Mr. A. Viswanath is a practicing engineer in the energy sector with more than 30 years of experience.

Let us look at the overall approach to this module, which deals with genesis and theories and it talks why ethics occupy a significant place in engineering. It also deals with the evolution, moral and ethical dilemmas and hierarchy of moral values, factors affecting moral responsibility and degrees of responsibility.

The main objective is to introduce to you the concept of ethics and its origins and to enable you to understand the significance especially in the domain of engineering and also understand it especially in the context of responsibilities as engineers. It then provides inputs on ethical dilemmas and factors that affect the moral responsibility and finally empowers you with requisite skills for effective decision-making. It also emphasizes on what is good that always commands the attention of almost all professions, particularly the engineering profession?

The distribution of this part deals with the genesis of ethics and the theories of ethics an outline of origins and the ethical theories that have eventually been applied to various professions. As a learner, one must also appreciate the theory- building and knowledge which helps in appreciating a framework for understanding.

Coming to the third presentation, it deals with the main aspects like ethics in engineering and we will explore why we need ethics in engineering at all and their significance. The fourth lecture is on code of ethics and it helps in understanding the code of ethics in engineering and its evolution. The fifth one provides you insights into the moral and the ethical aspects of the hierarchy of values. This presents to you how conflicts of interest and ethical dilemmas play a part in effective decision-making.

The last part deals with the factors that generally affect the moral responsibility and the degree of responsibilities. Towards the end of the sixth lecture, you will be in a position to understand the foundations of ethics and definitions. Why they are relevant in the present day context in making decisions and what are the ethical concerns that have to be kept in mind is also dealt in this part.

Through these six presentations that are spread over a week, you would also know your progress through an evaluation which consists of 25 objective type questions. If you wish to obtain a certificate after the completion, you will get it following the rules and regulations set by the

Commonwealth Educational Media Center for Asia (CEMCA), an organization of Commonwealth of Learning.

Let us see the first module: Introduction on what is ethics. Everywhere, you will notice using the word ethics and also a question, why do we compromise on ethics? Everyone says either knowingly or unknowingly, there are no morals in society. We also hear that people stopped observing ethics.

It may be recalled that a very eminent engineer in India, Mokshagundam Visweswaraya, born in 1861 contributed immensely to the nation's growth and development and many people say that he was a scholar par excellence and a practicing engineer who contributed a lot for maintaining the ethical canons. In 1915, King George V knighted Mokshagundam Visveswaraya as a commander of the British Indian Empire. Such was our tradition of the high- quality engineering brains. The nation progressed very effectively under their leadership. But, nowadays, why are we talking about the falling standards. This is because the minimum knowledge about ethics is absent.

Right from the invention of the safety pin to the working of Mars Rover, the relevance of engineer is unquestionable in society. With the advent of technologies and the greater public good being targeted by engineering, ethics now constitutes a part of curricula across the world. The reason behind this is simple. Decision-making like engineering design may have multiple solutions. How well and how efficiently do engineers make right choices amidst multi- dimensional approaches of good and bad in their profession is what is now commanding the attention.

An engineer needs to be a perfect amalgamation of the knowledge in his discipline and life skills. The cost of unethical behavior and its consequences are much more now than it was few decades ago. To generate a healthy debate amongst us, if you look at it, like in 2017, an engineer in Volkswagen in the United States of America was sentenced for 40 months of imprisonment with a fine of \$200,000 as he was involved installing software in the vehicles. Nearly, 11 million diesel cars manufactured between 2009 and 2015 reported to have circumvented norms for air pollution. Similarly, if one looks at the Mumbai railway stampede at Elphinstone station in 2017, it killed 22 people. In Kolkata, in 2016, part of under-construction flyover collapsed. In October 2017, there was a Yahoo data Breach where almost every single customer account that existed in 2013 was affected by data breach.

The December 1984 Bhopal gas tragedy, where toxic gases released at Union Carbide pesticide plant resulted in 5,295 death and the after-effects are still continuing even to this day. A number of such incidents have been happening and people are attributing to ethical compromise at various levels.

Who should be held responsible and what are the reasons? Are they really merely accidents or do they not involve somebody's accountability or responsibility? Does ethics and morality play a role in such instances or matters of deeper concern for youngsters and practicing engineers? Those who are studying and also those interested to know may note that all these are due to critical deviations, and also norms that have risked public safety.

Organizations became liable for legal action for adopting unethical practices in engineering and conducting businesses while putting the public interest at stake. What are these ethics and how are they different from morals? We need to examine this.

Some of these are taught right from our childhood. In terms of etymology or the origin, the term “ethics” derives from the Greek word “*ethos*,” meaning character. Some of you must have heard that so and so fellow is a characterless fellow and so and so is a man of principles. We use it almost every day.

A broad classification is observed that he/ she good or bad is how we are arriving at a kind of a judgment. According to Oxford Dictionary, ethics are moral principles that govern a person's behaviour or conduct of an activity. Moral principles govern a person's behaviour or the conduct of an activity. I am repeating because this is crucial for our discussion.

What are morals? In Latin, “*mos*”, “*mores*”, “*moralis*” translates as customs. According to Oxford Dictionary, morals are concerned with the principles of right and wrong behaviour. Morals make their first entry into anyone's life. Parents tell us the do's and don'ts. In schools too, from childhood, we are taught morals which are reinforced at every stage in an individual's life.

Let me repeat, it is common for all of us to have two types of identities- one is the personal and the other professional. Personal identity is related to our personal life and our personality. Parallel to this, there is also a professional self that is related to our work life and our career. It is natural for us to be ethical, both in our personal and professional lives.

Ethics and morals relate to right and wrong conduct of an individual. As our capacity to think increases, we experience various kinds of dilemmas leading to moral judgments. It is here that ethics comes into picture. The other aspects relate to the standards of human behaviour to make judgments about self, personal or group situations. Standards of human behaviour determine judgments in workplace.

In profession related situations, one has to be aware of unethical behaviour. What do you think are the key drivers for unethical behaviour? What make us to do wrong things or make wrong decisions? How do we deal with unprofessional or unhealthy behaviour and competition? When we are in a hurry to make quick results, many times, unethical decisions are resorted to and these are one of the main causes for indulging in compromises. In this presentation, we noted the meaning of ethics and why it is needed in general and why ethics are relevant particularly for the engineering profession. Besides, we noted why we generally indulge in unhealthy or immoral practices.

In the next session, we will discuss on the genesis and theories relating to ethics.

Thank You.

Module Four

Lesson Two: Ethics- Genesis and Theories

Video url: <https://www.youtube.com/watch?v=lnzl4DorPDs>

Video Length: 20:53

Welcome to the second lecture in the module on Ethics. In the introductory lecture, we have taken note of the main objectives of the Module and the significant outcomes. We have also mentioned about the rules for certification and the key takeaways. We attempted an understanding of the basic concepts like ethics and morality. In this lecture, we will be noting the main theories relating to ethics that eventually came into application into various professions.

The sense of having ethics in a profession was prompted by lot of contributions from intellectuals across the globe. So, this module presents you as to what is the need for discussion about ethics. Ethical theories are the principles or rules based on different kinds of approaches. In other words, each of these ethical theories have a different approach to ethics- while some emphasize on rules, some others emphasize on actions.

One must understand that theory building and knowledge of theories help us in building a framework for an effective decision- making. So, as budding professionals or emerging professionals and those who are already into this profession, you usually encounter various situations many times. You may be expected to differentiate between the right and wrong often and what is the best that can be done in given situations or circumstances.

Let us look at some thoughts of Descartes, a French philosopher, mathematician of the 17th century. It is interesting to quote from his work, "Discourse on Method," he observed, "The power of judging well and of distinguishing the true from the false- which is what we properly call good sense or reason is naturally equal in all men."

"Our opinions differ not because some of us are more reasonable than other, but solely because we take our thoughts along different paths and don't attend to the same things."

It must be emphasized that our opinions differ not because some of us are more reasonable than others but solely because we take our thoughts along different paths and don't attend to the same things. This brings us to an important aspect here like the genesis of that how theory building and knowledge of theories build a framework for effective decision- making. The technical knowledge generally helps us to know what is laid down as per a particular theory or a particular approach. But, we need to go also by other aspects that govern in this regard. The knowledge about a particular area helps in building a framework for effect decision- making. This is crucial for us and we cannot go deeply into the historical aspects at the present juncture. Ethical theories find their origins in the Western philosophy originating from Europe and Middle East largely influenced by ancient religious thought. The same is the case in the Indian context where references to ethics are made in the Rig Veda and the concept of Dharma. Various aspects deal with duty obligation and righteousness that emphasize that ethical values are considered the ultimate and everybody is expected to perform

their duty. There are also several sources, like the Upanishads, the Ramayana and the Dharma Shashtra and several others sources in which the traces of the origins of ethics can be found. It further emphasizes that the ethical values are considered ultimate and everybody is expected to perform their duty.

Socrates, Aristotle, Plato, Buddha Kautilya and many other philosophers took the discussion relating to the ethical conduct forward on ethics through their works. Many works and many philosophers included the concept of ethics and morality opening up a wide array of inputs and insights. What is good and what is bad is always a question that haunts many of us in many professions. For example, don't copy in an examination. This is instilled to you right from Class I. A violation of it is seen as unethical conduct on our end and also led to punishment. This can be extended to any area.

The theories of Ethics are broadly classified into three types. First is the Meta Ethics, second is Normative Ethics or Prescriptive Ethics and third is Applied Ethics. These three are further divided into different branches.

Meta Ethics is divided as Moral- Realism and Moral Anti- Realism. Normative Ethics is further classified as Teleological Ethics, Deontological Ethics and Virtue Ethics. The Meta Ethics deals with the meanings and nature of ethical judgments, which is divided as Moral Realism and Moral Anti-Realism. The second type of ethics is Normative Ethics which deals with how things should be or ought to be. It is further divided as Teleological, Deontological and Virtue Ethics. The last type is the Applied Ethics, as the name suggests, is the application to ethical theory to real life situations, specifically in professions.

In the first lecture, we referred to a number of accidents that took place. We noted that in practice the violation of ethics is clearly showing a compromise. You need to see how it is to be applied to certain specific situations. There is a compromise on what is called rules. So, applied ethical theory in real life situations and engineering ethics falls into this particular domain and we can regard it as an example.

Now, when we look at the normative ethics, we can see that the first approach under it is teleological ethics. It is derived from the Greek word, "*telos*" which means purpose or goal and "*logos*" is the science or study. This is also known as what is called consequentialism which emphasizes on questions like "How is it going to affect?" "What are the consequences of a particular action?" and so on.

Jeremy Bentham and John Stuart Mill are two of the proponents of Utilitarianism, a philosophical theory under Teleological Ethics. By utilitarianism, According to utilitarianism, actions are good that serve to maximise well- being of the greatest number. In other words, Utilitarianism can be understood as a theory of welfare, which focuses on maximizing the well-being of not just one individual or a group of individuals but the society as a whole. So, if you see how it is important for engineers, actions that result in good as far as the maximum number and that bring in greatest welfare. It can be understood as a theory of welfare focusing on maximizing the well- being of not just one individual or group of individuals but the society as a whole. The concept of Utilitarianism is further classified as Act Utilitarianism and Rule Utilitarianism. While Act Utilitarianism emphasises on individual actions rather than rules, Rule Utilitarianism, as the name suggests emphasises on rules. According to Act Utilitarianism, individual actions should be based on whether the most good is produced in a given situation and rules should be broken if doing good so will lead to the most good.

One should base their actions in such a way that most good is produced in a situation. It is further said that if the actions lead to the most good, rules should be broken. On the contrary, Rule Utilitarianism asserts that moral rules or principles are the most important. Common principles like “don’t steal,” “don’t harm others” etc. are some of the rules that fall under the Rule Utilitarianism.

It emphasizes that even though adherence to these moral principles may not do the maximum good, it believes that adherence to them will ultimately lead to the maximum good. As engineers who design processes and products that affect the lives of many people and their welfare, greatest happiness has to be the primary consideration in the profession when it comes to teleological ethics. As Charles Fleddermann (2008) points that Utilitarianism is fundamental to many types of engineering analysis including risk- benefit analysis and cost- benefit analysis.

Deontological ethics is another type of normative ethics. The word Deontological is derived from the Greek word “Deon” which translates as duty and “logos” is the science or study. Deontological Ethics emphasises on adherence to rules and fulfilment of duties. It deals with some of the questions like “What is my duty?” “What I ought to do?” “What is the right thing to do”? According to Deontological Ethics, actions are judged as ethical unethical on the basis of duty or the individual’s intentions rather than the consequences.

John Locke and Immanuel Kant are the prominent philosophers of deontological ethics. John Locke is an English philosopher who emphasized on rights ethics, that is, on natural rights of individuals like right to life liberty and property, popular today as human rights. Another perspective of deontological ethics is by Immanuel Kant, a German philosopher of the 18th century. According to him, the rightness or wrongness of actions doesn't depend on the consequences but on whether they fulfil the duty. It is the opposite of what we discussed in utilitarianism. It is dependent on the consequences whether they fulfil the duty or not. He believed that it was the supreme principle of morality. In other words, obligation is the basis for motivation.

The last type of ethics is the Virtue Ethics. As is the case in the decision on the construction of a dam, there is a middle path. In this case, any construction leads to rehabilitation issues or submergence of some areas. These issues come up frequently commanding the attention to virtue ethics. It emphasises on the inherent character of a person rather than on the nature or consequences of actions. In other words, the centre of morality is good character of an individual. It may be observed that the Virtue Ethics may largely constitute to personal ethics. It is undoubtedly an influencing factor of an individual’s professional morality. It may be observed that the virtue ethics may largely constitute what is called personal ethics and it is undoubtedly an influence factor of an individual’s professional morality.

Thus, these theoretical frameworks provide deeper insights for an understanding of how theory is evolved or a period of time. They provide deeper insights for effective decision- making which may result in greater good to the people.

In the next lecture, we will discuss about Applied Ethics.

Thank You.

Module Four

Lesson Three: Ethics in Engineering

Video url: <https://www.youtube.com/watch?v=1Qbj5XNICrI>

Video Length: 10:45

Welcome, to Lecture III in the Module on Importance of Ethics in Engineering Profession under the Certificate Course on Life Skills for Engineers.

I am Viswanath. I am a practicing engineer and associated with the Energy sector. In my career spanning nearly 36 years, I had the opportunity to work in the entire value chain of the conventional and renewable energy sectors in various areas including planning, design, construction, operations, finance and management.

So, as we begin today's lecture, let's have a quick recap of the Lecture II. In the last lecture, we learnt about genesis of ethics and the theories that govern it. In today's Lecture, let us explore the area of Ethics in Engineering.

Introduction- Applied Ethics

As you may recall from the last lecture, Ethics is divided into

- Meta Ethics
- Normative Ethics and
- Applied Ethics

We have seen in detail about Normative Ethics. Now, let us look at Applied Ethics.

Applied Ethics is one of the branches of ethics which deals with the analysis of particular moral issues in private and public life.¹ In simple words, Applied Ethics applies ethical theory to real life situations, specifically in professions. Professional Ethics is a classic example of Applied Ethics.

What is a Profession?

Let us first understand what a profession is.

Is it the same as a job or an occupation? We often hear the words, "He or she is a Professional." What do we mean by this? Let us now look at what is meant by a Profession so that it becomes easy for us to understand Professional Ethics.

Keeping the pay aside, let us first have a brief look at the features of a Profession, as detailed in "Engineering Ethics" by Charles B. Fleddermann.

- Firstly, Profession is a work that requires sophisticated skills, the use of judgement to differentiate between right and wrong and the freedom to act on one's own.

- Secondly, membership in the profession needs formal education. It is not just practical training or experience.
- Thirdly, there are special societies or organisations like Medical Councils or Engineering Councils that are controlled by members of the respective professions. These societies or organisations set the standards or Code of Ethics as it is popularly known, for admission into the profession etc.
- Lastly, significant public good comes out from the practice of the profession.

Engineering as a Profession

Now, from the attributes, can we conclude that Engineering is a Profession?

- Firstly, Engineering is a Profession that requires sophisticated skills, the use of judgement to differentiate between right and wrong and the freedom to act on one's own.
- Secondly, membership in the profession needs formal education like your engineering courses. It is not just practical training or experience but your education too.
- Yes, there are special societies or organisations like Engineering Council of India and Indian Society of Engineers etc. that are controlled by engineers. They have their standards or Code of Ethics, for admission into the profession and other standards etc.
- Lastly, significant public good comes out from the practice of the profession of engineering.

Professional Ethics

Professional Ethics is one of the many branches of the area of Applied Ethics. It is the set of standards or principles adopted by professionals. In other words, every profession like engineering, medicine, law, architecture etc. has its own set of professional ethics.

Engineering Ethics, for example, deals with identifying the right kind of approach to moral issues in engineering.

Ethics in Engineering

Before we understand why ethics in engineering, let us look at what engineering ethics is:

Engineering ethics consists of the responsibilities and rights that ought to be endorsed by those engaged in engineering, and also of desirable ideals and personal commitments in engineering.³ So, Ethics in Engineering consists of responsibilities or rights that **ought to be put into practice**.

Here, you may ask a question. Who sets these standards and are these standards uniform?

Like we have seen earlier, there are Professional Societies for Engineers at the national and international levels that come out with the standards or Code of Ethics. We will look at Codes of Ethics, in detail in the next lecture.

To give you some examples of professional societies, at the international level, there are bodies like National Society of Professional Engineers (NSPE), American Society of Civil Engineers, the Institute of Electrical and Electronics Engineers (IEEE). At the national level, there are bodies like Engineering

Council of India, Indian Society of Engineers (ISE), and Indian Society of Mechanical Engineers (ISME) and so on.

Let us look at some questions.

- Why should engineers be honest and fair?
- How well and how efficiently do engineers make the right decision amidst the multi-dimensional approaches of good and bad in their profession?

At this point, it is important for us to understand the significance of Ethics in Engineering.

If you recall, in Lecture 1, we looked at cases of how set norms were neglected by an engineer in Volkswagen. We saw few other cases of flyover collapses and data breaches. As a result, in some cases, public safety was put at risk and in some cases environment was affected, while in some other cases, personal identities of people was at risk.

Ethics in Engineering- Emerging Trends

In the recent days, we have come across the recent instances of security issues that are being faced. There were articles on potential threat to Aadhar data. Similarly, there was the Yahoo case in which 3 billion user accounts came under hacking attack.⁴

Now, there is the Fourth Industrial Revolution that is fast catching pace. The Fourth Industrial Revolution is the coming together of the various technologies like Digital, Physical and Biological Systems. In the wake of breakthrough technologies emerging in various fields like robotics, Artificial Intelligence, Quantum Computing, Nano Technology, Internet of Things etc., there is going to be changes in the way we live our lives, work and relate. They aim at curing and preventing diseases, improving the quality of life etc.

But, these advances in Information Technology and Artificial Intelligence have a lot of ethical concerns including privacy and security etc.

Ethics in Engineering- Significance

It is very clearly evident that Engineering is a Profession rather than an occupation, which is characterised by technical competencies, privileges, autonomy and most importantly responsibilities. The engineering sector has many aspects and the social aspect is a critical component. In other words, engineering has an impact on the People, Processes and the Environment.

Be it infrastructure development or modes of communication, engineers are highly regarded for the impact they have on people's lives. At the same time, there are instances like what we have seen earlier where people's lives are affected in a negative way.

As engineering professionals, you must keep in mind that high level of technical expertise without adherence to ethical guidelines is as much a threat to welfare of people as is professional incompetence.

It is natural that people have high expectations from engineers because of their power- the power to transform people's lives.

But, you have to always remember the famous quote by Benjamin Parker, “With great power comes great responsibility.”

So, it is important for engineers to decide and act in a responsible and ethical manner.

Very clearly, ethics too, like engineering design, has no single solution.

For example, a product that has been designed by an engineer may benefit one group of the people. At the same time, it may affect the environment or have a direct impact on people.

So, there can be multiple ways at looking at an engineering project. What matters at the end is how ethically sound the engineer has been.

So, in this way, ethics also helps engineers in their professional conducts.

Therefore, the role of ethics in engineering is imperative because the integrity of the profession depends on it.

The quality of decision making can be characterised by justice being done, equity of the decision being taken and the consequences that would result because of the decision.

It is only ethical engineering practices that can make real the true essence of engineering-transforming people’s lives.

In the lecture tomorrow, we will look in detail about Code of Ethics and its evolution.

Module Four

Lesson four: Codes of Ethics in Engineering- International

Video url: <https://www.youtube.com/watch?v=qUneStNLaiA>

Video Length: 16:52

I welcome you all to the fourth lecture in the Module on Codes of Ethics in Engineering. I am Mr. A. Viswanath. In the last lecture, we looked at a brief introduction to Applied Ethics and Engineering as a Profession. It also dealt with Ethics in Engineering and its significance. This lecture deals with the Codes of Ethics in Engineering, their significance and evolution.

Code of Ethics- Introduction As mentioned earlier, one of the features of a Profession is dedicated Councils/ Societies of Professionals. These Councils/ Societies come up with Code of Ethics for its members. As engineering professionals, it is important for you to be aware and adhere to these codes. These Codes may differ from one Society or Council to the other or from one country to the other. It depends on the area of work and the discipline being dealt with.

So, what is the Code of Ethics?

Code of Ethics is a formal set of rules or principles. In other words, Code of Ethics contains ethical principles that govern the engineering profession. It is like a convention between the Professionals to act in a certain way. It acts a guide to the Engineers as to what to do and what not to do as Engineering Professionals.

Who makes these Codes of Ethics?

These Codes are introduced by the Professional Societies/ Councils of each profession. For Engineering, the national and international engineering councils/ societies have their own set of codes.

With the increasing professionalism and the growing demands, the Code of Ethics is being regularly amended and updated. For instance, the National Society for Professional Engineers in USA and the Engineering Council of India (ECI) etc. have their own set Codes of Ethics. You may ask a question here? But, why Code of Ethics?

Code of Ethics in Engineering- Significance

The codes of ethics are important for understanding the moral responsibilities of engineers. In addition, some of the other aspects that signify the codes of ethics are:

- The Code of Ethics acts as a commitment by the profession that the engineers will work for serving and protecting the public through their products and processes.

- Secondly, the Code of Ethics guides the engineers in terms of their responsibilities as engineers.
- It acts as an inspiration and motivation as a member of a profession that is committed to promoting public good.
- Through shared standards, the Code of Ethics helps in providing a fair platform while competing for clients.
- Fifthly, they support the engineers in taking a stand on moral issues. These Codes can be applied to cases in engineering which can facilitate increased knowledge and mutual understanding.
- Another important aspect of Code of Ethics is that it helps in deterrence and discipline. This means, it can be a very useful tool in monitoring unethical behaviour.
- Lastly, the Code of Ethics helps in building a positive image in the public. This is very useful in building and continuing trust in the public.

Hence, the Code of Ethics is very important for identification and supporting of professional values.

Code of Ethics in Engineering

Where and how did the Code of Ethics in Engineering begin? Let us have a look at the history of Code of Ethics. The early history of adopting of Code can be traced back to the Code of Hammurabi in the 1758 BC in Babylon. It had severe penalties for builders or architects who violated the codes. It attempted to bring in good engineering through its code. But, if one looks at the modern day's code of Ethics, it is a different story.

In the beginning, these Codes included standard business practices. With the increasing professionalism and the growing demands, the Code of Ethics is being regularly amended and updated. In Engineering, the first Code of Ethics for Engineers came into being only towards the late 19th and early 20th centuries across the world. In fact, Code of Ethics by engineering bodies came as a response to some significant structural failures that happened during that time, which included:

- 1 Ashtabula River Railroad Disaster in United States in 1876- Derailment because of a bridge collapse killing 92
- 2 Tay Bridge Disaster in Scotland in 1879- Collapse of a rail bridge killing more than 50 in a train
- 3 Quebec Bridge Collapse in Canada in 1907- Collapsed twice killing 88
- 4 Boston Molasses Disaster in United States in 1919- a large molasses storage tank burst and molasses flowed at a great speed through the streets killing 21 and injuring 150.

One major reason for all these incidents is the problem with the design.

Code of Ethics in Engineering- By Professional Bodies

Eventually, as Engineering emerged as a profession and as a response to the developments in the field, Codes of Ethics were developed by various professional bodies of engineering:

- In 1912, the American Institute of Electrical Engineers (AIEE) adopted a Code of Ethics.
- In 1914, the American Society of Mechanical Engineers adopted the AIEE Code with minor amendments.

- The American Institute of Consulting Engineering, the American Institute of Chemical Engineers (AIChE), and American Society of Civil Engineers (ASCE) brought in their own codes.
- By the year 1915, almost every major engineering body in the US had a Code of Ethics.
- In 1946, the National Society of Professional Engineers (NSPE) in United States released Canons of Ethics for Engineers and Rules of Professional Conduct
- In 1964, NSPE adopted the Code of Ethics built on Canons of Ethics for Engineers and Rules of Professional Conduct

Code of Ethics in Engineering- India

In 1920, the Institution of Engineers was established and incorporated by Royal Charter in 1935. One of the services includes inculcating and promoting amongst engineers and technologists a growing commitment to the social objectives of the profession.

The India Society of Engineers started function in 1934 to advance manpower development in the field of Engineering, Science and Technology.

The Engineering Council of India is another society which came up in 2002. It was established to work for the advancement of engineering profession in various disciplines while focusing on quality and accountability of engineers.

Code of Ethics in Engineering- NSPE- Contents

Let us look at the Code of Ethics of National Society of Professional Engineers (NSPE) as an example. It majorly contains a Preamble, Fundamental Canons, Rules of Practice and Professional Obligations. The Preamble emphasises on the significance of the Engineering Profession:

“Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct”.

It stresses that the Engineers must perform under a standard of professional behaviour that requires adherence to the highest principles of ethical conduct.

Code of Ethics in Engineering- NSPE- Fundamental Canons

Engineers, in the fulfilment of their professional duties, shall:

- Hold paramount the safety, health, and welfare of the public.
- Perform services only in areas of their competence.
- Issue public statements only in an objective and truthful manner.
- Act for each employer or client as faithful agents or trustees.
- Avoid deceptive acts.
- Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

Code of Ethics- NSPE- Rules of Practice

Under Rules of Practice, the NSPE Code of Ethics for Engineers points that:

1. Engineers shall hold paramount the safety, health, and welfare of the public
2. Engineers shall perform services only in the areas of their competence.
3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall act for each employer or client as faithful agents or trustees.
5. Engineers shall avoid deceptive acts.

Code of Ethics- NSPE- Professional Obligations

Under Professional Obligations, Engineers shall

- Be guided in all their relations by the highest standards of honesty and integrity.
- At all times strive to serve the public interest.
- Avoid all conduct or practice that deceives the public
- Not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve
- Not be influenced in their professional duties by conflicting interests.
 - Not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers, or by other improper or questionable methods.
- Not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall present such information to the proper authority for action.
- Accept personal responsibility for their professional activities, provided, however, that engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests cannot otherwise be protected.
- Give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.

Till now we have seen the code of ethics, the evolution of the codes in the International context. In the next lecture you will see how these codes of ethics and how they are involved in the Indian context. Thank You.

Module Four

Lesson five: Codes of Ethics in Engineering- National

Video url: <https://www.youtube.com/watch?v=XiOWnY0eOAs>

Video Length: 04:40

Hi! In the earlier lecture we discussed the evolution and various codes of ethics in the International context. In this lecture the focus will be on the Indian context on how these codes have come and what are the various codes under societies or institutions. Let us see the code of ethics in engineering council of India. Similarly, let's have a look at the code of ethics in Indian context. It consists of a Preamble and Articles.

Code of Ethics- Engineering Council of India (ECI)

The Code of Ethics of the Engineering Council of India consists of a Preamble and Articles.

Code of Ethics- Engineering Council of India (ECI) - Preamble

According to the Preamble,

“Engineering is a profession that puts scientific knowledge to practical use. Professional Engineers and Consulting Engineering Organisations, in the pursuit of their profession, affect the quality of life of all people in the society and the quality of all sectors of the economy. Therefore, ethics are fundamental to the values of the profession. Accordingly, the services provided by Professional Engineers and Consulting Engineering Organisations (referred to as ‘Engineers’) should adhere to the following code of ethics while dealing with the public, clients, employers, employees and the associates.”

Engineering Council of India (ECI) – Articles

The Articles of ECI’s Code of Ethics include

- A Social Responsibility to uphold ethical values of the society
Under this, engineers shall ensuring public safety, compliance with the existing laws, impartiality and fairness, environment protection and improvement.
- B Responsibility to maintain high standards of professional quality
According to this, Engineers shall maintain state-of- the art technical and managerial skills, performing services only in the areas of technical expertise, fair means of acquiring work and taking full responsibility of the task undertaken and proper verification and approval of documents that meet the safety and economic standards.
- C. Obligation to maintain high standards of personal behaviour in a responsible manner
Engineers shall maintain high degrees of honesty and integrity in their professional dealings and they shall not engage in unhealthy competition.

In addition, they shall be honest in criticism of technical work, acknowledge errors, and give proper credit for the contribution of others.

Some of the other aspects include faithful professional relationship with employer, mutual obligation and trust, self- promotion, confidentiality and conflict of interest.

Code of Ethics in Engineering- Other International Codes

These are some of the examples of codes of two engineering bodies. There are many more Societies/ Councils of sub- disciplines of engineering with their respective elaborate or brief Code of Ethics. These are some of the few-

- American Society of Mechanical Engineers (ASME)
- IEEE Code of ethics
- Institution of Civil Engineers
- Professional Engineers Ontario (PEO)
- Accreditation Board of Engineering and Technology (ABET)
- American Institute of Chemical Engineers (AIChE)
- American Institute of Aeronautics and Astronautics (AIAA)

The learners can refer to the Codes of these Societies too to understand their contents.

Think it over

Firstly, many PSUs and Corporates have business ethics but a separate code of ethics is yet to percolate to the maximum in the engineering profession. Hence, there is a need to institutionalize it to the fullest.

While these statements of general principles have been serving as a guide, there is a growing need for engineers to have a sound judgment to interpret how the code would apply to specific circumstances.

There may be situations in which applying the code may raise more difficult issues which can be termed as a moral/ ethical dilemma.

Thank You.

Module Four

Lesson six: Moral/Ethical Dilemmas and Hierarchy of Moral Values

Video url: https://www.youtube.com/watch?v=9tnx_2zo860

Video Length: 18:51

Hello! Welcome to the lectures in the series on ethics with reference to engineers. We covered five themes so far. We began with an introduction on ethics, its relevance for engineers, the eminent thinkers and philosophers in ethics. The necessity for codification of ethics, the methodologies for codification, issues in formulating a code and the experience of West was dealt with Mr. Viswanath. We also touched on the agencies that are charged with the responsibility for evolving codes in engineering and the felt need for new codes.

In the earlier lecture, we focused on what are the parallel bodies and international agencies that sensitise institutions and individuals on ethical dimensions. It has also been observed that there are many dilemmas that confront the engineering profession. We have also looked at the nature of such dilemmas and how it is necessary to look into a broader perspective to appreciate them.

In this module on moral and ethical dilemmas and hierarchy of moral values, we are going to give you an idea on issues relating to the moral dilemmas. If you recall, in the last lecture, the codes of engineering are available and institutional mechanisms are in place. As we have seen in the first lecture, many of the accidents are compromises in design or decisions. When codes are available, you may naturally get a doubt how they happen. Is it because people are not aware or institutions failed? Some questions beg answers- how adherence to ethics is ensured? What is the role of the professional bodies and thirdly why do we frequently get into these dilemmas?

Let us talk about environment versus development. The social scientists say development and environment are two sides of the coin. Political leaders and developmentalists argue that there must be more dams and for that more power is needed. This, in turn, would lead to creation of jobs, increased Gross Domestic Product (GDP) and Gross National Product (GNP) and per capita. One has to balance developmental imperatives with those of environment. This is one moral dilemma.

It may be the case with any other profession, for instance use of several tests relating to medical profession. The engineering profession is face with moral or ethical dilemmas quite often especially in developing countries like India. For instance, a product is designed for the benefit of one party but if the utilization of the product starts affecting the ecological balance, how are we going to look at it? Further, a dam has to be constructed, which would control flooding, provide drinking water and benefit a lot of other activities. But, at the same time a lot of people living in the surrounding areas lose their occupation, homes agricultural lands and basic livelihoods. So, the dilemma here is for the policy makers and for entire chain of engineers is whether to go ahead with the construction of dam or not. There are a number of instances like this that can be recalled.

The second example is also very interesting in this context. The Indian arm of General Motors in 2013 admitted to government that an internal probe revealed that they violated the testing norms. It reported that some of the employees of the company refitted already approved engines used in Tavera cars that were sent for inspection so that they meet the norms. It also manipulated, note the word 'manipulated,' the weight of several of the models in order to meet other norms. One of the aspects that we need to note is that the emission norms are subject to manipulation which means that it's a while code says something or the production norms say something, one may manipulate. Subsequently, production and sales of two variants of Tavera cars were stopped. It also announced recall of over 1.14 lakh Tavera cars manufactured between 2005 and 2013 to address the emission and specification violations.

When confronted with the fundamental questions what to do and how to act in complex situation and to that extent that contrasted values or decisional premises could apply in situations, one is entering into the world of these dilemmas. The two cases we saw covered like the dilemmas of policymakers as far as environment and development are concerned. We also the issues relating to emission norms, the company mustered courage to report and then withdraw the cars. The inferences are clearly for you to draw.

Ethical problems even in engineering rarely have a single solution that also needs to be looked into. So, they may contain a range of solutions that are clearly right but relatively better or not appropriate at all. The professional bodies already have documented some of these examples. If you look at from the value perspective, then these facts appear in a different perspective. As in the case of the construction of a dam, the engineer faces the challenge. It is here that critical thinking and effective decision- making skills come into sharper focus. Now, in such dilemmas, can we just say there is only one solution to a problem? As mentioned earlier, engineering rarely has a single solution. So, when it comes to other areas, there is a hierarchy of moral values. First, let us understand the hierarchy of moral values.

Moral values are those that are within the purview of ethics- honesty, loyalty and attitude towards others. For the purpose of this lecture, we can call them non- moral values which are like preferences, in terms of which colour you like, which type of food do you eat, what kind of games and sports you like you and so on. All these principles and values that we choose as professional, which are also incidentally critical, where one has to decide between the right and wrong and make a right decision help us in differentiating between the right and wrong. For instance, the value of honesty: whether copying is right or wrong. Is there any second opinion about this value of honesty? It helps engineering professionals to make right decisions and we fail in professional dealings or professional decision- making if we don't make the right choice. Many values exist both in our personal and professional lives. In engineering profession, if you are successful, it is because not one or two but because of a set of values.

How are the different values that we possess in a hierarchy? They are in a hierarchy in terms of the significance. In other words, they are arranged according to their importance and relevance. Some values are very important; some may be less relevant and so on. One might be tempted to say that ultimately values differ from individual to individual. So, what about in profession? This is where code of ethics plays a significant role in guiding our decisions. The individuals decide their values based on the needs, interests and their professional conditions. In the case of values, every individual should have their own set of values. The adherence to the values is based on the

significance in a hierarchy. Some people may prefer to give top reference to professional values while some may give preference to their spiritual values. In addition, the situations in which individuals live and work also determine the hierarchy. If you look at the hierarchy of values in a more focused way, there would be instances where decisions may lead to both good and bad. One has to be able to strike a balance between good and bad. At this critical juncture, hierarchy of values helps in making effective decisions and there ought to be a line between our moral and non- moral values. So, first of all, we need to have clarity on one's own values.

The more important a value the higher it is in a hierarchy. Hierarchy of values helps in determining how we perceive an issue, a policy, a problem and get a perspective about it. This is followed by how we are going to initiate an action. A combination of all of this will lead us to what is called a decision. But, many a times, various factors affect moral responsibility.

We can possibly note points with the help of references that have been cited. The issues relating to moral responsibility demand more attention.

In the next lecture, we will discuss about the factors that affect moral responsibility and the degrees of responsibility.

Thank You.

Module Four

Lesson seven: Factors affecting Moral Responsibility & Degrees of Responsibility

Video url: <https://www.youtube.com/watch?v=i1TroPaywhg>

Video Length: 11:12

Hello, welcome to the 7th and the last presentation relating to lectures in Ethics domain. As you might have seen in the earlier lecture, we noted the moral and ethical dilemmas, and we gave a short introduction to the hierarchy of moral values and also professions. If you look at the overall module on Ethics. You will find interconnectedness in these 7 modules, the 7 presentations. In the introduction we noted; what is all ethics and what are the major definitions. We tried to trace its genesis and note a couple of theories in this area.

When it comes to Vishwanath's presentations; 'Why Ethics in Engineering', and his second lecture; how and why codification in Ethics particularly engineering started in the West, the international experiences in this regard. The agencies that are entrusted with the responsibilities of maintaining the fiber as far as that profession is concerned, engineering profession is concerned. And he also examined the possibility of their implementation. And the, in the 3rd presentation by Vishwanath he tried to apply it to the Indian context. Agencies in India responsible for evolving a code of ethics; and holding several academic meetings to make people adhere to these norms there.

Then we came into the area called moral dilemmas and hierarchy of moral values in the earlier presentations by me. And now we are examining factors that affect the moral responsibility and what are the degree of responsibilities. I wish to draw your attention to two recent examples. Let me quote from a newspaper. 'The Mizoram minister owns responsibility for bridge collapse. Such owning of responsibility, you know brings us closer to the domain called 'Morals and Ethics' here. Of recently one of our Railway minister's also asked the government to relieve him. Subsequently of course he was relieved and given another responsibility. In sixties too Lal Bahadur Shastri owned up responsibility for a main railway accident. This is one way, you know of looking at moral responsibility; how you perceive your moral obligation.

Second aspect I wish to draw is, does Silicon Valley have a moral responsibility to stop developing robots. These are contrasting examples then, which tells us that's a, the domains have responsibility; how you feel it, how you are looking at it. When it comes to the profession of engineering. An engineer is morally responsible, when their individual actions have significant moral outcomes. That would help in blaming them and praising them for that action. In one way it is crystal clear that, you see how an engineer takes the credit for the success. Similarly must be ready to take blame for failures if any in that. So moral responsibility is an idea which applies to individual engineers, groups of engineers and corporations in which most engineers are engaged in work. It's also a multi-faceted idea or multi -faceted concept that combines obligations, ideals, accountability, credit or blame. Either of these things. It's a combination there.

I mean, for purposes of better understanding, we can have a look at this slide, that the three important factors that affect moral responsibility. Like lack of knowledge, lack of freedom, and lack of approval. Considered to be crucial, that have a bearing on perceiving moral responsibility. Like ignorance of key aspects maybe one of the key reasons. Internal factors like individual actions. Quick judgements in complex situations or jumping to conclusions. Like being not aware that an action is unethical is one of those you know which is one of the prime drivers for us to bring in the ethical component into this Life Skills course there. And the external factors that bother on any other aspect there.

So to begin with again, the lack of knowledge. Can we guess what it means. There are two major cases in this. In the first case due to lack of information or knowledge, we are ignorant. For example a building is being constructed with the use of a material that has less durability and might affect quality of the construction. The engineer does not have adequate knowledge about the material. The fact that the engineer lacked knowledge about the quality of the material, therefore affects the moral responsibility. In the second instance the engineer made a decision to go ahead with the use of material, not knowing that it is unethical to do something in such situation.

When it comes to freedom, lack of freedom can have both internal and external impacts. When it comes to internal factors, many a time some habits of the people might affect the freedom in decision making. Example a habit of forgetfulness of individuals immensely affects freedom of decision making. Unlike the internal factors sometimes the external factors too affect the freedom. For example if faulty material was used by masons in the construction of the building without the knowledge of the engineer, it leads to collapse. If the quality of the material was checked by the engineer, the collapse could have been avoided. In both instances we need to conclude, it is lack of freedom that might lead to such situation.

When it comes to lack of approval, finally the, a client suddenly approaches a software engineer for immediate troubleshooting. I mean solution to a problem. The software engineer has no time to think about the issue in detail. So in a snap the software engineer suggests counterfeited software to solve the crisis there. In this case the software engineer had enough of time to solve the issue, the decision would have been different. So these are the three factors that affect moral responsibility. And when it comes to the degree of responsibility, let us note few of these aspects. Here again we can bring in those three factors like knowledge, freedom and approval; which may exist in varying degrees. Therefore the degree of responsibility also varies. Different degrees of responsibility may be appropriate for different kinds of decision making. Let me repeat that you know. Different degrees of responsibility may be appropriate for different kinds of decision making, needs to be noted as, this has an impact on our decision making finally relating to a project there.

So when we are looking at the gamut of the ethical dilemmas there and the factors that affect this. Different degrees of responsibilities may be appropriate for different kinds of decision making. So with this we are concluding the module on Ethics in Engineering as part of the certificate course on Life Skills for Engineers.

Thank You and Wish you all the best.



Week Five

Module 5: Building Leadership Capabilities in Engineers- An Introduction

Instructor's Name- Prof. G. Padmaja



Manas R Panigrahi

Module Five

Lesson One: Introduction

Video url: <https://www.youtube.com/watch?v=3u-Gf-2mgzk>

Video Length: 07:01

Welcome to the modules on Leadership. I am Padmaja, I teach at Centre for Health Psychology, University of Hyderabad. I teach five year Integrated Masters programme in Health Psychology and Masters Programme in Health Psychology, that is IMSc and MSc Health Psychology at University of Hyderabad. In addition to that I am also into guidance of research at PhD level and M. Sc. Dissertations as well.

I am going to talk to you today about leadership and several aspects of Leadership. Starting from today, over six days from now on, this whole week I will be talking about the first module of leadership. I will be talking about leadership and aspects of leadership across two weeks in two modules separately. Today I will be talking about **Building Leadership Capabilities in Engineers - An introduction**. As I said, this is going to be spread across this whole week, and another week I will be talking about **Effective Leadership - Traits, Qualities and Models of Leadership**.

Let me go briefly into this background of leadership. Leadership is the ability of an individual to influence a group toward the achievement of a vision or a set of goals. Till recently, it was considered important that technical skills be imparted to the engineers and they were also made to understand the application of these technical skills in the job scenario that they were going to enter into. But then, there is a quick change in the global scenario now. There is a lot of need for not only hard skills but also soft skills. The changing global scenario strongly showcases the requirement of Leaders, who will also motivate people to deliver the best of their potential on available resources. Present competitive world demands a lot of innovation and there are differentiators which are heavily based upon the efficacy of the leadership of an individual. Here, the requirement is an integration of soft skills with the hard skills that they have been trained upon.

An engineer today thus looks at not only at tech driven solutions, but also a collaborative task attainment which demonstrates and requires appropriate leadership skills. The present module will give a brief introduction as I have told to Building these Leadership Capabilities among Engineers. We are going to talk about the meaning and definition of leadership, what several researchers and theorists had to talk about leadership, as well as the relevance of these meanings and definitions to the present contexts. As a professional, how an engineer is going to apply these hard and soft skills in their real time job performance is what we are going to look at. In the later part of the module we will be talking about the processes involved in the leadership and functions of a leader and probably a few styles of leadership. We conclude this week's discussion on leadership with this styles of leadership. In the process of going through these steps that I have been talking about, we will be coming across certain activities, some food for thought for you the students, and then some exercises probably as a take home - work. In addition to that, probably we will have a discussion over a period of time about several aspects of leadership through the interactive forum as well. I will

also suggest certain readings which may also be of some help to you for further knowledge about leadership and its processes and styles as well. After opening the interaction forum and after our discussion on the interaction forum, you will have an evaluation process. You will be evaluated both for your participation as well as successful completion of these questions. You will be required to answer about 25 quiz questions which carry two marks each. I would like to mention here that the questions need not necessarily be from my lecture alone, from our discussion alone. They can be from the suggested readings. They can be from the suggested activities; they can be from whatever has been recommended to you today. As you progress through this module you are going to understand the importance of leadership and the role of leadership in the profession chosen by you, how you are going to apply these leadership skills as a part of your profession, and what are the processes involved and what are the functions required and expected out of a leader. This knowledge building exercise may help you not only in understanding the skills required but also in the application of the same. One for the development of the Organization that you are going to work for or you are working for; also importantly for your self-development. It is felt that the earlier this development process starts, the more is the time available for a student, or a budding engineer, or a young engineer to grow into a leadership role that we have been talking about. Hence this training at graduation level and during early part of the career of an Engineer! Across the two modules, when we talk about several aspects of Leadership - the meaning, the process, the functions, the styles; and in the next module when we talk about the several aspects of the traits and the qualities required for a leader and the theoretical interpretations of how and what of leadership and its process; this is going to give you the students a comprehensive picture of what leadership means and how it can be exercised as an integration into your job itself. It helps to apply these skills in your life in real time situations and get the benefit out of whatever you have learned. Contexts may demand several leadership skills and let us have a glimpse into several aspects of leadership over these two weeks of our discussion on leadership. I and our team wish you all the very best and hope for a very constructive utilization of our presentations and practical application of the same.

Thank you.

Module Five

Lesson Two: Importance of Leadership

Video url: <https://www.youtube.com/watch?v=WLvV2IZm81M>

Video Length: 09:53

Welcome to building leadership capabilities in engineers, the introductory part today. For a long time as a part of training engineers, technical training has taken the front seat. That occupied majority of whatever training has been imparted to the engineers. In the contemporary world however, they are expected to play larger roles in the organizations. Emphasis is now turning toward a combination of technical as well as leadership skills and not just technical skills alone as we have been repeatedly saying. Today the global requirement is for technical expertise, there is no doubt about it. But then they should also be able to motivate the team to the best of their ability and attain as much as possible in terms of productivity of the team. The best of the potential of the team is the important aspect over here which has to be obtained. In a competitive world with several fast track changes, leadership plays a very important role in order to facilitate innovation, in order to lead toward success paths involving several determinants which make a difference. It is not just one determinant. As you see on the slide, an engineer is hired for his or her technical skills, fired for poor people skills, and promoted for leadership and management skills. (Citation is seen). And a contemporary job market clearly indicates the requirement to prepare engineering graduates to be relevant in the global market and thus contribute to the success of organization, for which there are several components. As you see on this slide - technical competence is required, competence in dealing with the teams is required, bringing people together, collaborating and communicating and empowering people - all these together are required for an engineer. And all involve a larger canvas of life skills which we have been discussing for the past few weeks and we will be discussing for the coming few weeks as well. Now what does leadership involve? Please have a look at this slide. Being proactive, thinking ahead and being able to act accordingly is one of the important components of leadership. The leader has to be a model of expected behaviour, ethics and potential (ethics has already been discussed in a module), a model of expected behaviour - not only expecting certain behavioural patterns from others, but he himself being a model who showcases the behaviour which is expected out of others; and then the potential. All the three are equally important over here. A leader should be a model of innovation, a leader should be a model of interactions and healthy interactions that, should be able to get collaboration, should contribute toward development and should be very good in communication - two-way communication and not just one (way) communication. This brings us to the concept of 'we' where the leader is a symbol of being proactive, showcases the ethics, behaviour and resources, is a model of innovation himself or herself, shows what is innovation, an example of interaction, communication, collaboration, and put together - development of each self, and together the development of the team, as well as the organization! Worldwide scenario is something which we have to look at, at this point in time. Progressively the literature related to engineering education is strongly recommending a need for understanding the efficacy of a paradigm shift in teaching and training engineers. They are talking

about combining technical and leadership skills suiting the demands of the contemporary work field. Two such reports are cited over here. One is The Green report in 1994 and second is Educating the Engineer of 2020 from the National Academy of Engineering or NAE which was in 2005. Let us go through Green Report. As you see on the slide, recommended education reforms are - to include team skills including collaborative active learning, communication skills (also going to be dealt with) and (right now we are dealing with) leadership. In addition to that, a systems perspective, an understanding and appreciation of the diversity of students, faculty, staff in order that this understanding of the diversity would help in training and imparting the required skills, an appreciation of different cultures and business practices, and understanding that the practice of engineering is now global, and we cannot limit ourselves. It also talks about integration of knowledge throughout the curriculum, a multidisciplinary perspective, a commitment to quality, timeliness, and continuous improvement, undergraduate research and engineering work experience, understanding of the societal, economic, environmental impacts of engineering, decision and ethics. Going to the previous slide and the present - whatever I have read out just now, you see that certain skills in addition to the technical skills like team skills including collaborative active learning, communication skills, leadership skills, understanding the diversity, and integration of knowledge through the curriculum, ethics all these have become an integral part of the recommendations of the Green report. In addition to that there is this NAE report from U.S. Once again if we look at the slide, technical excellence is the essential attribute of engineering graduates, but those graduates should also possess team communication, ethical reasoning, societal and global contextual analysis skills, as well as understanding work strategies and through all these the leadership skills run like a thread which connects all these streams. This calls for understanding a need for enhanced life skills among the students of engineering. A judicious blend of hard and soft skills which is required in application in order to ensure a long term success and not just a short term attainment of a goal. And the earlier in the development process starts, the more time available for the budding engineer, budding leader to grow into this leadership role. The pace and acceleration of the globalization is changing the nature of the modern engineering. So in order to succeed, young engineers should quickly grow into this role which combines hard and soft skills and develop leadership skills early in their careers. This brings us once again to the discussion of what are life skills?! You may look at this slide. WHO says life skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life. So engineering, being an engineer, being a leader, does not just mean applying the technical skills which have been taught and they are trained upon, and using their innovation in applying these technical skills and also being able to utilize the soft skills which they have been trained upon. UNICEF says a behaviour change or behaviour development approach designed to address a balance of three areas – knowledge, attitude, skills - put together 'life skills' according to WHO and UNICEF are very important, whatever the stream is. We are talking in the context of engineering stream and we have talked about why and how life skills are important for engineers. And while communication, ethics all these are integral part of the profession and life skills which are very important, why leadership for engineers? This is where our discussion is now. Once again you may look at this slide to understand why engineers and leadership! In order to remain relevant and connected in an era of heightened global competition, the demand is for engineers capable of leading multidisciplinary teams, capable of technical as well as non-technical skills, and have a passion for lifelong learning, not limit themselves for the present but look at a larger global scenario and into the future. Curricula of engineering education thus today are stretching beyond the theoretical endeavours of design and scientific

inquiry to wider domains of professional leadership. This is where leadership becomes important for an engineer! Today we have talked about the need for understanding life skills, what are life skills, and how these life skills are important in the profession of engineering, and among these life skills why leadership is all the more important and attaining an application of leadership is very important for an engineer. Thank you.

Module Five

Lesson Three: Meaning of Leadership

Video url: <https://www.youtube.com/watch?v=wEjjoLlcd7Q>

Video Length: 09:34

Welcome to the module on Building leadership capabilities once again. In the previous two sessions, we have dealt with an introduction to what this building capabilities is and then we also talked about the importance of leadership in the context of engineering and engineers. Today we are going to talk about the meaning of leadership. From now on there are certain topics which we are going to cover in the present module over a few days. We will be talking about the meaning of leadership, we will be talking about processes involved in leadership and the functions of the leader as such. We will also be talking about the types of leadership according to certain classifications. Before we go into the meaning and functions of leaders and leadership, shall we do a small activity? I will ask you a few questions think for yourselves and try to answer for yourselves. What do you remember when you think about a leader who according to you is most successful? List out three important leaders that you can recall now, what makes each of them occupy your memory as important leaders? What is common or are common among those that made them important to you as leaders? You might be having certain answers for yourselves. Now with that background, let's move on to discussion related to what is leadership. Very commonly we hear certain statements related to leadership. Let us just quickly have a glance at what these commonly heard statements are! It is said that leadership is the art of motivating a group of people to act towards achieving a common goal. Leader is said to be an inspiration and director of the action. He is the person in the group who possesses the combination of personality and skills that make others want to follow (that's important) want to follow his or her direction. Now let us come down to the definition and meanings that several theorists and several researchers have talked about in the context of leadership. Have a look at them. One definition says at the core of most definitions of leadership are two functions. It talks about functions over here. Providing direction, (it is already marked in red) and exercising influence. Providing direction, exercising influence both these are considered to be very important according to the definition of these researchers. Another set of researchers say leadership is the influential increment (here they have used the term increment) over and above mechanical compliance with the routine directives of the organization. See how the position and the leadership are being interpreted by different researchers and different theorists in different ways. One more definition says leadership is the process of influencing the activities of an organized group. Here it is the activities of an organized group and a key word here is influence. And influencing the activities of an organized group toward goal achievement is the important term over here. Again there are other theorists who say that leadership is the ability of an individual to motivate others to forego self-interest in the interest of a collective vision and to contribute to the attainment of that vision and to the collective by making significant personal self-sacrifices over and above the call of duty willingly. What is expected out of the leader is what has been described over here. Another definition which is broad enough defines leadership as, once again influence process affecting the interpretation of

events for followers, 'interpretation' is important over here, interpretation of events for followers the choice of objectives for the group or organization, the organization of work activities to accomplish these objectives, the motivation of the followers to achieve the objectives, the maintenance of cooperative relationships and teamwork, and the enlistment of support and cooperation from people outside the group or organization. It is a broad definition that has been given. Again more recent definitions - the ability to influence motivate and enable others to contribute to the effectiveness and success of the organizations of which they are members. This is one of the recent definitions. The ability to influence a group toward the achievement of a vision or set of goals is yet another definition. One more interpretation says besides influence leadership has been defined in terms of group processes, personality, and compliance particular behaviour, persuasion, power, goal achievement and interaction, role differentiation, initiation of structure and a combination of two or more of these. You see that increasingly the role of a leadership is expanding. There are more and more elements which are being added in terms of defining what is leadership. Now once again we'll come back to the engineering context, why leadership skills for engineers? Leadership essentially involves people skills. Being able to manage people. The most effective engineering pioneers develop a blend of both technical and people skills, putting together the hard and soft skills that we have been talking about in our earlier discussions. They use this combination to lead projects, to drive innovation, and to influence others in an engineering role or similar technical role. So a combination of all these is aimed at achieving multiple objectives. Coming to the life skills for an engineer, more so for a leader, what are the life skills essential for an engineer leader, a combination of engineer and a leader together? In the preceding discussions that we have had so far we have seen the importance of life skills necessary for engineers. We have talked about it quite extensively. Now when these life skills are integrated and effectively used, then they will help them becoming authentic leaders. Some of the skills that may be useful in this context for a leader may be, modelling ethical behaviour and hard work, enhancing interpersonal skills consistently, holistic understanding and innovative thinking. These in combination may be helpful. In addition to that the technical skills that an engineer's job requires are really small percentage of competencies. While technical skills are important the present research says that in addition to the technical skills that have to be soft skills. So the percentage of competencies, related to technical skills when they are leaders are not sufficient. In order to be more successful, they need more competencies. Interpersonal competencies for example. Let us look at them-interpersonal competencies, business acumen, leadership skills, are all required together in an engineering work. As engineers advance in their profession, as they move forward in their ladder of progression, leadership competencies become more and more important. That does not mean they are not required at the beginning of their career. At every phase in their career leadership skills are important. So regardless of whether they are on the management track or not, leadership skills become important at every phase of their career. At this point I would like to give you a small activity of reading. Please visit the site which is being displayed on the slide and have some reading about how and why engineers, make great leaders or certain articles relating to engineers, great engineers and great leaders that would be of interest to you as engineering graduates. So students today we have discussed extensively on this day three, about the meaning of leadership as it has been described by several researchers, several theorists and several contexts. More so we have also seen how in the context of an engineering student and how in the context of engineering profession, leadership is important and has a very relevant meaning. Thank you for being with us today and we

will meet again for another session. This time on day four session we are going to talk about the process of leadership and the functions of leaders.

Thank you once again.

Module Five

Lesson Four: Process and Functions of Leadership

Video url: <https://www.youtube.com/watch?v=Qnd4NFeGd00>

Video Length: 07:30

Welcome students once again to the continuation of the module on building effective leadership skills for engineering students and budding engineers. In this session, we are going to talk about the process of leadership and the functions of the leader. As a part of it we are going to talk about several theorists talking about the process of leadership and also how they expect a leader to function. This now brings us to the process of leadership. Let's talk about the process of leadership. The study of leadership rivals in age the emergence of civilization which shaped its leaders as much as it was shaped by them. From its infancy the study of history has been the study of leaders what did it and why they did it. I had given the citation over here. Leadership is a process whereby an individual influences a group of individuals to achieve a common goal, is the most commonly heard definition of Northouse. Leadership is realized in the process whereby one or more individuals succeed in attempting to frame and define the reality of others is yet another definition of the process. Leadership is also described as one person's attempt to influence the behaviour of an individual or group in order to increase one's own self-esteem. One's own self-esteem is something which you have to mark, and satisfy subordinates' needs also. So it is a combination of these two together. Burns long back has stated that leaders go beyond the development of a common vision and they value the human resources of their organization. In addition to that leaders from teams support team efforts, develop the needed skills, and provide the necessary resources to fulfil the shared vision. So it is a vision which is shared together. In combination people have a vision and leaders contribute in attainment of that shared vision. Leadership can be viewed as a social, goal oriented, problem-solving and decision-making effort is another way of looking at it. Successful leaders are honoured for their innovative ideas, strategic initiatives and forward-thinking ability. This shows all these definitions that we have been talking about and more that I am going to come up with do show various ways of looking at the meaning of leadership and the processes involved in leadership. Yet another definition, more recent one says that leaders do not achieve results themselves. They influence organizational outcomes through other people. That's where they are able to bring people together and contribute to the organization. Since unpredictable dynamics can determine outcomes and complex systems, leaders do not directly control results is what another set of researchers say. Leadership involves influencing individuals who willingly contribute to the good of the group to the extent that it requires coordinating and guiding the group to attain and achieve its goals, is one more definition. Leadership is a process that includes influencing the task objectives and strategies of an organization, influencing people in the organization to implement the strategies and achieve the strategies, influencing the group maintenance and identification, and influencing the culture of the organization. So influence of a leader, the influencing personality of the leader, and the process of influence is done in such multiple ways. The process of leadership

involves a lot of coordination, facilitation, teaching, educating, training and more. So yet another definition then says leadership is realized in the process whereby one or more individuals succeed in attempting to frame and define the reality of others. Leadership can be viewed in many ways. For example we view leadership as consisting of the behaviours that are enacted by the group leader. These may include organizing the work, obtaining resources for the group, providing encouragement to the group members and ultimately evaluating the group's output. Look at the several phases and processes involved in the leadership process as such. On the other hand one could just as easily view leadership as a series of functions that need to be carried out in order for a group to be effective. We are now coming to the functions of the leadership. The nature of the group's task may need to be clarified. So group task clarification resources may need to be obtained, spirit of the group members occasionally may need lifting, and groups output must eventually be evaluated. So these are the functions of a group leader.

Now this brings us to the task functions of a group leader. What all task functions does leadership involve? A leader has to be a policymaker, a planner, an executive, an expert, a group representative, a controller, a purveyor of rewards and punishments, and more. In addition to the task functions, there are what are called maintenance functions. If you remember a little while ago I have talked about task, maintenance and being able to maintain the morale. The maintenance functions involve the leader being an arbitrator, and mediator, an ideal, a symbol of the group, a surrogate of individual responsibilities, an ideologist and more. Thus putting together several processes involved in the leadership we can say that leadership process involves a combination of futuristic vision, commitment, integrity, trustworthiness, ethical behaviour, inquisitiveness, readiness to accept challenges, genuineness, structuring capability and control, division of attention between tasks and not attending to any one particular task alone. So the functions of engineer leaders let us just list them out. Look at the figure which is being displayed on the slide. Improving team achievement, collaborating with other colleagues, equals, superiors, team members, advance successful organizational improvement, and support shared vision and values. All these become important activities and functions of a leader, a person who is in the leadership position.

Now this concludes our fourth session on building effective leadership skills and engineers. I would recommend an activity to you at this point in time. I would request you to read for some information on leadership shield. It might be of some interest to you as engineering students. Thank you students for being with me, in this lecture on process of leadership and functions of leaders. We will be meeting once again to talk about the types of leadership and leaders in the next session.

Thank you

Module Five

Lesson Five: Leadership Styles

Video url: <https://www.youtube.com/watch?v=WS9KvpEB0hk>

Video Length: 11:28

Welcome students once again to this module on building effective leadership skills. We have had four series of sessions till now, regarding leadership. We have had an introduction session, we had a session on importance of leadership for an engineer, we talked about the meaning and definition of leader on the third day and one more day we talked about the process and functions of leadership. Now today the fifth session that we are going to have, we will be talking about the types of leadership and certain classification which has been popular in terms of classifying the leaders as certain types. To be very general, leadership has been classified as formal and informal. As you see on the slide, formal leaders are those where the leader of a workgroup holds a particular position or a title such as supervisor, manager, vice president, lead person, team lead-all these are the names which are given to the leadership position. On the other hand there may be an informal leader. Informal leader is a person with no official title or status. These informal leaders emerge because they have some characteristics that the group members value. So because they are valued by the team they emerge as leaders. Kurt Lewin and his colleagues did some extensive work and some experiments on leadership, decision-making, way back in 1939 and they came up with three different styles of leadership, a very popularly heard classification. The first style that Lewin and his colleagues talk about is autocratic style, the second is democratic style, and the third is the Laissez faire style. We will look into these three different styles proposed by Lewin and others. In addition to that we will also in this whole module in another day of discussion, talk about two more new styles which are more recently discussed. So in subsequent session which follows the present session also, we will be discussing more in detail about styles of leadership. After that in yet another module we will extensively discuss the theories of leadership from several perspectives and approaches. So now let us talk about the types of leadership from the three distinctions made by Kurt Lewin and two more that we are going to talk today. You may look at this slide. The first one is the autocratic leadership or the authoritarian leadership. We will talk about democratic which is also called participative leadership. We will talk about Laissez faire or free rein leadership. In addition to that we will also be discussing on another day transactional leadership and transformational leadership. Let us first talk about the authoritarian style. This was first described by Kurt Lewin as I have told you. Out of the three key leadership styles that he has talked about, this was the first and foremost. This refers to the kind of leaders who make decisions without consulting anyone, anyone else in the team. Please look at this slide characteristics of this leadership style-close supervision, lack of input from followers-they do not feel the need, they do not consider it important, complete control with the leader, total authority rested in the leader and solo decision-making by the leader. Now every style has its own merits and demerits. We will look at this authoritarian style what are the merits, what are the advantages, what are the plus points of authoritarian style. Now let us look at the merits and demerits of this style of leadership. Every style has its own plus points, its own minus points, positives and negatives. It may contribute in one way but may also hinder the process of

leadership in another way and also the functioning of the organization in another way. So let us look at the authoritarian or autocratic style of leadership functioning and its merits first. It contributes to quick decision-making it is useful and critical in situations where decisions need to be made very quickly and when the organization or the team is under a lot of pressure. It can also be a good choice when the leader is the most knowledgeable-please note this! The leader is the person who is the most knowledgeable, and he is the most skilled person in the group. Under these contexts an autocratic style of functioning of a leader is helpful. On the other hand there are also demerits. If overused, this can come off as domineering and tyrannical. Team members may feel unappreciated, unmotivated, uncommitted to the group because their input is never requested. An activity which I have written over here, you can visit YouTube, the site has been mentioned and see a video on autocratic leadership you can visit more videos as well and have a better understanding of what an autocratic leadership is. This brings us to the second type of leadership, the Democratic leadership. Democratic leadership is also called participative leadership. Once again it was proposed by Lewin, it is one of the three styles that he has proposed. Let us look at the characteristics of democratic leadership style. Shared decision-making responsibilities are seen, social equality is seen, creativity is seen, and there is a high engagement from group members. Not only the leader but the group members are also participative, hence the name participative leadership. Once again even this style has its own merits and demerits. Let us look at the merits of this style first. You may look at this slide. Leaders who exhibit this style are often described as honest, fair, creative, intelligent, competent. And this style of leadership can lead to a great deal of commitment from group members because they typically feel more input being received from them in the group success and failure. So their inputs in the group success and failure make them feel participative in the decision-making and thus they have more commitment as well. While Democratic leaders accept and encourage team members to offer their ideas and contributions, the leader does retain the final say over all decisions. Just because we are saying Democratic leader that does not mean there is no say for the Democratic leader at all. The final decision lies in the hands of the leader. Now let's come to the demerits of democratic style of leadership. It is not necessarily appropriate for every situation. In all situations this cannot be helpful. Some situations where it may be inappropriate include those where the group members are untrained, when the group members do not have enough skills, they are not trained enough, or where decisions have to be made on a tight deadline. When there is quick decision-making which is required, Democratic leadership may not be very useful. This brings us to the third style of leadership proposed by Lewin the Laissez-faire leadership. This style once again is characterized by certain characteristics. You may look at the characteristics. There is little direction from the leader, there is abundant freedom for group members, team members, are responsible for all decisions, and there is a great deal of autonomy involved in the decision-making in everything related to the group. And Laissez-faire leaders are sometimes referred to as delegative leaders because they delegate the responsibilities to the team members. Rather than attempt to direct and control the group they hand over the responsibility of leading the group to the team members themselves. So here what is interesting is the responsibility of leading the team lies as much in the hands of group members as it is in the hands of the leader. They are given equal weightage. Once again, even the Laissez-faire style of leadership has its own merits and demerits both advantages and disadvantages. Of course it depends upon the characteristics and the situations that the group is in. For example the merits can be, when the members of the group are highly skilled and knowledgeable - so this is relevant to such a group. When the members of the group are highly skilled and knowledgeable, letting them guide themselves can be a great strategy, because they are

all highly skilled. In such cases the leader can still offer support and advice when needed but followers are mostly able to make their own choices. However there is the other side of the coin too. There may be demerits as well. This leadership style can be a poor choice in situations that require quick decision-making. So it's a poor choice when quick decision-making or where the members of the group lack the skills to succeed-when they are not skilful enough when there is a quick decision-making required, Laissez-faire is not a good choice. In such cases team members may be left feeling unsure of what they do, because they do not have a leadership which takes tough decisions. Such situations also lead to a lack of accountability, missed deadlines, low commitment to the group. Here is a comparison between autocratic, participative and delegative styles of leadership. You may just look at it quickly. Let us run through it. Autocratic leadership otherwise known as authoritative is a leadership style by which leaders have absolute control over a group, make choices and all decisions in the organization based on their own ideas and judgments and rarely accept any advice from followers. So here, the participative role of the followers is very less. On the other hand participative leadership or democratic leadership is a style that allows and encourages members of the group to share, express their ideas, and take a more participative role in the decision making process of the organization. And finally the delegative leadership or also called the Laissez-faire leadership is a type of leadership style in which leaders by providing tools and resources needed and with little guidance are hands off and allow group members to make decisions in their organizations. We come to an end of lecture on day five. We have talked about three main types of leadership as discussed by Kurt Lewin and his colleagues. We talked about authoritative leadership, we talked about democratic leadership, we also talked about Laissez-faire leadership. We will talk about two more - more recently discussed leadership styles in the next session. So this brings us to an end of day 5 lecture.

Thank you.

Module Five

Lesson Six: Some Recent Developments

Video url: <https://www.youtube.com/watch?v=TTgnG7PCrXs>

Video Length: 07:32

Welcome back to the continuation of the module on building leadership capabilities in engineers, the introductory module. So far we have covered five sessions in this regard-building capabilities among engineers with relation to leadership. We have introduced the concept, we have talked about the importance of leadership, we discussed the meaning the process the functions of leadership, we also talked about the types of leaders-basically the three categories which Lewin has talked about. Today we will be talking about two more recently discussed styles of leadership. We will be talking about the recent developments and the recent discussions related to leadership. We will start with transactional leadership. You may look at this slide what it means. Transactional leadership is also known as managerial leadership. It is all about managing others using rewards and punishments. People with this style tend to prefer a great deal of structure with clearly defined roles and expectations. Here what is important is this clear definition of roles and expectations. So what are the characteristics associated with this style? Lots of instruction, clear expectations, clear goals, inflexibility, efficiency and a focus on rules. Once again with reference to our previous discussions of styles of leadership, even with this style of leadership, there are certain merits there are certain demerits. Let's first talk about the merits of this type of leadership. Transactional leaders usually lay out their rules and expectations. We have told this when we discussed about the characteristics. This itself will become a merit for the group. Each member of the group is given clear directions about what they should be doing, how they should be doing it, and when they should be done. You see a structure over here. The focus of this style is on making sure that things are completed correctly, on time, and according to the rules. Each of these words is equally important. Such leadership sees to it that the group achieves short-term goals quickly. Rewards and penalties are clearly defined for the employees in the organization. Because it is centred on productivity, efficiency, and safety this can be an effective style when used within a clear organizational structure. Everything has to be structured well and then this leadership style works very effectively. We talked about merits but then there are demerits as well for each style of functioning. It can be stifling in settings where employees feel micromanaged - they are very keenly managed. Rewards the worker on a practical level-money and perks can be external rewards. Creativity is limited because the goals and objectives are already set. There is a structured framework in which these people have the function - the employees have to function. It does not reward personal initiative and because the style is so focused on extrinsic motivation, with rewards and bonuses offered for meeting and also for exceeding goals, followers may not develop what is called intrinsic motivation. The motivation to function does not come from within, it is always externally oriented for their work. This brings us to the discussion on yet another style of leadership called Transformational leadership. Transformational leadership is characterized by high levels of motivation, inspiration and commitment. People with this leadership style take charge of the group by presenting a clear vision

of the outcome, display a great deal of passion for the work, and help group members feel inspired and committed to the goals. These are those exemplary leaders. People who have this characteristic style are often described as energetic, passionate, enthusiastic, trustworthy, creative, intelligent. All these qualities are seen in a transformational leader. As we have discussed with the other styles of leadership, even here we have merits and demerits. We will start with merits as we did with other styles of leadership as well. Transformational leaders are not only highly creative, they also inspire creativity in others. They are creative and they make others creative. They help others being creative, they inspire others to be creative. They offer support and guidance in order to help each member of the team achieve their fullest potential. Team members look to the leader as a role model. This is what differentiates this style of leadership from all the other styles that we have been discussing so far. Because of this followers tend to internalize the ideals of the leader and strive to emulate these qualities. Well the merits continue. The leader is excellent at communicating new ideas, is good at balancing short-term vision and long term goals as well, experience building strong coalitions and establishing mutual trust. They give trust, they demonstrate trust, they show trust, and they get trust. They have integrity and high emotional intelligence, they can empathize with the others. However, like for any style even this transformational style has certain demerits or limitations. It is ineffective in initial stage or in ad-hoc situations - not always transformational style can be helpful. It requires an existing structure in order to be functional. It's a bad fit in many bureaucratic structures. Once again an activity recommended to you may go through the videos related to transactional and transformational styles of functioning in leadership and then I also request you to ponder over a few points, there are very interesting studies with relation to what is called Milgram's experiment. I would request you to gather some information related to Milgram's experiment which talks about obedience in certain conditions. I would also request you to go through the fallacies of leadership. You will get information this in several sites I would request you to search and be informed about these two aspects as well. It may also be interesting to you to read certain recent analyses of leadership patterns. I have given you the sites you may go through them. Today on day six we have talked about two important recently discussed leadership styles. One is transactional leadership and the other is transformational leadership. This brings our module to a conclusion. We have talked about importance of leadership in the context of an engineer's profession and application of leadership skills; we have talked about meaning of leadership, the process, the functions, the types of leadership extensively. This concludes this module on building leadership capabilities in engineers. Thank you for being with us for these six days.



Week Six

Module 6: Effective Leadership- Models,
Traits and Qualities

Instructor's Name- Prof. G. Padmaja



Module Six

Lesson One: Introduction

Video url: <https://www.youtube.com/watch?v=Y-oX2hUETJA>

Video Length: 07:40

Welcome students. From our module No. 5 which talked about building leadership capabilities, among young engineers and engineering students, we now move on to module 6, which talks about steps toward effective leadership. In module No. 5, i.e. the previous module, we have talked about the meaning of leadership, the process of leadership and the functions of the leader. We also talked about certain styles of leadership. In this week, you will be in a position to understand and list out certain traits and qualities which are characteristic of leadership. We will talk about it from several perspectives. After listening to this module, you will be able to get an overview of a model of leadership. This module is also going to talk about, several approaches— especially, historically speaking, the previous approaches to leadership; in yet another module, we will be talking about more and more recent approaches. What would be the take away? You will note the qualities, traits, characteristics of effective leaders; you will also see how theories have been enlisting the traits and how theories have been perceiving the characteristics of the leader and how and what of leadership. You will also be describing a model leadership, in addition to that you will understand, you will describe, and you will differentiate certain theoretical perspectives to leadership.

So thus we start today, the first part which talks about the characteristics of leadership. What does leadership involve? Have a look at the slide. Leadership involves several aspects. It involves motivation, it involves group development and team work, it involves power, it involves conflict as well; it involves confrontation and negotiation, it involves effective communication, it involves critical thinking and problem solving. Some of these aspects have already been dealt with, by experts, as a part of this course. There are certain expectations about the characteristics of a leader. Let us list them out. Leaders are expected to be adaptable to situations, they are supposed to be alert toward social situations, they are expected to be cooperative, decisive, they are supposed to be dependable, they should be assertive, they should be confident, persistent, and they should possess knowledge. These are all the expectations about leaders. Thus there are certain abilities, which are supposed to be characteristic of leaders, let us look at them now - the characteristics. The ability to use power effectively - leadership involves power. Now, a leader acquires power by virtue of his appointment, it is a legitimate power - he is appointed as a leader. He achieves willing obedience by using one or more power bases like expert power, referent power, reward, coercive power, in several ways he can use his power. In addition to being able to use the power effectively, he or she should also have the ability to comprehend. They should understand people, their needs and their expectations. And this understanding and comprehension is a continuous process and it gives the leader the understanding of his subordinates and an ability to explore the situation to his advantage and get the organizational goal achieved. At the end of it, organizational goal is what is important! He should be able to inspire, and the ability to inspire is one of the characteristics expected out of a leader. Inspiration is best judged when subordinates work with zeal even in hopeless situations. He

must identify each individual's capabilities and skills, and should be able to inspire them. And inspiration emanates from a leader who may have charm, appeal and devotion to duty. Inspirations also come from charismatic personality of the leader. There are other abilities as well, which are required, which are expected out of a leader. He or she should develop a climate conducive to the response from employees. It should not be one way. We have talked about leadership styles in our previous module, where we said, there are certain types of leadership where responses from the subordinates or from employees, are not taken well. Yet another ability which is required is design and maintain an environment for efficient performance; identify motivational needs, desires of the subordinates, and workout a plan; include appropriate reward system, freedom of action in work environment, ensure that there is recognition and open communication system, and have an informal and cordial behaviour pattern among various layers of organizational structure and not develop something which is limited to himself or herself. In addition to that, they are expected to be participative, understand the problems of subordinates, empathize with them, work in an identical environment i.e. be able to understand the problems, and good and bad, the strengths and weaknesses of the subordinates or the employees as they do! Empathize with them, understand the environment, be in the environment, and be one with them. And also not show the signs of tiredness - a leader has to be energetic. He or she should be loyal to his subordinates and follow an appropriate leadership style, taking into consideration the organizational climate and the environment, and finally also follow a reconciliatory approach.

Thus we come to the expected tasks of a leader. A leader is expected to set direction - to the subordinates, the employees, to his team, which involves and includes mission, goals, and vision of the team, of the organization, of the individuals who are a part of the team. He is expected to build commitment - as a part of it, he should be able to motivate the employees, inspire them, the team cohesion will be strong when he is able to collectively motivate them and inspire them. Yet another task is confrontation of challenges; this needs innovation, being able to deal with change, sometimes being able to deal with resistance as well and take risks whenever necessary, wherever necessary.

So this brings us to the end of presentation. We have talked about what are the expected abilities, characteristics and the tasks of a leader, today. We will go to yet another presentation about how a person emerges as a leader, in the subsequent lecture.

Thank you.

Module Six

Lesson Two: What makes a person a leader?

Video url: https://www.youtube.com/watch?v=E_SyXsc-3k

Video Length: 10:24

Welcome back students, we are starting the second lecture on the module, towards effective leadership. Today we are going to talk about what makes a person a leader. In this regard, we will be talking about a particular model, which is called Leadership Challenge Model. This leadership challenge model, uses certain case studies, to examine what is called five practices of exemplary leadership and this has been researched and developed by Kouzes and Posner. What they did was, they surveyed by asking people, what do you do as a leader, when you are performing at your personal best? Over thirty years, they have done thousands of interviews and collected approximately 75,000 written responses. They identified five common concepts in this survey. They spoke about five practices, based upon these 5 common concepts. The first one is, Model the way; second one is, inspire a shared vision; third is challenge the process; fourth is, enable others to act; and fifth, encourage the heart.

We will talk more in detail about these five practices. Let us talk about each one by one. We will start with model the way. What is model the way? It encourages the leaders to behave the same way, they encourage others to behave i.e. a leader has to be a model. While he is telling someone he should behave in a particular way, he himself or she herself, shows how to behave in her action. So it is with their own voice and values, that they encourage their own behaviour, to be a model to the others to follow. Then the second is, inspire a shared vision. This focuses on developing a vision, and a series of goals, that everyone at the organization cares about, and works towards collectively with clear understanding. So, this vision has to be shared with everyone, everyone has to be involved in that shared vision. The third is challenge the process. This encourages, moving outside the boundaries, to be innovative to make change (what we today popularly call, the out of the box). Going out of the way sometimes and being different in thinking. The fourth is, enable others to act. This is trust based. It encourages leaders to create a safe and trusting environment for people, so that they collaborate, experiment, and engage in the whole process of doing things together collaboratively. Kouzes cites that, 'encourage the heart', is the most uncommonly seen in leadership roles. This concept focuses on being sincere, including sincere celebrations devoted to recognizing employee success, this should be more common too! According to Kouzes and Posner, leadership is learnt. It is not an inheritance. We will be taking about traits and inheritance of traits, shortly in terms of certain theories that we are going to present over the coming few lectures. Kouzes and Posner say that leadership is learnt. It is not an inheritance. They look at traits seen within introvert and extrovert personalities, and examine how they can be developed into leaders by using those skills. So whatever traits are seen even within the introvert and extrovert personalities, they need to be developed so that, using their own skills they become leaders. For example, extroverts lean towards sharing of their thoughts and ideas with energy to larger groups. On the other hand introverts tend to be more quiet and they usually believe in one-to-one sharing of their ideas and

engagement about ideas to the others. So, use these traits in order to develop them into leaders, utilize them to the best. That is the potential that they have and these are the features that they have. Now, use them to make them good leaders, is what the model says. A survey featured in the book written by them, shows that honesty is the most respected personality trait that a leader can have. And three additional traits that leaders around the world, according to them share are - forward-thinking, inspiration, and competency. These three are the other characteristics that leaders share. Then, coming to the work styles of the leaders according to this model, Kouzes and Posner, express an importance in having a shared vision for everyone on team or at one's organization. Staff will be more prone to feeling confident and motivated in their job, if this shared vision, which we have discussed a little while ago, is there. Then they also talk about symbolic language, like metaphors and storytelling as important components to leadership skills. In fact, they say it helps in persuasion and gathering buy-in. Positive thinking and expression, according to them is yet another concept, key concept—positivity can rub off on others around the leader, if the leader is positive, the others around him tend to be positive, leading to productivity and satisfaction. Charisma, honesty, being emotional all are also seen as good signs of leadership.

Now, I request you people, to do a small activity based upon whatever I have just told— a model. You can see it on net, I have given you the link, in Wikipedia you can find this. It would be interesting for you to read it.

Let us now also talk about certain other models, several other models which talk about leadership. There has been an extensive research as you see on the slide, on different leadership styles and behaviours; and researchers have presented leadership models, such as Directive Vs Participative Leadership, Consideration Vs Initiating structure, Autocratic Vs Democratic leadership, Task Vs Relations-oriented leadership. Some leaders may influence and create value through ideas, others through systems, these are all what researchers have to say, about different models of leadership and some leaders may influence and create value through their ideas, others through systems, and yet others through people. But, the essence is the same according to researchers. So, characteristics very commonly involved in the leadership are enlisted now. Early research evidence indicated that there are certain characteristics which are associated with effective leadership: they include optimism, hope, resiliency, emotional intelligence and self-efficacy. Self-efficacy refers to and the belief in the capability of self, that you can achieve things and you can do things, this becomes very important when it comes to leadership. From a psychological perspective, Self-efficacy is a very important trait, as important and sometimes in certain contexts becomes very very important, as along with the others. Then, researchers talk about, skills, required for a leader, as you see on this slide, those are technical skills, conceptual skills, and human skills; and we have been talking about a blend of all these in the previous module extensively.

Yet other researchers talk about certain more skills, for example, creativity, organizational skills, persuasiveness, diplomacy and tactfulness depending upon the context, depending upon the people, depending upon the situation; knowledge of the task, ability to speak well i.e. communication. There are certain competencies which are required of a leader, the drive, the inner motivation to pursue goals and then there is what is called the leadership motivation, which is the use of socialized power to influence others to succeed; Integrity is needed very much which includes truthfulness amidst the will to translate words into deeds; Self-confidence that leads others to feel confidence, usually exhibited through various forms of impression management, directed at employees. I am going to

mention a particular activity now; it refers to a questionnaire, which has been used long back, in order to identify certain features of a leader. I have mentioned it here, because you may find it interesting (the student's may find it interesting). You may look for web resources, for what is called, TP Leadership questionnaires.

In fact, TP here, refers to the task and person which we have talked about in our earlier lectures, and the reference is also given. I would also request you, to go through certain videos, the activities mentioned over there. One link has been suggested, you can follow many other links.

So now, today, thus far, you must have noticed the salient features related to a leader. Now, let us move on in the next lecture, to theories of leadership. I am going to talk about, leadership theories in the context of historical developmental proposition of these theories, over a period of time, how they have developed. This module, we will not be completely covering all theories of leadership till date, I will be covering till about 70s, 1970s. Thank you for the day. We will meet again.

Module Six

Lesson Three: Models and Theories of Leadership- Universalist Theories

Video url: <https://www.youtube.com/watch?v=nIn064tMH44>

Video Length: 07:14

Welcome, to the third lecture on, toward effective leadership. We are going to talk about Universalist Theories of Leadership today. On the whole, in this module, in the coming few days, we will be talking about three types of theories—Universalist theories, Behavioural theories, and Contingency theories. So, before actually going into discussion about Universalist theories, let us briefly look at how leadership research has emerged over a period of time. We will talk about these one by one now. Around 1900s, there was this trait approach, which has been discussed. And then over a period of time, behavioural perspective has emerged by the time, it is 1950s. And around 1960s, as you see, Fiedler’s contingency theory, which talks about enduring personality-like qualities has emerged. And later, in around 1970s, we have House’s Path-goal theory, which talks about behaviour as such. So, as you are seeing the four theories - around 1900 the trait theories; around 1950s the behavioural theories - which talk about tasks, which talk about people; around 1960s the Fiedler’s Contingency theory; around 1970s House’s Path-goal theory. So these were the theories which have emerged till 1970s. In today’s discussion, in the present module, we are going to cover, till Contingency theories. Let us start with Universalist Theory in today’s lecture. There was a search for one key characteristic, or a cluster of key characteristics held by effective leaders, and the argument was that leaders with these traits will be successful, regardless of the situation. So here the emphasis is on either one key characteristic or a cluster of key characteristics. Universalist theories represent the earliest and simplest approaches to the study of leadership. So today, we are going to deal with two of these theories - The Great Man or Woman Theory, and the Trait Theory. Let us start with Great Man or Great Woman Theory, for that matter. It reflects the belief that, ‘great leaders are born, they are not made’. It’s a belief that the personal qualities and abilities make certain great persons, natural leaders. So if historical leaders have to come to life again, then looks like they will become natural leaders once again owing to the traits that they have had. However, with this theory of the traits- a great man, or a great woman, there is little evidence actually, in order to support the theory. In certain countries, we see that, relatives - close relatives, or relatives of great leaders, are also put into positions of power. This actually may indicate that there is some general faith in this notion of what is called inborn leadership ability.

Then comes the trait theory; Traits, the definition is seen on this slide, they are consistent and enduring physical and personality attributes, which are associated with leader success. Much of this research involved identifying certain physical characteristics as well - height, appearance, energy level, all these have been considered. There are other characteristics according to researchers, such as intelligence, and the personality traits, like extroversion, dominance, or achievement, which were also associated with effective leaders, according to certain theorists. It was presumed, for example,

that those who were intelligent, extroverted, who are dominant are most likely to become good leaders. The results of these earlier studies were inconclusive according to some researchers, and they showed no solid evidence of any single trait common to all effective leaders. We do not see any one single trait which is common to all effective leaders, each leader, for that matter - behind his success there may be certain other traits, which may not be visible and common to everyone. Now let us go to this slide and see, how the trait approaches look at leadership! So leadership traits according to trait theory, as you see on this slide -, intelligence, dominance, self-confidence, energy level, task relevance, knowledge. It also includes drive, desire to lead, honesty/ integrity, self-confidence, cognitive ability, knowledge of the business. So these were the traits that were talked about, much talked about! Leaders are supposed to be bright, self-confident, high-energy people, who know something about the situation they are trying to affect and take control, when they must. If we put all these traits together, then this is what we may see. However, there is one more way of looking at it, leadership does not involve one trait, but a constellation of traits, i.e. a complex of traits put together. Research on more complex constellations of leader characteristics, like for example, as you see on the slide, flexibility, charisma, social intelligence, all together, suggest that possession of these complex traits, are important for leadership and these constellation of traits predict success. Let's take for example, leader flexibility. Leadership flexibility is not one single trait, it's a complex set of abilities to perceive and understand, the social situations, to communicate effectively, and to act wisely in a variety of social settings, according to these researchers. And it might be better termed as, social intelligence or social competence, according to some researchers. Every theory has its strengths and weaknesses; we have talked about what trait theories are, and how they present significant traits of leaders. However, there is a lot of criticism that these theories have gathered, the major problem with the original trait approach to leadership, was that it was too general. It's not that the same general traits are seen in every leader. It is unlikely that any one trait will be associated with effective leadership in all situations, not only all situations, but also all kinds of tasks, and among all groups. So we are talking about several components over here, the situations, the kind of situations, the kind of tasks, and the kind of followers. All these may bring a lot of variation, hence this general way of looking at traits, has not been acceptable by majority of people. So today students, we have seen Universalist Theories of leadership. In the next lecture, we will talk about, Behavioural Theories of leadership. So for today, thank you for being with us!

Module Six

Lesson Four: Models and Theories of Leadership- Behavioural Theories

Video url: https://www.youtube.com/watch?v=N9pOyqbm_VY

Video Length: 09:41

Welcome students, back to the module towards effective leadership. Today, we are going to talk about behavioral theories. In our previous lectures, we have talked about what are the different types of theories pertaining to leadership, and then how till 1970s the theories have emerged, and out of those theories we have talked one particular theory i.e. Universalist theory.

Now today we are going to talk about behaviourist theories. Now behaviourist theories are a little extensive, we are going to break behaviourist theories into two parts. A part of it I will cover them today and another part, i.e. the second part of the behaviourist theories we will deal with it in the next lecture. Now what are these behavioural theories of leadership? With regard to Universalist theories we have seen that the general kind of outlook that the theorists have proposed was not acceptable and was criticized. So this failure of Universalist theory has led to a change in the focus of the studies altogether. Now again the research has turned towards 'who are effective leaders? Earlier it was talked that those possessed these, these and these traits are effective leaders. But now are the people who possess such natural abilities are effective leaders? Or someone who is born with these natural abilities are effective leaders? Someone who possesses these natural traits are effective leaders? But now again the theory has turned towards who are effective leaders? And what are kinds of behaviour among them which lead to the success or which have led them towards the success path. In this there were two research projects which were done regarding leadership studies. One was conducted at Ohio state university and the other at the University of Michigan. Both of these have documented new research now at this point in time. So in today's lecture we are going to talk about the main findings of these studies, about Ohio state studies today and in the next lecture we will be talking about Michigan state studies. Let me tell you both these studies, both Ohio state studies and Michigan state studies have almost similar conclusions related to the leaders, concerning leaders, their behaviour and the effective leadership that they perform, and the effective leadership that they demonstrate. Theories based on these studies and focusing on the particular behaviours which were related to effective leadership are called, behavioural leadership theories. So let's start off with Ohio state leadership studies. So you may look at the slide. Using self-reports and detailed observations of leader behaviour both from the leaders themselves and their subordinates, the research team at this University accumulated a list of hundreds of leader behaviours. Then they used factor analysis and found that these hundreds of behaviour could be narrowed into two general categories. The first one is titled as initiating structure and the next one was consideration. So these two have evolved as major categories of behaviour. So what do these mean? We will start off with initiating structure. Initiating structure includes leader activities which define and organize or structure the work situation. They define the work situation; they organize the work situation and

thus bring a structure to the work situation. For example assigning specific tasks, defining work group roles, meeting deadlines, making task related decisions and maintaining standards of work performance. All these put together come into the picture of initiating structure.

Then the second one is consideration. This describes behaviour that shows a genuine concern, this is the important term over here, a genuine concern for the feelings, attitudes and needs of the subordinates by developing rapport with them and showing them mutual respect and trust. So consideration describes all these, consideration includes all these that I have just described. So behavioural theories talk about consideration behaviour which is concern for feelings and initiating structure which is defining roles and bringing a structure into the organization. For this they have used a questionnaire to assess employee perceptions of leaders and also the other way too. So this evolved two leadership forms i.e. consideration behaviour and initiating structure. A little more about consideration behaviour, it includes activities such as asking subordinates for their opinions and input, we're looking at the involvement of the subordinates over here, showing concern for the feelings of the workers, encouraging communication from and between subordinates, bolstering worker's self-confidence and job satisfaction and implementing their suggestions. All these become integral part of consideration behaviour. So the researchers of this University concluded that these two dimensions i.e. initiating structure and consideration were independent of each other. It is not necessary that these two are integrated; they may be independent of each other. Both categories of leader behaviour are associated with effective leadership in their own ways, but it is not necessary that they co-exist i.e. Initiating structure and consideration need not co-exist, they can be independent. In other words, some effective leaders are high on initiating structure alone and some others display only consideration behaviour but at the same time some people exhibit both as well. I repeat, some people may demonstrate only initiating structure or majority of their behaviour includes initiating structure, for some people majority of their behavioural patterns may include consideration. But for some people there may be these two together too. Please look at the slide, studies say that initiating structure has been correlated not only with effective work performance but also with lower group member job satisfaction and corresponding increases in turnover. You see that both can happen, there can be something which is very desirable which may happen, something which is desirable to the organization but when it comes to the individual level it may not be very desirable. So such things happen, thus work performance may increase but group member job satisfaction may not be that high. But at the same time, there may be an increase in turnover. On the other hand for consideration leader behaviour, researchers have shown that there is a positive correlation to job satisfaction but on the other hand it may be negatively correlated with work productivity. You can look at the slide, the diagrammatic representation. There are two leadership behaviours which have been identified, initiating structure and consideration and then they have used two types of questionnaires. They developed two types of questionnaires to assess leadership behaviour. One was LBDQ i.e. leader behaviour description questionnaire and this measured subordinates perception of leader behaviour. On the other hand there was LOQ i.e. leader opinion questionnaire which measured leader perception of his own style. Later on after the findings have been open to all, then a meta-analysis of many studies which have been done over a long period of time suggested that both initiating structure and consideration are related to both performance and group member satisfaction in the expected relationships. So it's not that any one of them alone is related, but both are related in their own ways. So consideration was more strongly related to satisfaction, initiating structure was more strongly related to performance. So these have been the

results of studies which have been done later. Now just as we had strong criticism for Universalist theories in the previous lecture, there is also some criticism about behavioural theories as well. Especially with Ohio State University findings, though this particular research has stimulated a great deal of research of effective leader behaviours, it also like Universalist theories has been branded to be too simplistic. Then two categories of leader behaviours may or may not be related to certain indicators of leader effectiveness. This theory falls short when it comes to making firm predictions about the relationships between leader behaviours and specific work outcomes in all types of working situations. So students, today we have discussed about certain aspects of behavioural theories of effective leadership. In the next lecture, we will be discussing about the next part of behavioural theories as part 2. Today we have talked about Ohio state studies and in the next lecture we will be talking about Michigan state studies which are a part of Behavioural theories. Thank you for being with us. We will meet again in the next session.

Module Six

Lesson Five: Models and Theories of Leadership- Behavioural Theories (contd.)

Video url: <https://www.youtube.com/watch?v=wu1y3sUble8>

Video Length: 09:10

Welcome back students to module number 6 - Towards effective leadership. Today we are going to talk about the second part of behavioural theories. In our previous discussion, we started talking about behavioural theories and we have talked about Ohio State University research and the findings. Today we are going to talk about the Michigan State University studies and the findings and the discussion about that. Around the same time as Ohio State studies, at the same time they were conducted, researchers at the University of Michigan were also focusing on the behaviours which were characteristic of effective leaders and they came up with more or less similar results. Studying leaders in a number of large industrial organizations, the Michigan researchers found that the successful leaders tended to exhibit patterns of behaviour that were labelled by them as task oriented, which is sometimes also called as production oriented and the second one is relationship oriented which is also referred to as employee oriented.

Let us go one by one. We talked about two types of behavioural patterns; one is task oriented and second is relationship oriented. So task oriented behaviours are concentrated on performing the job that the work group faces and thus are similar to those of the initiating structure factor. I recall your memory to Ohio state studies where we talked about initiating group structure in Ohio state studies. Now the leader here is concerned with setting work standards, supervising the job and meeting the production goals. On the other hand there is this what is called as relationship oriented behaviours which include showing concern for employees' wellbeing and involving them in decision making processes. May I ask you what this reminds you from Ohio State Universities research? I hope you know the answer. Now let us look at a diagrammatic representation of University of Michigan studies. As you're seeing the University of Michigan studies indicate two types of leadership behavioural patterns. One is employee centred and the other one is production centred and leaders under employee centred behavioural pattern they are interested in subordinates as people. Encourage worker participation in the organizational goal setting pattern and leaders in production centred behavioural pattern emphasized technical aspects of the job, set job standards and close supervision of subordinates is done over here. So in 1940's the leadership effectiveness was dependent upon leader behaviour and then Michigan studies surfaced two forms of leader behaviour: job centred or production centred and employee centred and an attempt was made to balance task and relationship emphasis over here.

Now moving on from here, we will talk about what is called Managerial or Leadership grid. This was developed by Blake and Mouton. Two dimensions which were similar to Michigan or Ohio state studies are looked at in this. There is a concern for subordinates and there's a concern for

production or results. And there's what is called as a 9,9 which is the ideal team approach on grid balance of task and relationship. We will be seeing a diagrammatic representation of this shortly. This research influenced the modern Contingency approaches that we are going to talk about shortly. So students you are able to see the grid that I have talked about over here. You see that there's a concern for results and there is a concern for people. So when you are low on concern for people and concern for results then you are placed over here. If you're high on concern for results but low on concern for people then you are placed here. You may be high on concern for people but low on concern for results then you're placed here. However the ideal situation is high concern for people and high concern for results. This is the most ideal kind of situation. Very often people balance somewhere here on the average. That's how there may be a low task low relationship orientation, we have seen it here 1 and 1. There may be high relationship low task orientation. There may be high task but low relationship orientation; there may be high task high relationship orientation which we have seen here. So these are the four leadership styles which Mouton and Blake have talked about in their model. Expanding upon the same, the picture here shows the interpretation; if we look at concern for production over here and concern for people over here, remember the 1.1 i.e. low concern for people and low concern for production then there is impoverished management. So this 1 and 1 or impoverished management it shows an exertion of minimum effort to get work done as appropriate to sustain the organizational membership. So this 1.1 which I have talked to you about in the earlier slides over here the same 1.1 now I am showing it to you in a diagrammatic detailed form. It's called impoverished management and then you may be high on concern for production but low on concern for people which brings you to 9.1, so this is called authority compliance management, only production or task is emphasized upon whereas people are not concerned about. On the other hand you may have high concern for people but then low concern for task and this is called country club management. On the other hand the ideal situation that we have been talking about, the 9.9 i.e. high on concern and high on production orientation together, this is called team management. However there is something called a middle of the road management which is 5.5. Everything is average over here.

The primary difference between the Ohio State University and University of Michigan studies was that Michigan University studies have considered relationship oriented leader behaviour to be more effective than task oriented behaviour. The findings of one the most famous studies on the Michigan University studies has indicated that both task oriented and relationship oriented behaviour patterns were positively related to work group performance. However, subordinates of relationship oriented leaders tended to be more satisfied, had lower turnover rates than employees who were managed by task oriented leaders. Now this study, I recall your attention to what we have talked about in Ohio state studies as well. There were similar results which studies have shown. Now let's go for evaluation of Behavioural theories of leadership. Overall the initiating structure of Ohio state studies is the task orientation of Michigan state studies and consideration behaviour of Ohio state studies has been relationship orientation in Michigan state studies. So these seem to be reliable dimensions in describing leadership behaviour in both the studies. The two dimensions represent very different types of leader behaviour yet both have been linked to effective leadership. If we believe the Universalist contention that there is one set of effective leader characteristic or one best leadership style, then such divergent leader behaviours simply cannot represent a single effective leader. In other words, a task oriented leader might be effective in certain situations under specific circumstances. A relationship oriented leader might be effective in yet another situation. I would

recommend that you watch certain videos which are available on net to understand this theory of leadership better. I have given you one link; in addition to that I will also request you to identify the relevance of the findings of these studies which we have discussed as relevant to Indian settings. That brings us to the conclusion of the lecture. We have talked about the second part of Behavioural theories and in the next lecture we will be talking about Contingency theories. Thank you.

Module Six

Lesson Six: Models and Theories of Leadership- Contingency Approaches

Video url: <https://www.youtube.com/watch?v=2LsmyV7uQKw>

Video Length: 14:52

Welcome students, to the last lecture is on module number 6 - Towards effective leadership. And today I will be concluding this module by talking to you extensively about contingency approaches. If you recall in our previous lectures, we have talked about three types of approaches till 1970's. We have talked about trait theories, we have talked about Behavioural theories and now we are going to talk about Contingency approaches. This module thus is a summary of broad approaches towards effective leadership, so the last being these Contingency approaches that we are going to discuss today. Among contingency approaches we are going to talk about Fiedler model, Situational theory and Path-Goal theory. We will start with Fiedler's model. Fred Fiedler developed the first comprehensive contingency model of leadership. So this model proposes that effective group performance depends upon the proper match between the leader's style and the degree to which the situation gives the leader control. So the situation has also to give the leader enough control. So contingency approaches you may see as we pass through these models that I am talking about, you will see that these are the approaches which seek to delineate the characteristics of situations. That's how Fiedler talked about situation. So contingency approaches talk about characteristics of situations and followers and examine the leadership styles that can be used effectively. Following these, Fiedler's contingency model was a model designed to diagnose whether a leader is task oriented or relationship oriented and match leadership style to the situation.

So how do you identify the leadership style? For this Fiedler believes a key factor in leadership success is the individual's basic leadership style. How do you identify a leadership style, that's what we are going to discuss from Fiedler's point of view today. He created what is called a least preferred co-worker (LPC) questionnaire. We will call it LPC questionnaire from hereafter. I recall to your memory that LPC is least preferred co-worker. He used this to identify that style of leadership by measuring whether a person is task or relationship oriented. So this LPC questionnaire asks respondents to think of all of the co-workers they have ever had and describe the one they least enjoyed working with, by rating that person on a scale of 1 to 8 for each of 16 sets of contrasting adjectives. So 16 sets of contrasting adjectives are given, for example - pleasant/ unpleasant, efficient/inefficient, open/guarded, supportive/hostile. These opposite meaning adjectives are provided and they have to rate them on a scale of 1 to 8 among these. Let us say you have taken a questionnaire and you have rated your co-workers. If you describe the person you are least able to work with in favourable terms i.e. a high LPC score is there, then Fiedler would label you as 'relationship oriented'. On the other hand if you see your least preferred co-worker in unfavourable terms, which means a low LPC score, then you are primarily interested in productivity and are 'task

oriented'. Fiedler assumes an individual's leadership style is fixed. This means if a situation requires a task oriented leader and the person in the leadership position is relationship oriented, either the situation has to be modified or the leader has to be replaced in order to achieve optimal effectiveness. Defining the situation, that becomes important now. After assessing an individual's basic leadership style using this LPC questionnaire, Fiedler matches the leader with the situation. We have talked about leader so far, now the situation.

What Fiedler identified was three contingency or situational dimensions. One is leader member relations, second is task structure and third is position power. Let's talk one by one. Leader-member relations is the degree of confidence, trust and respect the members have in their leader. That signifies leader member relations. Task structure on the other hand is the degree to which the job assignments are structured or unstructured. On the other hand there is this position power and this is the degree of influence a leader has over power variables such as hiring, firing, discipline, promotions, salary increases all these are where a leader can demonstrate his power. Then after understanding the situation the next step is to evaluate the situation in terms of these three variables. So here Fiedler states that better the leader member relations, the more highly the job is structured and the stronger the position power then more control the leader has. Look at the relationship. We have talked about Fiedler's model so far. Let's talk about Situational Leadership theory which is called SLT. Hereafter we will be terming it as SLT. Successful leadership depends upon selecting the right leadership style contingent on the follower's readiness or the extent to which they are willing and able to accomplish a specific task. Look at the follower's readiness which is being emphasized over her. A leader should choose one the four behaviors which we are going to talk about depending upon follower readiness. Please note the highlighted words from among whatever I am going to talk. If followers are unable and unwilling to do a task, then the leader needs to give clear and specific directions. If the followers are unable but willing, the leader needs to display high task orientation to compensate for followers lack of ability and high relationship orientation to get them to buy into the leader's desires. If followers are able and unwilling, the leader needs to use a supportive and participative style. If they are both able and willing, the leader doesn't need to do much. So you see that depending upon the followers is unable and unwilling, unable and willing, able but unwilling, able and willing. Four combinations have been discussed. So you see the SLT, Hersey and Blanchard's situational theory of leadership. You see that follower characteristics are given on the left side and appropriate leader style is diagrammatically represented. When there is low readiness level then the relationship has to be high task and low relationship. When there is moderate readiness level, it has to be a selling style i.e. high task and high relationship. When there is a high readiness, participative leadership as to be shown, low task and high relationship and when very high readiness level is seen, delegating style has to be used i.e. low task low relationship. If you remember all these styles of relationship have been discussed in the previous module. So depending upon the individual followers, the leadership style has to be tailored according to this theory. Once again, the diagram shows that there is a follower directed, and a leader directed style depending upon the follower readiness. When the followers are able and willing or confident there is one particular style, able but unwilling or insecure, able but willing or confident, and unable and unwilling or insecure. So here it will be leader directed and here it will be follower directed.

Then comes the Path-Goal theory, the next theory. The Path-Goal theory extracts elements from Ohio state leadership research on initiating structure and consideration. I recall your attention to the terms that we have used in Ohio state study when we have discussed Ohio state study. So initiating

structure and consideration, and in addition to that there is expectancy theory of motivation which also this theory has used. It is the leader's job to provide followers with information, support or other resources necessarily in order that they achieve their goals. The term Path-Goal, the very term Path-Goal implies effective leaders clarify follower's paths to their work goals and make the journey easier by reducing roadblocks. There are four leader behaviours that path goal theory talks about. Directive leadership - where the leader gives specific guidance and direction, Supportive leadership - where the leader provides assistance, Participative leadership - where the leader is hand in hand with subordinates and Achievement oriented relationship - where sets challenging goals and has high expectations. Basic style usually is to adapt to the participative leadership style according to certain studies. Whether a leader should be directive or supportive or should demonstrate any other behaviour it depends upon a complex analysis of the situation. So situation comes into the picture over here. In fact the situation predicts the style of the leadership. For example directive leadership yields greater satisfaction when the tasks are ambiguous or stressful, than when they are highly structured and well laid out. If they are well structured and well laid out there is no need for direction, when they are ambiguous there is need of directive leadership. On the other hand supportive leadership results in high performance and satisfaction when employees are performing structured tasks. When this task is anyways structured then the leader needs to provide a supportive role. Directive leadership is most likely to be perceived as redundant among employees with high ability or considerable experience. If they already have a lot of experience then they may not require a directive leadership. So let's look at a diagrammatic representation of path goal theory. You see that there is leadership behaviour which may be directive, which may be supportive, participative or achievement oriented. What is important is subordinate characteristics and of course the task characteristics. And subordinates when they are motivated enough, they reach the goals and productivity increases. So you see that there is a common stream running through as the arrow indicates over here. So the leadership behaviour, the subordinate characteristics and the task characteristics together have an influence on subordinates when they are enough motivated then goals and productivity increases. So path goal theory in summary has been developed by Evans and House and it talks about adapting leadership to the situation, a leader can impact performance of others by offering paths to desired goals and rewards are contingent on increased performance. A diagrammatic representation once again over here. You see the situation, there is leader behaviour, there is impact on follower and what will be the outcome. We will go stepwise. Let's talk about the followers who lack self-confidence. So what is to be attained over here? Supportive leadership, supportive leadership is the most relevant over here because it provides an increase in confidence to achieve work outcomes. And then the outcome is increased effort, improved satisfaction, improved performance. Similarly let us look at ambiguous job, when there is an ambiguous job the best style of leadership would be directive relationship. This leads to clarity in path to reward and this once again results in outcome of increased effort, improved satisfaction and improved performance. On the other hand, let us once again look at yet another situation. Lack of job challenge, then the leader behavior would be achievement oriented leadership and then the impact on the follower would be that the leader would set and strive for high goal and the outcome is increased effort, improved satisfaction and improved performance. On the other hand there may be a situation where there is incorrect reward then the leadership would be participative leadership and this would clarify the follower's needs to change reward and once again the outcome would be is increased effort, improved satisfaction and improved performance.

Let us compare and contrast the Universalist theories which we have talked about quite a while ago in this module and the contingency approaches that we have just talked today. Universalist approach talks about the leadership traits/ behaviours and its outcomes talk in terms of performance, satisfaction and others. Let's now look at how contingency approach views it. It talks about the follower characteristics as well. The style, the traits, and behaviour position of the leader and the needs, maturity, and training and cohesion of the followers. On the other hand there is this task structure which talks about the systems, the environment and the situation and finally these three put together determine the outcomes in terms of performance, satisfaction etc. So in this module, we have covered three types of theories. We started with Universalist theory, and we talked about Great man or woman theory and Trait theory, we talked about Behavioural theory where we talked about Ohio state studies and, Michigan state studies. In addition to that we talked about Managerial or Leadership grid. Then we also talked about Contingency approaches and thus we have talked about leadership theories from three points of view. Now as engineering students try to apply this in the context of your work situations, whether your traits, whether your natural abilities, whether your behaviour or the situation-follower characteristics, and the task structure - together contribute to the effectiveness of the leadership. Thank you for being with us. We have completed two modules on leadership. Thank you.



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